From: Levesque, Eric J. (DH/MS)
To: Hendriks, Edouard (HorizonNB)
Subject: FW: Attention:21(1) /from 21(1)
Date: January 15, 2021 8:42:00 AM

Édouard,
As-tu une suggestion quant au meilleur endroit où on devrait référer cette demande de 21(1)

From: Muecke, Dr Cristin (DH/MS)
Sent: Friday, January 15, 2021 7:44 AM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Subject: RE: Attention:21(1) /from 21(1)
Is this going to be referred to employee health?

From: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Sent: January 14, 2021 8:48 PM
To: 21(1) @nbms.nb.ca>
Cc: 21(1) @nbms.nb.ca>; Liston, Heidi (DH/MS) <Heidi.Liston@gnb.ca>; Higdon, Penny (DH/MS) <penny.higdon@gnb.ca>; Muecke, Dr. Cristin (DH/MS) <Dr.Cristin.Muecke@gnb.ca>; Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>
Subject: RE: Attention:21(1) /from 21(1)
Hi 21(1)
We will make sure he gets a response to his inquiry.
Éric

From: 21(1) @nbms.nb.ca>
Sent: Thursday, January 14, 2021 4:11 PM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Cc: 21(1) @nbms.nb.ca>
Subject: FW: Attention:21(1) from 21(1)

ATTENTION! External email / courriel externe.

Hi Eric,
Just forwarding an email from one of our SJ physicians. If at all possible, could he be expedited for the COVID vaccine? He has tried to communicate with the Minister and Dr. Russell.
Thanks in advance, 21(1)

From: 21(1)
Sent: January 14, 2021 3:03 PM
To: Info <Info@nbms.nb.ca>
Subject: Attention:21(1) /from 21(1)
January 14, 2021
Hi 21(1)
Here is a copy of the e-mail I sent January 13, 2021 to Dr. Jennifer Russell. It received an automated message saying she was busy and unable to answer it but I could refer to some government website for non helpful/inadequate information. Hence, it is likely my letter went to a “proverbial black hole” and will never be answered unless you know how to get it to someone to receive meaningful

attention. Your assistance is greatly appreciated.
Many Thanks,
21(1) [redacted]

January 13, 2021
Hi there,
Just a quick note to ask a question. I am a family physician with a very large practice (more than 5000 active patients), in Saint John. I have not heard anything about Covid vaccinations here and I have talked to many colleagues (other Docs and nursing friends) who are questioning the same and quite frustrated. I am 21(1) [redacted] physician and 21(2)(a) [redacted] In any case, I am at high risk of complications/death since I am primary care physician/health worker (and perhaps suffered/suffering "long-Covid") and have heard nothing about Covid vaccination for myself or other colleagues who are also, at risk. I sent a letter to Dorothy Shepherd 3 weeks ago but never received any answers?! I was wondering if you would share any pertinent and timely information or who I should contact and when Saint John front-line health workers with co-morbidities can expect to be vaccinated (at least the first dose)??
Many Thanks,
21(1) [redacted]

From: Leger, Dr. Yves (DH/MS)
To: (DH/MS)Regional MOH
Subject: FW: Long COVID
Date: April 18, 2022 10:04:29 PM
Importance: High

To discuss in the coming day or two…hoping to have one or more of you interested in taking this on as I won't have time.

Yves

Dr. Yves A. Leger, MD, MHSc, FRCPC
Acting Deputy Chief Medical Officer of Health
Medecin-hygeniste en chef ajoint par interim

N.B. Department of Health / Ministère de la Sante du N.B.

From: Elliott, Jennifer (DH/MS) <Jennifer.Elliott@gnb.ca>
Sent: April 18, 2022 9:57 PM
To: McGowan, Joan (DH/MS) <Joan.McGowan@gnb.ca>; Leger, Dr. Yves (DH/MS) <Yves.Leger@gnb.ca>
Cc: Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>; Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>
Subject: Long COVID
Importance: High

Good evening Yves and Joan;

Reaching out this evening to ensure we have on the agenda this week the possibility of one or two of the RMOHs and SPAs taking on a medical review of Long COVID. We need to provide some general information to primary care providers for general knowledge and then as a province look at how we support and manage care for those that require it. The last part will require a multi-system and departmental approach to achieve.

Below is a summary of current Post-COVID resources received from CADTH.

- Post-COVID Condition Level Review General Landing Page
- Horizon Scan, September 2021: *An Overview of Post–COVID-19 Condition (Long COVID)*
- Preliminary Scoping Summary for CLR, September 2021: *Scoping Summary - A Condition-Level Review on Post-COVID 19 Condition (Long COVID)*
- Scoping Review - Project Protocol: *Clinical Classification and Clinical Interventions for Post–COVID-19 Condition: A Scoping Review - Project Protocol*
- CADTH Webinar, October 2021: The Implications of Long COVID
- CADTH News Release, December 2021: New CADTH Review Aims to Help Health Systems Understand and Manage the Long-Term Impact of Post–COVID-19

Condition

- *Hospital News* article, January 2022: *Long COVID and what it means for a struggling health care system*

Eric and Dr Russell have also been invited to an upcoming Long COVID event CADTH is planning.

Thanks all, hope everyone had a great weekend.

Jennifer Elliott
Assistant Deputy Minister/Sous-ministre
NB Department of Health / Ministère de la santé du Nouveau-Brunswick
Phone / Téléphone : 506-470-1122
E-mail / Courriel : jennifer.elliott@gnb.ca
www.gnb.ca

From: Levesque, Eric J. (DH/MS)
To: Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca)
Subject: COVID treatment and prevention - CADTH meeting representation

---

Jennifer,

Need to discuss who we want to have attend the CADTH-sponsored Long COVID meeting. Invite will be sent to Dr. R and myself, but I'd like to discuss who should be the reps for DH.

Éric

Microsoft Teams meeting

Join on your computer or mobile app

Click here to join the meeting <https://teams.microsoft.com/l/meetup-join/19%3ameeting_MjRlMTI2NWItYjkxZC00YzhkLWJlM2YtOGMwZTVhMWY1ZmE4%40thread.v2/0?context=%7b%22Tid%22%3a%22e08b7eef-b501-4a67-9ed0-07e38bfccee7%22%2c%22Oid%22%3a%22681992dd-717c-4f3b-a37b-f286a8f10e70%22%7d>

Learn More <https://aka.ms/JoinTeamsMeeting> | Meeting options <https://teams.microsoft.com/meetingOptions/?organizerId=681992dd-717c-4f3b-a37b-f286a8f10e70&tenantId=e08b7eef-b501-4a67-9ed0-07e38bfccee7&threadId=19_meeting_MjRlMTI2NWItYjkxZC00YzhkLWJlM2YtOGMwZTVhMWY1ZmE4@thread.v2&messageId=0&language=en-US>

From: Levesque, Eric J. (DH/MS)
To: Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca); Leger, Dr. Yves (DH/MS)
Cc: St. Pierre, Jessica (DH/MS)
Subject: FW: CADTH Post-COVID-19 Virtual Roundtable - June 1, 2022
Date: April 29, 2022 4:34:00 PM
Attachments: CADTH Roundtable Agenda.pdf
image001.png

For discussion re: DH representation some time next week.
Jessica, please schedule a time for this. Thanks.
Éric

From: 21(1) @cadth.ca> **On Behalf Of** 21(1)
Sent: Friday, April 29, 2022 4:26 PM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Cc: 21(1) @cadth.ca>
Subject: CADTH Post-COVID-19 Virtual Roundtable - June 1, 2022

Please note, French email to follow.
Dear Eric,
We are pleased to invite you to attend a virtual roundtable that will be hosted by CADTH **from 11:00 a.m. to 4:00 p.m. EDT** on **June 1, 2022**. This roundtable will convene and connect pan-Canadian stakeholders involved in the funding, planning, and implementation of post–COVID-19 condition ("long COVID") models of care. With the vast numbers of COVID-19 cases in Canada, estimates are that up to 500,000 Canadians may be living with or may develop post–COVID-19 condition. This novel condition presents unique challenges for health systems to ensure effective, safe, and equitable care amid an emerging evidence base. The roundtable aims to:

- increase awareness of evidence pertaining to post–COVID-19 condition and emerging models of care as well as health system–related challenges
- highlight examples of early Canadian jurisdictional experiences in developing models of care for post–COVID-19 condition
- facilitate connectivity between pan-Canadian stakeholders and discussion of options for future collaborations and coordination.

You have received this invitation because you have been identified as a key leader in your jurisdiction and we value your input and perspectives relating to COVID-19 and post–COVID-19 condition planning. At this roundtable, you will learn alongside your colleagues how best to ensure sustainable, efficient patient-centred models of care based on early experiences and emerging evidence. Attendees will represent federal, provincial, and territorial ministries of health, public health, jurisdictional health service–delivery organizations, and people living with post–COVID-19-condition.
A summary of these roundtable discussions, including any identified priorities, next steps, and needs, will be provided to attendees and jurisdictional ministry of health leads after the event.
Please RSVP to 21(1) **@cadth.ca) no later than May 9, 2022.** An email invitation with the zoom link, agenda, and suggested readings will be provided to you in advance of the meeting.
The roundtable agenda is attached to this email to provide an overview of the presentations and discussions you can anticipate for the day.
Should you have any questions or require further information, please feel free to contact CADTH at any time.
We look forward to seeing you there.
Sincerely,
21(1)
CADTH
Email: 21(1)
Ottawa: Located on the traditional, unceded territory of the Algonquin Nation

CADTH Virtual Roundtable on Post–COVID-19 Condition Models of Care
June 1, 2022

Meeting Objectives

- Increase awareness and understanding of evidence related to post–COVID-19 condition models of care and service delivery (e.g., Décary et al. (2021) living systematic review, WHO guidelines and framework, and relevant elements of the CADTH scoping review that is in progress).
- Increase awareness of pan-Canadian initiatives related to the planning, development, and implementation of models of care and service delivery for the post–COVID-19 condition patient population.
- Facilitate connections among those currently working on the funding, planning, development, implementation, and/or evaluation of models of care and service delivery for the post–COVID-19 condition patient population across Canadian jurisdictions.
- Create opportunities for identification of emerging evidence needs related to post–COVID-19 condition models of care and service delivery and/or other post–COVID-19 evidence topics.

Agenda	
Introductions	21(1) [redacted]
Presentation: What Is Post–COVID-19 Condition?	**Dr. Angela Cheung**
Presentation: Post–COVID-19 Condition — Perspectives and Experience	**Dr. Anne Bhéreur**
Discussion: Current State of Post–COVID-19 Across Canadian Jurisdictions	
Presentation: Models of Care Related to Post–COVID-19 Condition — Evidence and Guidelines	**Dr. Simon Décary**
Presentation: Early Experiences in Developing and Implementing Models of Care for Post–COVID-19 Condition	**Dr. Adeera Levin (BC)** **Dr. Chester Ho (Alberta)**
Discussion: Implementation Challenges, Opportunities, and Enablers — Next Steps	

From: Levesque, Eric J. (DH/MS)
To: 21(1)
Cc: Brien, Dr. Susan (HorizonNB); Legacy, Stephane (VitaliteNB)
Subject: CADTH Virtual COVID Roundtable
Date: May 19, 2022 1:46:00 PM
Attachments: image001.png

Hi 21(1)

The following 2 individuals will be our participants from NB at the CADTH Virtual COVID Roundtable :

- Dr. Susan Brien, Vice-President of Medical, Academic and Research Affairs, Horizon Health Network, Susan.Brien@HorizonNB.ca
- Mr. Stéphane Legacy, Vice-President of Outpatient and Professional Services, Vitalité Health Network, Stephane.Legacy@VitaliteNB.ca

As indicated earlier, I will be the 3rd participant from NB. Thanks again for helping to secure the additional seat.

Regards,

Éric Levesque
Acting Assistant Deputy Minister / Sous-ministre adjoint par intérim
Health Services and Programs / Services et programmes de santé
Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783
E-mail / Courriel : eric.j.levesque@gnb.ca
www.gnb.ca

From: 21(1) @cadth.ca>
Sent: Friday, May 13, 2022 8:30 AM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Subject: FW: RSVP/Regrets from Dr Jennifer Russell for CADTH Virtual Roundtable

ATTENTION! External email / courriel externe.

Good morning Éric,

Just sharing this along to confirm that we received regrets from Dr. Jennifer Russell for the Long COVID Roundtable event.

We assume that you will be using this seat as one of your 3 in total for NB. We'll await confirmation re attendees following your meeting with the RHAs next week.

Thanks and Happy Friday,

21(1) [redacted]

CADTH / ACMTS

Canada's Drug and Health Technology Agency

L'Agence des médicaments et des technologies de la santé au Canada

CADTH endeavours to provide credible sources of information, in particular available evidence from recognized Health Technology Assessment (HTA) organizations, where available, as an added support to our customers. No official endorsement of this information by CADTH is intended as a result of this message.
L'ACMTS s'efforce de fournir des sources fiables et crédibles d'information, particulièrement en ce qui a trait aux preuves produites par des organismes reconnus d'évaluation des technologies de la santé (ETS), lorsque disponibles, pour offrir un meilleur appui à ses clients. Cet avis ne signifie pas que l'ACMTS endosse officiellement l'information fournie et n'engage aucunement sa responsabilité.

From:	Levesque, Eric J. (DH/MS)
To:	Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca); Foley, Gary (HorizonNB); Banville, Natalie (VitaliteNB)
Cc:	Susan Brien (HorizonNB) (Susan.Brien@HorizonNB.ca); Legacy, Stephane (VitaliteNB)
Subject:	FW: CADTH Virtual COVID Roundtable
Date:	May 19, 2022 3:43:00 PM
Attachments:	image003.png image001.png

Passing along additional information from CADTH that may be helpful in relation to our discussion yesterday - see below.

Éric Levesque
Acting Assistant Deputy Minister / Sous-ministre adjoint par intérim
Health Services and Programs / Services et programmes de santé
Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783
E-mail / Courriel : eric.j.levesque@gnb.ca
www.gnb.ca

Éric

From: 21(1) [redacted] @cadth.ca>
Sent: Thursday, May 19, 2022 3:40 PM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Cc: Brien, Dr. Susan (HorizonNB) <Susan.Brien@HorizonNB.ca>; Legacy, Stephane (VitaliteNB) <Stephane.Legacy@VitaliteNB.ca>
Subject: RE: CADTH Virtual COVID Roundtable

Thanks Éric – and thank you all for your interest and engagement with this work. I will pass your names & contact information (as the 3 confirmed NB attendees) to the Roundtable Leads who will keep everyone posted on details for the event.

On a related note, as previously shared CADTH is conducting a Condition Level Review on Post–COVID-19 (or "Long COVID"). A "Condition Level Review" is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of the condition, including prevention, identification, treatment and management.

You can access CADTH's full collection of content related to Long COVID here -- the most recent being the full scoping review that was just completed; 892 studies were found and included. The objective of the scoping review was to characterize the current evidence landscape on post–COVID-19 condition and to identify evidence gaps. Key messages from the review are pasted below. Based on these findings and input from our customers (like yourselves) we may pursue some of those

identified topics for more indepth rapid reviews, etc. I believe this work may also be shared as part of the Roundtable. Nevertheless, if you have any questions or specific evidence needs, please don't hesitate to touch base at any time.

Key Messages [from Scoping Review]

• Most of the identified published research focused on characteristics or outcomes of having post–COVID-19 condition (e.g., symptoms, quality of life) or predictors for developing post–COVID-19 condition. There were fewer studies related to preventing post–COVID-19 condition or treatments. Ongoing studies, according to published protocols, will investigate interventions to prevent or treat this condition.

• Notable evidence gaps included post–COVID-19 condition as it relates to people living in rural or remote areas, children and adolescents, and vaccination status. There were few economic studies, qualitative studies, and studies assessing health systems issues.

• Most identified guidelines regarding the diagnosis, treatment, and management of post–COVID-19 condition, including all Canadian guidelines, provided limited guidance specific to patients meeting the WHO definition. These guidelines will need continual updates as new evidence emerges.

Thanks again,

21(1) [redacted]

CADTH / ACMTS

Canada's Drug and Health Technology Agency | L'Agence des médicaments et des technologies de la santé au Canada

---

From: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Sent: May 19, 2022 1:47 PM
To: 21(1) [redacted]@cadth.ca>
Cc: Brien, Dr. Susan (HorizonNB) <Susan.Brien@HorizonNB.ca>; Legacy, Stephane (VitaliteNB) <Stephane.Legacy@VitaliteNB.ca>
Subject: CADTH Virtual COVID Roundtable

Hi 21(1) [redacted]

The following 2 individuals will be our participants from NB at the CADTH Virtual COVID Roundtable :

- Dr. Susan Brien, Vice-President of Medical, Academic and Research Affairs, Horizon Health Network, Susan.Brien@HorizonNB.ca
- Mr. Stéphane Legacy, Vice-President of Outpatient and Professional Services, Vitalité Health Network, Stephane.Legacy@VitaliteNB.ca

As indicated earlier, I will be the 3 participant from NB. Thanks again for helping to secure the additional seat.

Regards,

Éric Levesque

Acting Assistant Deputy Minister / Sous-ministre adjoint par intérim
Health Services and Programs / Services et programmes de santé
Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783
E-mail / Courriel : eric.j.levesque@gnb.ca
www.gnb.ca

Improving the lives of New Brunswickers every day. / Améliorer la vie des Néo-Brunswickois au quotidien.

From: 21(1) [redacted] @cadth.ca>
Sent: Friday, May 13, 2022 8:30 AM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Subject: FW: RSVP/Regrets from Dr Jennifer Russell for CADTH Virtual Roundtable

ATTENTION! External email / courriel externe.

Good morning Éric,

Just sharing this along to confirm that we received regrets from Dr. Jennifer Russell for the Long COVID Roundtable event.

We assume that you will be using this seat as one of your 3 in total for NB. We'll await confirmation re attendees following your meeting with the RHAs next week.

Thanks and Happy Friday,

21(1) [redacted]

CADTH / ACMTS

Canada's Drug and Health Technology Agency | L'Agence des médicaments et des technologies de la santé au Canada

CADTH endeavours to provide credible sources of information, in particular available evidence from recognized Health Technology Assessment (HTA) organizations, where available, as an added support to our customers. No official endorsement of this information by CADTH is intended as a result of this message.

L'ACMTS s'efforce de fournir des sources fiables et crédibles d'information, particulièrement en ce qui a trait aux preuves produites par des organismes reconnus d'évaluation des technologies de la santé (ETS), lorsque disponibles, pour offrir un

meilleur appui à ses clients. Cet avis ne signifie pas que l'ACMTS endosse officiellement l'information fournie et n'engage aucunement sa responsabilité.

This email message is intended solely for the use of the individual(s) and/or organization(s) to which it is directed. It may contain privileged, confidential or copyright-protected information. Any unauthorized use, copying, review or disclosure, including use other than by the intended recipient, is prohibited. If received in error, please delete this email and all copies immediately from your system, and notify the sender promptly by email that you have done so. Thank you.
To Unsubscribe from CADTH electronic messages or edit your preferences on MyCADTH.

Le présent message électronique est destiné au seul usage des personnes et/ou organismes à qui il est adressé. Il peut contenir des renseignements privilégiés, confidentiels ou protégés par les droits d'auteur. Toute utilisation, reproduction, revue ou divulgation non autorisée, y compris l'utilisation autre que par le destinataire voulu, est interdite. Si vous recevez ce message par erreur, veuillez l'effacer immédiatement de votre système ainsi que toute copie de celui-ci, et en informer l'expéditeur par courriel électronique dans les plus brefs délais. Merci.
Modifiez vos préférences sur Mon ACMTS ou désabonnez-vous des messages courriel de l'ACMTS.

From: Levesque, Eric J. (DH/MS)
To: Chalifoux, Mathieu (DH/MS); Leger, Dr. Yves (DH/MS)
Subject: FW: CADTH Virtual COVID Roundtable
Date: May 19, 2022 3:53:00 PM
Attachments: image004.png

FYI

From: 21(1) [redacted]@cadth.ca>
Sent: Thursday, May 19, 2022 3:40 PM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Cc: Brien, Dr. Susan (HorizonNB) <Susan.Brien@HorizonNB.ca>; Legacy, Stephane (VitaliteNB) <Stephane.Legacy@VitaliteNB.ca>
Subject: RE: CADTH Virtual COVID Roundtable

Thanks Éric – and thank you all for your interest and engagement with this work. I will pass your names & contact information (as the 3 confirmed NB attendees) to the Roundtable Leads who will keep everyone posted on details for the event.

On a related note, as previously shared CADTH is conducting a Condition Level Review on Post–COVID-19 (or "Long COVID"). A "Condition Level Review" is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of the condition, including prevention, identification, treatment and management.

You can access CADTH's full collection of content related to Long COVID here -- the most recent being the full scoping review that was just completed; 892 studies were found and included. The objective of the scoping review was to characterize the current evidence landscape on post–COVID-19 condition and to identify evidence gaps. Key messages from the review are pasted below. Based on these findings and input from our customers (like yourselves) we may pursue some of those identified topics for more indepth rapid reviews, etc. I believe this work may also be shared as part of the Roundtable. Nevertheless, if you have any questions or specific evidence needs, please don't hesitate to touch base at any time.

> *Key Messages* [from Scoping Review]
> • *Most of the identified published research focused on characteristics or outcomes of having post–COVID-19 condition (e.g., symptoms, quality of life) or predictors for developing post–COVID-19 condition. There were fewer studies related to preventing post–COVID-19 condition or treatments. Ongoing studies, according to published protocols, will investigate interventions to prevent or treat this condition.*
> • *Notable evidence gaps included post–COVID-19 condition as it relates to people living in rural or remote areas, children and adolescents, and vaccination status. There were few economic studies, qualitative studies, and studies assessing health systems issues.*
> • *Most identified guidelines regarding the diagnosis, treatment, and management of post–COVID-19 condition, including all Canadian guidelines, provided limited guidance specific to patients meeting the WHO definition. These guidelines will need continual updates as new evidence emerges.*

Thanks again,

21(1) [redacted]
CADTH / ACMTS

From: Elliott, Jennifer (DH/MS)
To: Levesque, Eric J. (DH/MS)
Subject: FW: Quebec - Long COVID
Date: May 23, 2022 2:19:29 PM

---

fyi
https://montrealgazette.com/news/local-news/quebec-opening-15-long-covid-and-lyme-disease-clinics

From: Levesque, Eric J. (DH/MS)
To: Mills, Daniel (PETL/EPFT)
Subject: Declined: People Pillar Organizational Lead meeting

Hi Dan,

I have an FPT meeting on Long-Covid on June 1st at the same time. I have asked Jake to attend in my place.

Éric

From: Levesque, Eric J. (DH/MS)
To: Liston, Heidi (DH/MS)
Cc: St. Pierre, Jessica (DH/MS)
Subject: Accepted: Hold for Strategic Task Force Meetings

I cannot attend. I'm in another meeting on Long COVID all afternoon.

From:	Sargent, Jessica (DH/MS)
To:	Levesque, Eric J. (DH/MS)
Cc:	French, Danielle (DH/MS)
Subject:	FW: Post-COVID Condition / PVI : Le syndrome post-COVID-19
Date:	June 20, 2022 10:35:52 AM
Attachments:	Long COVID deck - for PTs (with Canadian data).EN.pptx Deck Syndrome Post Covid19 PTs.FR.pptx

---

Thanks Eric- here are a couple of things related to Post-COVID Condition that came in on Friday
Jessica

From: MacDonald, Tammy (PHAC/ASPC) <tammy.macdonald@phac-aspc.gc.ca> **On Behalf Of** CCMOH SECRETARIAT / CMHC (PHAC/ASPC)

Sent: June 16, 2022 10:11 AM

To: Amy Riske <Amy.Riske@yukon.ca>; Andre Corriveau <ACorriveau@gov.nu.ca>; Barbara Yaffe <barbara.yaffe@ontario.ca>; Bedward, Cristina (PHAC/ASPC) <cristina.bedward@phac-aspc.gc.ca>; CCMOH SECRETARIAT / CMHC (

ATTENTION! External email / courriel externe.

Good morning SAC members,

At the June 6th HMM, Minister Duclos committed to sharing information on Post-COVID condition; as such, we are forwarding the attached for your information and awareness. SAC has been briefed on the studies underway and when more data becomes available (around mid-fall), results will be provided to SAC for a discussion on next steps.

Thank you,

SAC Secretariat

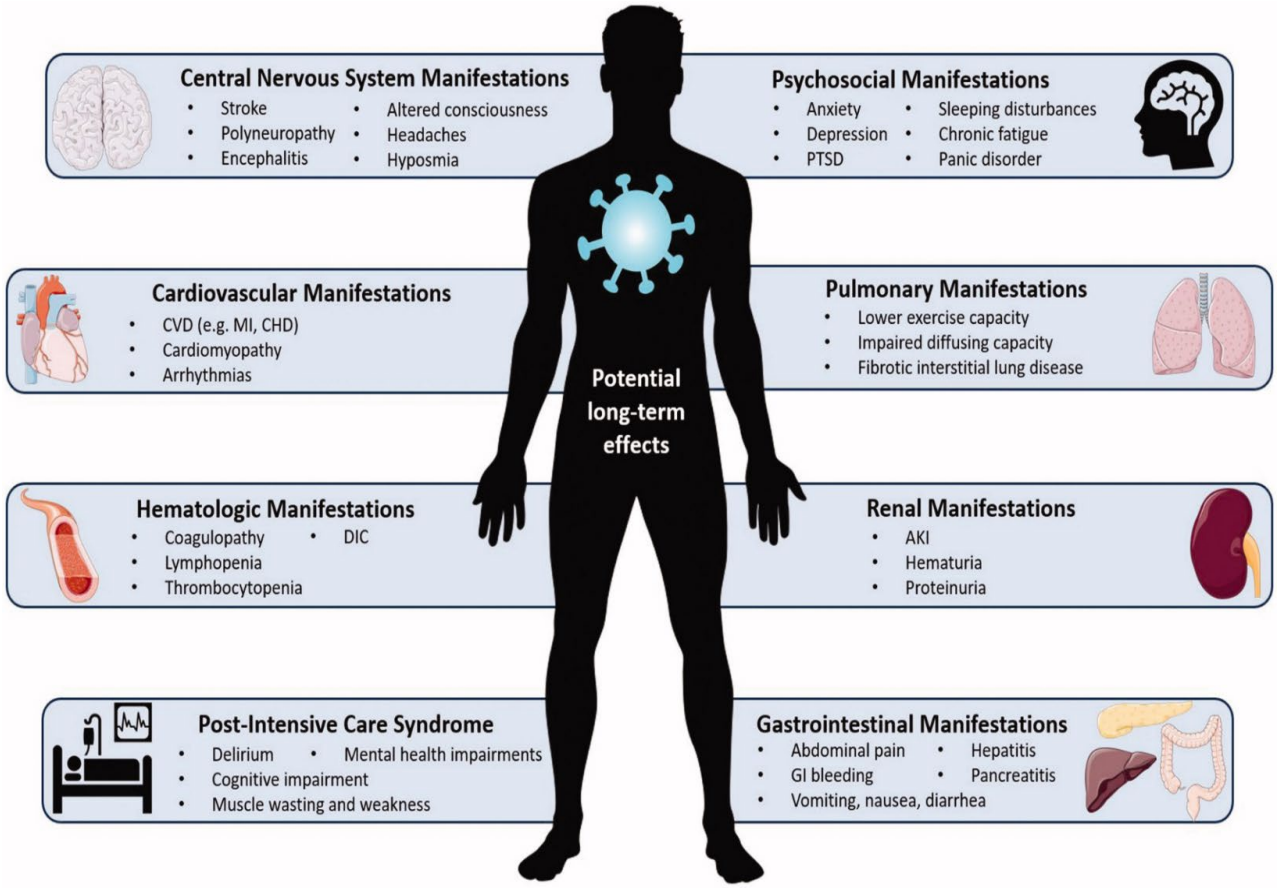
Public Health Agency of Canada | Agence de la santé publique du Canada

Canadian Institutes of Health Reseach | Instituts de recherche en santé du Canada

Canada

Update on Post COVID Condition: Review of Scientific Evidence, Federal Actions and Way Forward

What is post COVID-19 condition or Long COVID?



Higgins et al, *Crit Rev Clin Lab Sci,* 2020

- First clinical case definition of post COVID-19 condition in adults (WHO, 2021) refers to symptoms that cannot be explained by an alternative diagnosis and that are experienced at 12 weeks or more after the onset of COVID-19.
- It can affect both **adults and children**.
- **Broad range of symptoms** including fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning.

- Symptoms **fluctuate in intensity and frequency** and impact different organ systems, making diagnosis more challenging.
- Absence of a **universally accepted case definition** for post COVID-19 condition.

Emerging scientific evidence

Prevalence- there is a wide range of estimates on the prevalence among previously infected individuals

- WHO reports 10-20% among those infected with COVID-19 will develop post COVID-19 condition
- Several studies **(before Omicron**) found that about 30% to 40% of people who weren't hospitalized for their initial COVID-19 infection still report symptoms beyond 12 weeks.
- A recent **systematic review and meta-analysis** (137 studies; up to Dec. 2021) [*SSRN Lancet prepub*] found:
  - prevalence of any long COVID symptom was 54% (95% CI: 34-73%) at 6 months and 54% (95% CI: 44-65%) at 12 months follow-up
  - neuropsychiatric symptoms showed a higher long-term prevalence and longer persistence than physical symptoms

Emerging scientific evidence – con't

Risk Factors and Effect of Vaccination

- **Females** appear to be disproportionally impacted
  - A recent white paper from the US found that 60% of those diagnosed with post COVID-19 condition were females (compared to 40% in males)
- A recent systematic review and meta-analysis found that risk factors included:
  - female sex
  - those who experienced severe acute COVID-19 or having been hospitalized for acute COVID-19 infection
- Preliminary research suggests that **vaccination (2 doses) may reduce the risk** of developing post COVID-19 condition if infected. (however, more research is needed as findings are based on a few studies)

Social Impact

- Evidence about the **impact on employment** is emerging
  - Based on a review of global studies:
    - between 9-22% of individuals were not working 3 months or more after acute infection
    - 10-46% had to reduce their work schedule

New variants

- Based on a new survey in the UK, the odds of self-reporting long COVID symptoms four to eight weeks after a first coronavirus (COVID-19) infection were 49.7% lower in infections compatible with the Omicron BA.1 variant than those compatible with the Delta variant among adults who were double-vaccinated when infected (Note: official definition of long COVID is 12 weeks +).

Findings from Canada so far…

- A recent survey, supported by the Ministère de la santé et des services sociaux du Québec and was conducted in **health care workers in QC,** found that 40% among non-hospitalized cases and 68% among hospitalized cases had post COVID-19 condition 12 weeks after initial infection *(pre-print)*

- Another study that used retrospective chart reviews in a tertiary care setting in Toronto found that 27% of patients (of which 61% were outpatients and 39 percent were admitted to hospital) reported 2 or more persistent symptoms 90 days or more after a positive PCR test.

- A recent pan-Canadian survey *(non-peer-reviewed)* conducted by Viral Neuro Exploration (VINEx), COVID Long-Haulers Support Group Canada, and Neurological Health Charities Canada in March and April of 2022 among 1,050 individuals with post COVID-19 condition found that:
  - 88% have experienced long COVID symptoms for 12 weeks or longer (and 58% for more than a year)
    - 60% received a long COVID diagnosis from a health care provider
  - more than 87% of respondents identified as women.
  - Over 80% of respondents reported a negative or very negative impact of long COVID on their brain health, such as difficulty concentrating and thinking, sleep disturbances, memory loss, headaches, anxiety and depression
    - Close to 75% of those surveyed sought medical care for their neurological or psychiatric symptoms
  - nearly 70% of respondents had to take leave from work

… There is a lack of peer-reviewed research on post COVID-19 condition in Canada at this time. However, other studies and surveys are underway and results are forthcoming.

What we don’t know – summary of key knowledge gaps

- What the underlying biological mechanisms are to fully estimate the health impacts of post COVID-19 condition and how to address them

- Unclear understanding of post COVID-19 condition impacts independent from broader impacts of the pandemic
  - E.g. impacts of the pandemic on mental health and long COVID symptoms related to mental health

- At this time, there is **no treatment** for post COVID condition.

- No clear preventative measures, aside from preventing initial COVID-19 infection. Some evidence on the protective effect of COVID-19 vaccination (2 doses) against PCC but evidence is limited

- Too early to determine the risk of post COVID-19 condition associated with different variants

- The **burden of post COVID-19 condition in Canada** is unknown
  - Proportion of population affected, across sub-groups, particularly among children, Indigenous populations, and racialized populations
  - Insufficient evidence to date to determine the socio-economic impacts of post COVID-19 condition and its impact on the healthcare system and the broader economy; however early work is on the way to generate first evidence of impacts in Canada

Understanding the impact of post COVID-19 condition

- **Canadian-specific data/research evidence** may not be available for some time
  - While the Canadian Institutes of Health Research (CIHR) anticipates additional research investments in the area of Long COVID, it may take several years for clear and robust results from these investments to be generated
  - Although preliminary findings from the Canadian COVID-19 Antibody and Health Survey is expected between August-October 2022; the final results will not be available until early 2023. In addition, depending on the survey response rates, prevalence information by specific subgroups of the population may not be available.
  - We may need to rely on emerging international evidence for the short-term

- Estimating the **socioeconomic impact** of post COVID-19 condition will be challenging
  - Current CIHR-funded research investments have mostly focused on clinical or biomedical research. Studies on socioeconomic impacts may not be covered.
  - Evidence gaps on post COVID-19 condition (i.e. prevalence, risk factors, pathophysiology, recovery trajectories and health care use, effect on work/caring roles, etc.), particularly in the Canadian context, will make it challenging to assess the socio-economic impacts of post COVID-19 condition in Canada
    - Work can start with the best available international evidence to date, and will then further refine once more robust estimates are available

- **Patient groups** are mobilizing, in Canada and internationally - calls for action from patient and health care organizations is expected

Current National Context

Burden of post COVID-19 condition in Canada – important gaps

- No robust estimates yet of how common post COVID-19 condition is in Canada, particularly among children, Indigenous populations, and racialized populations

- Insufficient evidence to date to determine the socio-economic impacts of post COVID-19 condition and its impact on the healthcare system and the broader economy (e.g. children returning to normal activities, adults returning to work, impact on caregivers, use of health care services, etc.)

A range of federal and PT activities underway

- PT activities include development of specialized treatment and recovery clinics, as well as research and monitoring initiatives

- Various Health Portfolio actions underway to address gaps, improve understanding and support FPT coordination of efforts (see overview on slide 10)

Current International Context

USA

- No robust estimate about common post COVID-19 condition is, but a recent White paper presents evidence about the characteristics of individuals diagnosed with long COVID:
  - 75.8% had not been hospitalized for COVID-19; Individuals aged 36 to 50 years old were more likely to be diagnosed with long COVID compared to other age groups; 30.7% of patients with long COVID had no identified pre-existing comorbidities
- The Biden Administration announced an accelerated whole-of-government effort to prevent, detect and treat long COVID, including:
  - Delivering high-quality care, services, and supports for individuals experiencing Long COVID
  - Research to understand, prevent, diagnose, treat, Long COVID

UK

- It is estimated that 1.3 million people were experiencing self-reported long COVID symptoms 12 weeks after initial infection
- Guidelines to support clinicians: “COVID-19 rapid guideline: managing the long-term effects of COVID-19” (May 2022)
- Support for specialized interdisciplinary clinics
  - UK: NHS England and NHS Improvement funded the establishment of long COVID assessments clinics for adults and children. CAD $230 million so far

International cooperation to address knowledge gaps

- G7 Science Ministers meeting in June 2022 to strengthen international cooperation to address post COVID-19 condition

Current Health Portfolio Actions to Date: gathering and generating evidence and engagement

Funded Research

CIHR invested ~$17.7M to fund 41 rapid response projects targeting post COVID-19 research

Additional post COVID-19 condition research projects have been funded through non-targeted competitions.

Surveillance

- Assessing data sources for surveillance of post COVID-19 condition in Canada
- Canadian COVID-19 Antibody and Health Survey (launched spring 2022)

Synthesize and Disseminate Evidence

- Best Brains Exchange (May 2021
- Systemic reviews of scientific studies on prevalence, risk factors, preventative interventions
- Bi-weekly scans of new/emerging research
- Web content

Engagement & Collaboration

- Provincial and Territorial updates
- National health organizations/health professional associations
- Patient partnerships
- International - WHO, UK, GloPOD-R
- Engagement on economic modelling

Upcoming activities on post COVID-19 condition

- CIHR will continue to invest in research on the long-term effects of COVID-19 infections on Canadians, as well as the wider impacts of COVID-19 on health and health care systems.

- PHAC **to support data and public health surveillance and develop tools and guidelines**
  - In partnership with Statistics Canada, academic organizations, provinces and territories and the COVID-19 Immunity Task Force, developed and launched the Canadian COVID-19 Antibody and Health Survey in Spring 2022
    - First population survey on post COVID-19 condition in Canada will estimate the prevalence in adults in Canada and describe risk factors and examine the impact on overall health and daily functioning
    - A follow-up surveillance survey is planned in 2023
  - PHAC to continue seeking additional data sources from existing surveillance systems on post COVID-19 condition
  - In addition, PHAC will develop evidence-based guidelines adapted to the Canadian context for the identification, prevention and management (including models of care) of post COVID-19 condition

Examples of CIHR investments in Long COVID Research

- **CIHR** has already invested **$17.7M** to fund **41 targeted research studies** on post COVID-19 condition

- **Canadian COVID-19 Prospective Cohort Study (CANCOV) ($2.1M)**
  - Canadian research consortium studying the full scope of COVID health impacts and risk factors
  - Preliminary findings show a range of symptoms associated with post COVID-19 condition
  - Studying how post COVID-19 condition may cause longer-term disability and implications for Canadians who contracted COVID-19

- **Canadian Longitudinal Study on Aging (ongoing investment of $8M per year)**
  - 20+ year long research tracking the health of > 50,000 Canadian adults
  - In 2020 pivoted to study the effects of COVID-19 on older adults, studying physical and mental health impacts, and changes to access to healthcare services

- **COVID-19 Evidence Network to support Decision-making** and the **Strategy for Patient-Oriented Research Evidence Alliance** are reviewing the best-available evidence about care models for people living with post COVID-19 condition

PHAC Current Surveillance Activities

Measure and monitor magnitude and impact of post COVID-19 condition and related symptoms in Canada, in partnership with Statistics Canada, academic organizations, and provinces and territories.

Canadian COVID-19 Antibody and Health Survey (Spring 2022)
First population survey on post COVID-19 condition in Canada will:

- Estimate the prevalence of post COVID-19 condition in adults in Canada
- Describe risk factors and the range, prevalence and duration of symptoms reported
- Examine the impact of post COVID-19 condition on overall health and daily functioning

How:

- Collaboration PHAC\Statistics Canada\Canadian Immunity Task Force (CITF)
- The target sample is 100,000 randomly selected Canadians aged 18+ across the 10 provinces
- CITF is leveraging the survey to include Dried Blood Spot (DBS) test kits to test for infection-acquired and/or vaccine-induced antibodies to SARS-CoV-2. Respondents who choose to conduct the DBS test component will receive a personalized report of their results.
- Data collection ongoing until June 2022. Preliminary results expected between August-October 2022; the final results will be released in early 2023

Assessing other data sources for surveillance of post COVID-19 condition in Canada

- Use of electronic medical records data and existing surveillance systems for chronic diseases
- Post COVID-19 condition in children in Canada: a Canadian Paediatric Surveillance Program Study (in development)

PHAC Current Evidence Synthesis & Dissemination

Ongoing scans of evidence and policy responses

- Biweekly scans of new / emerging research on post COVID-19 condition
- COVID-END/SPOR Living Synthesis – potential role for regular updates on long COVID

Rapid reviews and evidence briefs (PHAC / PHAC-funded)

- Living evidence brief on the associations and safety of COVID-19 vaccination and post COVID-19 condition
- Update 1 – April 14, 2022 (currently being finalized for distribution in this week's tracker)

Systematic reviews (PHAC)

- Risk factors and preventative interventions for post COVID-19 condition: living systematic review (Pre-print March 2022)
- Prevalence of long-term effects in individuals diagnosed with COVID-19: a living systematic review (Pre-print June 2021; under peer-review)

Knowledge exchange and translation events and products

- Best Brains Exchange (May 2021)
- Web content on Canada.ca

Engagement and Collaboration

Experts and other government departments/levels

- **Provincial and territorial governments** – regular updates at several FPT tables
- Collaboration with **academic experts** on systematic reviews and surveillance
- Office of the Chief Science Officer (PHAC) broader scientific network
- **PHAC led Inter-Departmental Working Group**: PHAC, HC, CIHR, Stat Can, ISC, ESDC, CIHI
- Emerging collaboration on economic modelling

National health organizations / professional associations

- Canada's Drug and Health Technology Agency (CADTH) (national roundtable on models of care)
- College of Family Physicians of Canada (information-sharing for guidelines development)
- Canadian Paediatric Society (surveillance of Post COVID-19 condition in children)

Patient partnerships

- Panel of individuals living with post COVID-19 condition
  - whose valuable input from a patient's perspective have supported various PHAC-led initiatives (e.g., web content, rating of outcomes for systematic reviews)

International engagement to share latest scientific evidence

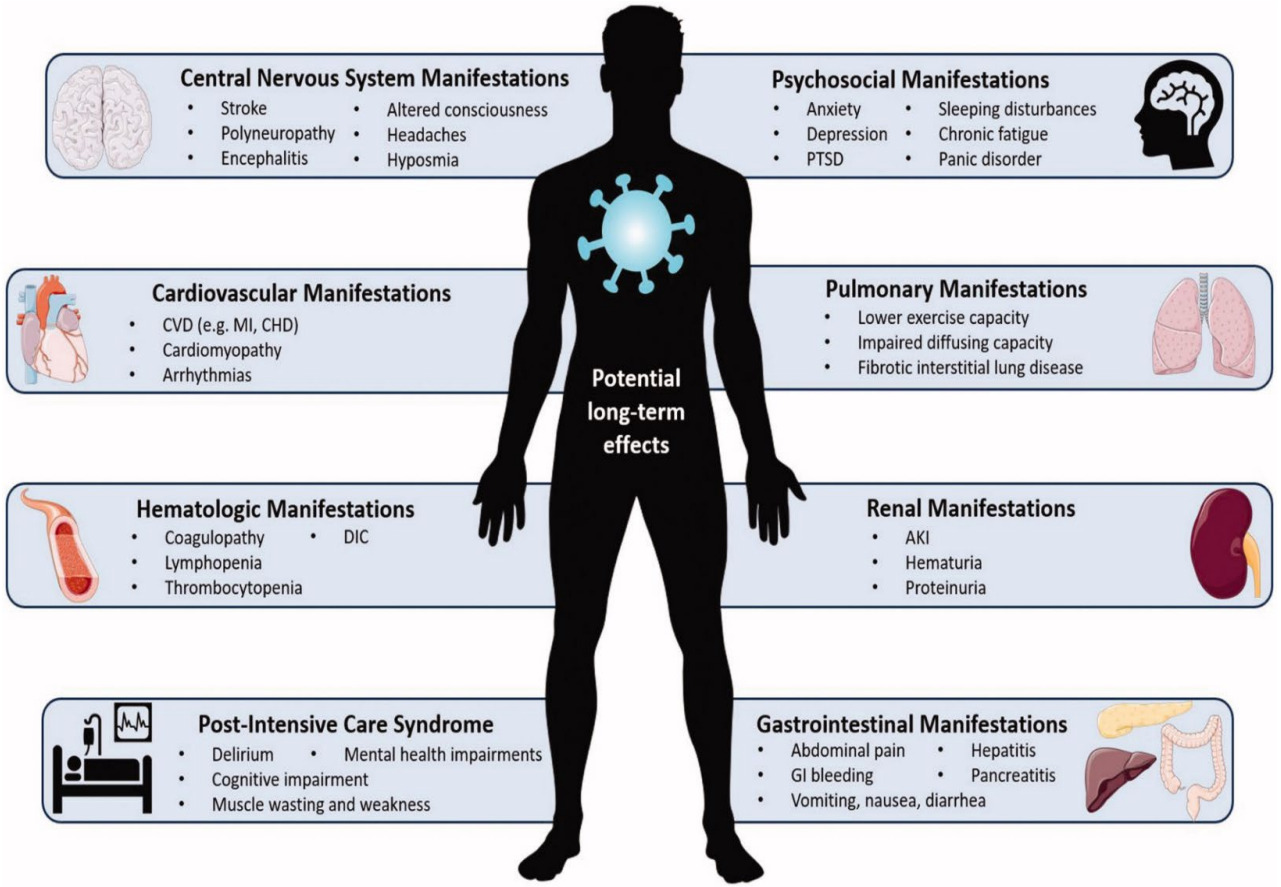
- e.g. WHO, the UK National Institute for Health and Care Excellence

Public Health Agency of Canada | Agence de la santé publique du Canada
Canadian Institutes of Health Reseach | Instituts de recherche en santé du Canada

Canada

Mise à jour sur le syndrome post-COVID-19 : Examen des preuves scientifiques, des mesures fédérales et de la voie à suivre

Qu'est-ce que le syndrome post-COVID-19 ou COVID longue?



Higgins et al, *Crit Rev Clin Lab Sci,* 2020

- La première définition de cas clinique du syndrome post COVID-19 chez l'adulte (OMS, 2021) fait référence à des symptômes qui ne peuvent être expliqués par un autre diagnostic et qui sont ressentis 12 semaines ou plus après l'apparition de la COVID-19.
- Elle peut toucher **aussi** bien les **adultes que les enfants**.
- **Large éventail de symptômes** comprenant la fatigue, l'essoufflement, le dysfonctionnement cognitif mais aussi d'autres et ayant généralement un impact sur le fonctionnement quotidien.
- Les symptômes **fluctuent en intensité et en fréquence** et touchent différents systèmes organiques, ce qui rend le diagnostic plus difficile.
- Absence d'une **définition de cas universellement acceptée** pour le syndrome post-COVID-19.

Nouvelles preuves scientifiques

Prévalence - il existe un large éventail d'estimations de la prévalence chez les personnes précédemment infectées.

- Selon l'OMS, 10 à 20 % des personnes infectées par la COVID-19 développeront le syndrome post-COVID-19.
- Plusieurs études **(avant Omicron**) ont révélé qu'environ 30 à 40 % des personnes qui n'ont pas été hospitalisées pour leur infection initiale par la COVID-19 présentent encore des symptômes après 12 semaines.
- Un **examen systématique récent avec méta-analyse** (137 études ; jusqu'en décembre 2021) [*SSRN Lancet prepub*] ont révélé que :
  - la prévalence de tout symptôme de la COVID longue était de 54 % (IC 95 % : 34-73 %) à 6 mois et de 54 % (IC 95 % : 44-65 %) à 12 mois de suivi
  - les symptômes neuropsychiatriques présentent une prévalence à long terme plus élevée et une persistance plus longue que les symptômes physiques.

Preuves scientifiques émergentes - con't

Facteurs de risque et effet de la vaccination

- **Les femmes** semblent être touchées de manière disproportionnée.
  - Un récent livre blanc américain a révélé que 60 % des personnes diagnostiquées comme souffrant du syndrome post-COVID-19 étaient des femmes (contre 40 % chez les hommes).
- Une récente étude systématique et une méta-analyse ont révélé que les facteurs de risque comprenaient :
  - sexe féminin
  - ceux qui ont souffert d'une infection aiguë grave de la COVID-19 ou qui ont été hospitalisés pour une infection aiguë à la COVID-19
- Des recherches préliminaires suggèrent que la **vaccination (2 doses) pourrait réduire le risque** de développer le syndrome post-COVID-19 en cas d'infection. (Cependant, d'autres recherches sont necessaires.)

Impact socio-économique

- Les preuves de l'**impact sur l'emploi** émergent
  - Sur la base d'un examen des études mondiales :
    - entre 9 et 22 % des individus ne travaillaient pas 3 mois ou plus après une infection aiguë
    - 10-46% ont dû réduire leur horaire de travail

Nouvelles variantes

- D'après une nouvelle enquête menée au Royaume-Uni, la probabilité de déclarer des symptômes de la COVID longue quatre à huit semaines après une première infection au coronavirus (COVID-19) était 49,7 % plus faible dans les infections compatibles avec la variante Omicron BA.1 que dans celles compatibles avec la variante Delta chez les adultes qui étaient doublement vaccinés au moment de l'infection (Remarque : la définition officielle de la COVID longue est de 12 semaines et plus).

Les données probantes au Canada jusqu'à présent...

- Une enquête récente, soutenue par le Ministère de la santé et des services sociaux du Québec et menée auprès de travailleurs de la santé au Québec, a révélé que 40 % des cas non hospitalisés et 68 % des cas hospitalisés présentaient le syndrome post-COVID-19 12 semaines après l'infection initiale. (Préimpression)

- Une autre étude, qui s'est appuyée sur l'examen rétrospectif des dossiers dans un établissement de soins tertiaires de Toronto, a révélé que 27 % des patients (dont 61 % étaient des patients ambulatoires et 39 % étaient hospitalisés) ont signalé 2 symptômes persistants ou plus 90 jours ou plus après un test PCR positif.

- Une enquête récente pancanadienne (non évaluée par des pairs) menée par « *Viral Neuro Exploration (VINEx)* », « *COVID Long-Haulers Support Group Canada* » et « Les Organismes caritatifs neurologiques du Canada » (OCNC), en mars et avril 2022, auprès de 1050 personnes souffrant du syndrome post-COVID-19 a révélé que:
  - 88 % ont connu des symptômes de la COVID longue pendant 12 semaines ou plus (et 58 % pendant plus d'un an).
    - 60% ont reçu un diagnostic du syndrome post-COVID-19 de la part d'un prestataire de soins de santé
  - Plus de 87% des répondants se sont identifiés comme des femmes.
  - Plus de 80% des répondants ont signalé un impact négatif ou très négatif du syndrome post-COVID-19 sur leur santé cérébrale, comme des difficultés de concentration et de réflexion, des troubles du sommeil, des pertes de mémoire, des maux de tête, de l'anxiété et de la dépression.
    - Près de 75 % des personnes interrogées ont eu recours à des soins médicaux pour leurs symptômes neurologiques ou psychiatriques
  - près de 70% des répondants ont dû prendre un congé professionnel.

… Il y a un manque de recherche évaluée par les pairs sur le syndrome post-COVID-19 au Canada à l'heure actuelle. Cependant, d'autres études et enquêtes sont en cours et les résultats sont à venir.

Ce que nous ne savons pas - résumé des principales lacunes en matière de connaissances

- Quels sont les mécanismes biologiques sous-jacents permettant d'estimer pleinement les impacts sanitaires du syndrome post-COVID-19 et comment y remédier

- Compréhension imprécise des impacts du syndrome post-COVID-19 indépendamment des impacts plus larges de la pandémie.
  - Par exemple, l'impact de la pandémie sur la santé mentale et les longs symptômes COVID liés à la santé mentale.

- À l'heure actuelle, il **n'existe aucun traitement** pour le syndrome post-COVID-19.

- Aucune mesure préventive claire, à part la prévention de l'infection initiale par la COVID-19. Quelques preuves de l'effet protecteur de la vaccination COVID-19 (2 doses) contre la SPC, mais les preuves sont limitées.

- Il est trop tôt pour déterminer le risque du syndrome post-COVID-19 associé aux différentes variantes.

- Le **fardeau du syndrome post-COVID-19 au Canada** est inconnu.
  - Proportion de la population touchée, dans tous les sous-groupes, en particulier chez les enfants, les populations autochtones et les populations racialisées.
  - Les preuves sont insuffisantes à ce jour pour déterminer les impacts socio-économiques du syndrome post COVID-19 et son impact sur le système de soins de santé et l'économie au sens large ; cependant, des travaux préliminaires sont en cours pour générer les premières preuves des impacts au Canada.

Comprendre l'impact du syndrome post-COVID-19

- **Les données/preuves de recherche spécifiques au Canada** peuvent ne pas être disponibles avant un certain temps.
  - Les IRSC prévoient des investissements supplémentaires dans la recherche sur la COVID longue, mais il faudra peut-être plusieurs années avant que ces investissements ne produisent des résultats clairs et solides.
  - Bien que les résultats préliminaires de l'Enquête canadienne sur les anticorps anti-COVID-19 et la santé soient attendus entre août et octobre 2022, les résultats définitifs ne seront pas disponibles avant le début de 2023. En outre, selon les taux de réponse à l'enquête, il se peut que les informations sur la prévalence par sous-groupes spécifiques de la population ne soient pas disponibles.
  - Nous pourrions avoir besoin de nous appuyer sur des preuves internationales émergentes pour le court terme.

- Il sera difficile d'estimer l'**impact socio-économique** du syndrome post-COVID-19
  - Les investissements actuels dans la recherche financée par les IRSC ont surtout porté sur la recherche clinique ou biomédicale. Les études sur les impacts socio-économiques peuvent ne pas être couvertes.
  - Le manque de données sur le syndrome post-COVID-19 (c'est-à-dire la prévalence, les facteurs de risque, la pathophysiologie, les trajectoires de guérison et l'utilisation des soins de santé, les effets sur le travail et les rôles de soins, etc.
    - Le travail peut commencer avec les meilleures preuves internationales disponibles à ce jour, et sera ensuite affiné lorsque des estimations plus solides seront disponibles.
- **Les groupes de patients** se mobilisent, au Canada et à l'étranger - des appels à l'action de la part des organisations de patients et de soins de santé sont attendus.

Contexte national actuel

Le fardeau du syndrome post-COVID-19 est inconnu au Canada

- Il n'existe pas encore d'estimations solides de la fréquence du syndrome post-COVID-19 au Canada, en particulier chez les enfants, les populations autochtones et les populations racialisées.

- Les preuves sont insuffisantes à ce jour pour déterminer les impacts socio-économiques du syndrome post-COVID-19 et son impact sur le système de santé et l'économie au sens large (par exemple, le retour des enfants à leurs activités normales, le retour des adultes au travail, l'impact sur les soignants, l'utilisation des services de soins de santé, etc.)

Une série d'activités fédérales et des PT en cours

- Les activités des PT comprennent le développement de traitements spécialisés et de cliniques de récupération, ainsi que des initiatives de recherche et de surveillance.

- Diverses actions du portefeuille de la santé sont en cours pour combler les lacunes, améliorer la compréhension et soutenir la coordination FPT des efforts (voir l'aperçu à la diapositive 10).

Le contexte international actuel

USA

- Il n'existe pas d'estimation robuste sur la prévalence du syndrome post-COVID-19, mais un récent livre blanc présente des données sur les caractéristiques des personnes diagnostiquées avec la COVID longue:
  - 75,8 % n'avaient pas été hospitalisés pour la COVID-19 ; les personnes âgées de 36 à 50 ans étaient plus susceptibles d'être diagnostiquées avec une COVID longue par rapport aux autres groupes d'âge ; 30,7 % des patients avec une COVID longue n'avaient pas de comorbidités préexistantes identifiées.
- L'administration Biden a annoncé un effort accéléré de l'ensemble du gouvernement pour prévenir, détecter et traiter la COVID longue, y compris :
  - Fournir des soins, des services et des aides de haute qualité aux personnes qui vivent une expérience de longue durée.
  - Recherche pour comprendre, prévenir, diagnostiquer, et traiter la COVID longue

ROYAUME-UNI

- On estime que 1,3 million de personnes présentaient des symptômes de la COVID longue déclarés par elles-mêmes 12 semaines après l'infection initiale.
- Lignes directrices pour soutenir les cliniciens : " *COVID-19 rapid guideline : managing the long-term effects of COVID-19* " (mai 2022).
- Soutien aux cliniques interdisciplinaires spécialisées
  - ROYAUME-UNI : NHS England et NHS Improvement ont financé la création de longues cliniques d'évaluation de la COVID longue pour les adultes et les enfants. 230 millions de dollars canadiens jusqu'à présent

Coopération internationale pour combler les lacunes en matière de connaissances

- Réunion des ministres de la science du G7 en juin 2022 afin de renforcer la coopération internationale pour faire face au syndrome post-COVID-19

Actions actuelles du portefeuille de la santé à ce jour : Principalement axé sur la collecte et la production de preuves et l'engagement.

Recherche financée

Les IRSC ont investi ~17,7 millions de dollars pour financer 41 projets d'intervention rapide ciblant la recherche sur le syndrome post-Covid-19.

D'autres projets de recherche sur le syndrome post-COVID-19 ont été financés par des concours non ciblés.

Surveillance

- Évaluation des sources de données pour la surveillance du syndrome post-COVID-19 au Canada
- Enquête canadienne sur les anticorps COVID-19 et la santé (lancée au printemps 2022)

Synthétiser et diffuser les données probantes

- *Best Brain Exchange* (mai 2021)
- Examens systématiques des études scientifiques sur la prévalence, les facteurs de risque et les interventions préventives.
- Analyses bihebdomadaires des recherches nouvelles/émergentes
- Contenu du site

Engagement et collaboration

- Mises à jour provinciales et territoriales
- Organisations nationales de santé/associations de professionnels de la santé
- Partenariats avec les patients
- International - OMS, Royaume-Uni, GloPOD-R
- Engagement sur la modélisation économique

Activités à venir concernant le syndrome post-COVID-19

- Les IRSC continueront d'investir dans la recherche sur les effets à long terme des infections à la COVID-19 sur les Canadiens, ainsi que sur les impacts plus larges de la COVID-19 sur la santé et les systèmes de soins de santé.

- L'ASPC **soutiendra la surveillance des données et de la santé publique et élaborera des outils et des lignes directrices**
  - En partenariat avec Statistique Canada, des organisations universitaires, les provinces et territoires et le Groupe de travail sur l'immunité contre la COVID-19, nous avons élaboré et lancé l'Enquête canadienne sur les anticorps et la santé liés à la COVID-19 au printemps 2022.
    - La première enquête de population sur le syndrome post-COVID-19 au Canada permettra d'estimer la prévalence chez les adultes au Canada, de décrire les facteurs de risque et d'examiner l'impact sur la santé globale et le fonctionnement quotidien.
  - Une enquête de suivi est prévue en 2023.
  - L'ASPC continuera à chercher des sources de données supplémentaires sur le syndrome post-COVID-19 à partir des systèmes de surveillance existants
  - En outre, l'ASPC élaborera des lignes directrices fondées sur des données probantes et adaptées au contexte canadien pour l'identification, la prévention et la gestion (y compris des modèles de soins) du syndrome post-COVID-19.

Exemples d'investissements des IRSC dans la recherche sur la COVID longue

- **IRSC** a déjà investi **17,7 millions de dollars** pour financer **41 études de recherche ciblées sur le syndrome post-COVID-19.**

- **Étude de cohorte prospective canadienne COVID-19 (CANCOV) (2,1 M$)**
  - Consortium de recherche canadien étudiant l'ensemble des impacts sanitaires et des facteurs de risque de la COVID-19.
  - Les résultats préliminaires montrent une série de symptômes associés au syndrome post-COVID-19.
  - Étude de la manière dont le syndrome post-COVID-19 peut entraîner une invalidité à plus long terme et implications pour les Canadiens qui ont contracté la COVID-19

- **Étude longitudinale canadienne sur le vieillissement (investissement permanent de 8 millions de dollars par an)**
  - Une recherche de plus de 20 ans sur la santé de plus de 50 000 adultes canadiens.
  - En 2020, le projet a pivoté vers l'étude des effets de la COVID-19 sur les personnes âgées, en étudiant les impacts sur la santé physique et mentale, ainsi que les changements dans l'accès aux services de santé.

- **Le réseau COVID-19 Evidence Network to support Decision-making** et la **Strategy for Patient-Oriented Research Evidence Alliance** examinent les meilleures données disponibles sur les modèles de soins pour les personnes vivant avec le syndrome post-COVID-19.

Activités de surveillance actuelles de l'ASPC

Mesurer et surveiller l'ampleur et l'impact du syndrome post-COVID-19 et des symptômes connexes au Canada, en partenariat avec Statistique Canada, les organisations universitaires, les provinces et les territoires.

Enquête canadienne sur les anticorps COVID-19 et la santé (printemps 2022)

La première enquête de population sur le syndrome post-COVID-19 au Canada sera réalisée :

- Estimer la prévalence du syndrome post-COVID-19 chez les adultes au Canada
- Décrire les facteurs de risque ainsi que la gamme, la prévalence et la durée des symptômes signalés.
- Examiner l'impact du syndrome post-COVID-19 sur la santé globale et le fonctionnement quotidien.

Comment :

- Collaboration ASPC\Statistiques Canada\Groupe de travail canadien sur l'immunité (GTCI)
- L'échantillon cible est de 100 000 Canadiens âgés de 18 ans et plus sélectionnés au hasard dans les 10 provinces.
- Le CITF s'appuie sur l'enquête pour inclure des kits de test de la tache de sang séché (DBS) pour tester les anticorps du SRAS-CoV-2 acquis par l'infection et/ou induits par le vaccin. Les répondants qui choisissent d'effectuer le volet du test DBS recevront un rapport personnalisé de leurs résultats.
- La collecte des données se poursuit jusqu'en juin 2022. Résultats préliminaires attendus entre août et octobre 2022 ; les résultats définitifs seront publiés au début de 2023.

Évaluation d'autres sources de données pour la surveillance du syndrome post COVID-19 au Canada

- Utilisation des données des dossiers médicaux électroniques et des systèmes de surveillance existants pour les maladies chroniques
- Syndrome post-COVID-19 chez les enfants au Canada : étude du Programme canadien de surveillance pédiatrique (en cours d'élaboration)

Synthèse et diffusion des données probantes actuelles de l'ASPC

Analyses continues des preuves et des réponses politiques

- Analyses bihebdomadaires des recherches nouvelles / émergentes sur le syndrome post-COVID-19
- Synthèse vivante COVID-END/SPOR - rôle potentiel pour des mises à jour régulières sur la COVID longue

Examens rapides et mémoires sur les preuves (ASPC / financé par l'ASPC)

- Dossier de preuves vivantes sur les associations et la sécurité de la vaccination COVID-19 et le syndrome post-COVID-19
- Mise à jour 1 - 14 avril 2022 (en cours de finalisation pour distribution dans le tracker de cette semaine)

Examens systématiques (ASPC)

- Facteurs de risque et interventions préventives pour le syndrome post-COVID-19 : revue systématique vivante (Pré-impression mars 2022)
- Prévalence des effets à long terme chez les personnes diagnostiquées avec la COVID-19 : une revue systématique vivante (Pré-impression juin 2021 ; en cours d'examen par les pairs)

Événements et produits d'échange de connaissances et de traduction

- Échanges Meilleurs Cerveaux (mai 2021)
- Contenu Web sur Canada.ca

Engagement et collaboration

Experts et autres ministères/niveaux de gouvernement

- **Gouvernements provinciaux et territoriaux** - mises à jour régulières à plusieurs tables FPT
- Collaboration avec des **experts universitaires** sur les examens systématiques et la surveillance
- Réseau scientifique élargi de l'Office of Chief Science Officer (PHAC)
- **Groupe de travail interministériel dirigé par l'ASPC** : ASPC, SC, IRSC, Stat Can, ISC, ESDC, CIHI
- Collaboration émergente en matière de modélisation économique

Organisations nationales de santé / associations professionnelles

- Agence canadienne des technologies de la santé et des médicaments (ACMTS) (table ronde nationale sur les modèles de soins)
- Collège des médecins de famille du Canada (partage d'informations pour l'élaboration de lignes directrices)
- Société canadienne de pédiatrie (surveillance du syndrome post-COVID-19 chez les enfants)

Partenariats avec les patients

- Panel d'individus vivant avec le syndrome post-COVID-19
  - dont les précieuses contributions du point de vue des patients ont soutenu diverses initiatives de l'ASPC (p. ex. contenu du site Web, évaluation des résultats pour les examens systématiques).

Un engagement international pour partager les dernières preuves scientifiques

- Par exemple, l'OMS, le National Institute for Health and Care Excellence du Royaume-Uni.

From:	Levesque, Eric J. (DH/MS)
To:	Foley, Gary (HorizonNB); Legacy, Stephane (VitaliteNB); Brien, Dr. Susan (HorizonNB); Banville, Natalie (VitaliteNB); Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca)
Cc:	Dan Coulombe (DH/MS) (Dan.Coulombe@gnb.ca)
Subject:	FW: Post-COVID-19 Roundtable Follow-up.
Date:	June 28, 2022 10:27:00 AM
Attachments:	PARTICIPANT LIST - CADTH Post-COVID Roundtable - June 1 2022.pdf Agenda–June1-2022.pdf Meeting-Material-Pre-Reading.pdf PARTICIPANT LIST roundtable June 1.pdf image004.png

---

Bonjour,

Sharing with everyone prior to our meeting later this week. / Je vous partage ces informations avant notre rencontre plus tard cette semaine.

Éric Levesque

Associate Deputy Minister / Sous-ministre délégué

Acute Care, Decision Support and Francophone Affairs / Soins aigus, soutien aux décisions et affaires francophones

Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783

E-mail / Courriel : eric.j.levesque@gnb.ca

www.gnb.ca

From: 21(1) [redacted] @cadth.ca> **On Behalf Of** 21(1) [redacted]

Sent: Thursday, June 2, 2022 3:13 PM

Cc: 21(1) [redacted] @cadth.ca>; 21(1) [redacted] @cadth.ca>

Subject: Post-COVID-19 Roundtable Follow-up.

ATTENTION! External email / courriel externe.

Good afternoon,

Thank you again for your participation in the Roundtable on Post-COVID-19 Condition held on June 1, 2022.

We thank you for taking a few moments to complete the evaluation survey as it helps us understand if these types of sessions are valuable, meeting your jurisdiction's needs, and any improvements we can make. The link to the evaluation survey for the event can be found here: CADTH Post-COVID-19 Roundtable Evaluation Survey.

A list of attendees has been attached to this email, as was requested during the roundtable, to

support connectivity and collaboration. We recognize we were unable to accommodate all requests for attendance, as efforts were made efforts to limit the number of attendees to allow for more conversation among the group. A recording of the roundtable presentations can be found here: CADTH Post-COVID-19 presentations. Please feel free to share this link with those who may be interested.

A summary of the roundtable discussion including key themes will be provided to all those in attendance, and forwarded to Ministry of Health leads. A brief will also be developed by our team at CADTH to further explore some of the outputs from the discussion yesterday. Thank you all for the valuable input and discussion and for sharing your insights on this important issue.

Sincerely,

21(1) [redacted]

CADTH

21(1) [redacted]

Ottawa: Located on the traditional, unceded territory of the Algonquin Nation

cadth acmts

Canada's Drug and Health Technology Agency

L'Agence des médicaments et des technologies de la santé au Canada

865 Carling Ave., Suite 600, Ottawa, Ontario, Canada K1S 5S8
865, avenue Carling, bureau 600

154 University Ave., Suite 300, Toronto, Ontario, Canada M5H 3Y9
154, avenue University, bureau 300

PARTICIPANT LIST

Name	Title	Organization	Jurisdiction
Dr. Chester Ho Chester.Ho@albertahealthservices.ca	Senior Medical Director, Neurosciences, Rehabilitation & Vision Strategic Clinical Network	Alberta Health Services	AB
Scott Fullmer Scott.fullmer@gov.ab.ca	Manager, Research, Evidence, and Policy Unit	Alberta Health Services	AB
Isabel Henderson Isabel.Henderson@albertahealthservices.ca	Executive Director – Special Projects Branch Director – Clinical Operations, Emergency Coordination Centre/Readiness & Recovery Centre Co-chair of AHS Post COVID Taskforce	Alberta Health Services	AB
Paul Wright Paul.Wright@albertahealthservices.ca	Executive Director of Neuroscience, Rehabilitation and Vision, Strategic Clinical Network	Alberta Health Services	AB
Dr. Adeera Levin ALevin@providencehealth.bc.ca	Professor of Medicine, Head Division of Nephrology & Executive Director of BC Renal	University of British Columbia	BC
Maureen O'Donnell Maureen.ODonnell@gov.bc.ca	Associate Deputy Minister Health System Innovation	British Columbia Ministry of Health	BC

Victoria Schukel Victoria.schuckel@gov.bc.ca	Executive Director of Research & Technology	British Columbia Ministry of Health	BC
Dr. Cornelia (Kristel) Van Ineveld cvanineveld@sbgh.mb.ca	Associate Professor, Geriatric Medicine Site Medical Lead, Geriatrics	St. Boniface Hospital	MB
Robert Shaffer robert.shaffer@gov.mb.ca	Assistant Deputy Minister Insurance Division	Manitoba Health	MB
Susan Brien Susan.Brien@HorizonNB.ca	Vice-President of Medical, Academic and Research Affairs	Horizon Health Network	NB
Stéphane Legacy Stephane.Legacy@VitaliteNB.ca	Vice-President of Outpatient and Professional Services	Vitalité Health Network	NB
Eric Levesque eric.j.levesque@gnb.ca	A/Assistant Deputy Minister, Health Services and Programs, Department of Health	Public Health New Brunswick	NB
Dr. Janice Fitzgerald janicefitzgerald@gov.nl.ca	Chief Medical Officer of Health	Department of Health and Community Services	NL
Andrea McKenna andreamckenna@gov.nl.ca	Deputy Minister of Health	Department of Health and Wellness	NL
Dr. Christy Bussey Christy.Bussey@nshealth.ca	COVID-19 Inpatient Unit Medical Lead, Central Zone	Nova Scotia Health	NS
Ashley Harnish Ashley.Harnish@nshealth.ca	Health Services Manager, Primary Health Care	Nova Scotia Health	NS

Jo-Anne Cecchetto Jo-Anne_Cecchetto@gov.nt.ca	Assistant Deputy Minister - Health Programs	Government of Northwest Territories	NT
Dr. Katherine Kessler katherine_kessler@gov.nt.ca	A/Territorial Medical Director	Government of Northwest Territories	NT
Dr. Francois deWet FdeWet@GOV.NU.CA	Territorial Chief of Staff	Government of Nunavut	NU
Suzannah Bennett suzannah.bennett@ontariohealth.ca	Manager, Clinical & Quality Standards, Clinical Institutes and Quality Programs	Ontario Health	ON
Dr. Angela Cheung Angela.Cheung@uhn.ca	Professor of Medicine and the KY and Betty Ho Chair of Integrative Medicine	University Health Network/University of Toronto	ON
Robert Francis robert.francis@ontario.ca	Director, Strategic Policy Branch	Ontario Ministry of Health and Long-Term Care	ON
Cheryl Banks cabanks@ihis.org	Director, COVID Operations	Health PEI	PEI
Dr. Heather Morrison HGMORRISON@gov.pe.ca	Chief Public Health Officer	Health PEI	PEI
Dr. Karen Phillips karenphillips@ihis.org	Provincial Epidemiologist, Chief Public Health Office	Health PEI	PEI

Lucie Bedard lucie.bedard.chum@ssss.gouv.qc.ca	Gestionnaire de projet, Centre d'expertise des maladies complexes	Centre hospitalier de l'Université de Montréal (CHUM)	QC
Dr. Anne Bhéreur anne.bhereur.cnmtl@ssss.gouv.qc.ca	Professeure adjointe de clinique Faculté de médecine - Département de médecine de famille et de médecine d'urgence	Université de Montréal	QC
Simon Décary simon.decary@usherbrooke.ca	Professeur adjoint, Laboratoire sur les soins de santé durables	Université de Sherbrooke	QC
Jade Falardeau jade.falardeau@msss.gouv.qc.ca	Coordonnatrice clinique en maladies rares et programmes spécifiques, Direction des services hospitaliers, Direction générale des affaires universitaires, médicales, infirmières et pharmaceutiques	Ministère de la Santé et des Services sociaux	QC
Dr. Emilia Falcone emilia.liana.falcone.chum@ssss.gouv.qc.ca emilia.falcone@ircm.qc.ca	Director of the IRCM Post-COVID-19 (IPCO) Research Clinic Director of the Microbiome and Mucosal Defence Research Unit Canada Research Chair (Tier 2) in the Role of the Microbiome in Primary Immune Deficiencies	Institut de recherches cliniques de Montréal (IRCM)	QC

Dr. Gary Groot gary.groot@saskhealthauthority.ca	Medical Director of Clinical Quality Improvement	Saskatchewan Health Authority	SK
Nicole Lapointe nicole.lapointe@health.gov.sk.ca	Strategic Policy/Program Analyst Connected Care Services Branch	Saskatchewan Ministry of Health	SK
Dr. Paul Hasselback Paul.Hasselback@yukon.ca	A/Medical Officer of Health	Yukon Department of Health & Social Services	YK
Caitlin Kerwin Caitlin.Kerwin@yukon.ca	Director, Strategic Policy and Planning	Yukon Department of Health & Social Services	YK
Alannah Brown alannah.brown@cihr-irsc.gc.ca	Senior Advisor, Centre for Research on Pandemic Preparedness and Health Emergencies	Canadian Institutes of Health Research (CIHR)	Federal
Michelle Boudreau michelle.boudreau@hc-sc.gc.ca	Executive Director, Office of Pharmaceutical Management Strategies, Strategic Policy Branch	Health Canada	Federal
Nicholas Charney Nicholas.charney@hc-sc.gc.ca	Director, COVID-19 Task Force	Health Canada	Federal
Tammy Clifford Tammy.Clifford@cihr-irsc.gc.ca	Vice-President Research – Learning Health Systems	Canadian Institutes of Health Research (CIHR)	Federal
Robert Geneau robert.geneau@canada.ca	Director, Applied Research Division Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal

Francesca Reyes Domingo francesca.reyes.domingo@phac-aspc.gc.ca	Research Scientist, Evidence Synthesis and Knowledge Translation Unit, Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal
Tolga Yalkin Tolga.Yalkin@hc-sc.gc.ca	Assistant Deputy Minister	Health Canada	Federal
21(1) [redacted]	Post-COVID Patient		Patient Partner
21(1) [redacted]	Post-COVID Patient		Patient Partner
21(1) [redacted]	Post-COVID Patient		Patient Partner
21(1) [redacted]	21(1) [redacted]	CADTH	
21(1) [redacted]	21(1) [redacted]	CADTH	
21(1) [redacted]	21(1) [redacted]	CADTH	

Agenda

Virtual Roundtable on Post–COVID-19 Condition Models of Care — June 1, 2022

Meeting Objectives

- To increase awareness and understanding of evidence pertaining to post–COVID-19 condition models of care and service delivery (e.g., Décary et al. [2021] living systematic review, WHO guidelines and framework, and relevant elements of CADTH scoping review in progress)
- To increase awareness of pan-Canadian initiatives related to the planning, development, and implementation of service delivery and models of care for the post–COVID-19 condition patient population
- To facilitate connections among those currently working on the funding, planning, development, implementation, and/or evaluation of service delivery and models of care for the post–COVID-19 Condition patient population across Canadian jurisdictions
- To create opportunities for identification of merging evidence needs related to post–COVID-19 condition models of care and service delivery and/or other post–COVID-19 evidence topics T

Agenda: 11 a.m. – 4 p.m. Eastern Time

Moderator: 21(1)

Join Zoom Meeting:
https://cadth.zoom.us/j/83867196110?pwd=bzlRUWprelF1UzR3RFBSZytIYUtuZz09

Meeting ID: 22(1)(b)

Passcode: 22(1)(b)

Time	Description	Speakers
11:00 a.m. – 11:15 a.m.	Welcome and Introductions	21(1), CADTH 21(1)
11:15 a.m. – 11:30 a.m.	Post–COVID-19 Condition in Canada	Dr. Angela Cheung
11:30 a.m. – 11:50 a.m.	Post–COVID-19 Condition Perspectives and Experience	Dr. Anne Bhéreur
11:50 p.m. – 12:00 p.m.	Questions and Discussion	
12:00 p.m. – 12:20 p.m.	Discussion #1 1. What is the current state of post–COVID-19 service delivery in your jurisdiction?	

Agenda

Time	Description	Speakers
12:20 p.m. – 12:35 p.m.	Break	
12:35 p.m. – 12:55 p.m.	Models of Care Related to Post–COVID-19 Condition	Simon Décary
12:55 p.m. – 1:05 p.m.	Questions and Discussion	
1:05 p.m. – 1:50 p.m.	Presentations: Early Experiences Developing and Implementing Models of Care for Post–COVID-19 Condition	Dr. Adeera Levin Dr. Chester Ho
1:50 p.m. – 2:00 p.m.	Questions and Discussion	
2:00 p.m. – 2:45 p.m.	Discussion #2 1. How do you see your jurisdiction delivering care for people with post–COVID-19 condition (e.g., motivation, funding, collaborators)? 2. What opportunities exist for developing models of care?	
2:45 p.m. – 3:00 p.m.	Break	
3:00 p.m. – 3:30 p.m.	Discussion #3 1. What information, evidence, or resources would assist your decision-making related to models of care for post–COVID-19 condition?	
3:30 p.m. – 3:50 p.m.	Closing Remarks	21(1) [redacted]
4:00 p.m.	Adjournment	21(1) [redacted]

21(1)

Dr. Angela Cheung

Dr. Angela M. Cheung is Professor of Medicine, KY and Betty Ho Chair in Integrative Medicine at University of Toronto, and Senior Scientist at University Health Network. She is currently holding a Tier 1 Canada Research Chair in Musculoskeletal and Postmenopausal Health, and has earned a Canadian Institutes of Health Research Senior Investigator Award, the Canadian Society of Internal Medicine David Sackett Senior Investigator Award, the Ontario Premier Research Award, and the University of Toronto Eugenie Stuart Mentorship Award. She is a member of the Endocrine Society Clinical Guidelines Committee, and is the Co-Lead of the Canadian COVID-19 Prospective Cohort Study (CANCOV). She obtained her MD degree from Johns Hopkins University School of Medicine in 1988, and her PhD degree from Harvard University in 1997. She is a Fellow of the Royal College of Physicians of Canada and has been in clinical practice for more than 30 years.

Twitter @AngelaMCheung

Dr. Anne Bhéreur

Anne Bhéreur has been a family and palliative care physician since 2003 at the Centre intégré universitaire de santé et de services sociaux (CIUSSS) du Nord-de-l'Île-de-Montréal. She is also an Associate Clinical Professor at the Université de Montréal. Currently away from practice because of long COVID, she is a physician-researcher on long COVID and participates in work related to care models. She is co-director and patient-partner of the Restoration axis of the Quebec COVID-Pandemic Network (rqcp.ca) and a member of the Institut national d'excellence en santé et en services sociaux (INESSS) Consultative Committee on Post–COVID-19 Conditions.

Simon Décary

Simon Décary is an assistant professor at University of Sherbrooke in Quebec. He is involved in long COVID research since April 2020, having received a grant from Fondation du CR-CHUS to conduct a safety pilot clinical trial of interdisciplinary rehabilitation for long COVID, one of the first study in this field. In December 2020, his team was also among the first to team up with the myalgic encephalomyelitis community to warn rehabilitation professionals about the harms of graded exercise therapy in this population. This led a global movement focusing on the Stop.Rest.Pace. approach to safe rehabilitation. He conducted multiples online webinars for rehabilitation professionals and primary care clinicians about the management of long COVID. He was recently mandated by the SPOR Evidence Alliance, COVID-END, and the Canadian Institutes of Health Research to conduct living systematic reviews of care models and management options for long COVID. In August 2021, he joined the WHO expert committee for post–COVID-19 condition.

Dr. Adeera Levin

Dr. Levin is a professor of medicine, Head Division of Nephrology at the University of British Columbia, and consultant nephrologist at Providence Health Care (PHC) St Paul's Hospital in Vancouver, Canada. She is also Senior Medical Lead, Integration Clinical and Academic Networks at PHC.

She is Executive Director of BC Renal, which oversees the care, planning, and budgets for kidney services in the province of British Columbia. She has recently established and led a province-wide Post–COVID-19 Interdisciplinary Clinical Network (PC-ICCN), embedding research and clinical care in a learning health care network.

Her teaching and research awards include Canadian Society of Nephrology Outstanding Contributions to Canadian Nephrology (2013), Kidney Foundation Research Medal of Excellence (2014), a fellowship with the Canadian Academy of Health Sciences (2014), and the Aubrey J Tingle Research Award for contributions to the province of British Columbia (2015). In 2015, she was awarded The Order of Canada.

Dr. Chester Ho

Dr. Chester Ho is a professor and endowed chair of spinal cord injury research at the University of Alberta; Alberta Health Services (AHS) Edmonton Zone Interim Zone Clinical Department Head, Neurosciences; and AHS Senior Medical Director for the Neurosciences, Rehabilitation & Vision Strategic Clinical Network.

Dr. Ho graduated from the Clinical School at the University of Cambridge in the UK, before moving to the US, where he completed his residency in Physical Medicine & Rehabilitation at the Harvard Medical School Spaulding Rehabilitation Hospital, and fellowship in Spinal Cord Injury Medicine at the Kessler Institute for Rehabilitation and University of Medicine and Dentistry of New Jersey.

In addition to his academic pursuits, Dr. Ho holds a number of provincial and national leadership positions, such as his recent provincial leadership in AHS post-COVID rehabilitation and recovery planning, which included the creation of the AHS Post-COVID Rehabilitation Framework, which involved more than 100 stakeholders from across the province.

Models of Care for Post–COVID-19 Condition

In preparation for this roundtable, and to set the stage for CADTH's commitment to supporting post–COVID-19 condition decision-making needs moving forward, here we briefly describe some of our current initiatives related to post–COVID-19 condition, as well as future plans. Some additional resources of potential interest are also provided.

Post–COVID-19 Condition

People who have a COVID-19 infection usually feel unwell for a few days, or for up to 1 to 2 weeks. But a growing concern is that some people have symptoms that last for several weeks or months. This is known as post–COVID-19 condition, or long COVID. CADTH uses WHO's definition of post–COVID-19 condition, which refers to when people experience symptoms for more than 12 weeks after probable or suspected COVID-19 infection. People with post–COVID-19 condition may experience a range of persisting and debilitating symptoms, such as fatigue, shortness of breath, muscle aches, and cognitive and mental health challenges.

Recent estimates suggest that, in Canada, more than 480,000 people have post–COVID-19 condition. But that number is likely higher. For a health care system that is already struggling with the effects of acute COVID-19 infections, post–COVID-19 presents extra challenges.

Evidence Reviews About Models of Care

In preparation for the roundtable meeting, please refer to:

- Care Models for Long COVID: Rapid Systematic Review (June 2021)
- Care Models for Long COVID: Living Systematic Review – First Update (December 2021)

The reviews were authored by Simon Décary (a speaker at the roundtable meeting) and Annie LeBlanc's team on behalf of the SPOR Evidence Alliance and COVID-END. The reviews highlighted different models of care from international and Canadian jurisdictions. Common elements reported across several models included primary care pathways, specialty clinics, standardized symptoms assessment tools, virtual care, and access to rehabilitation services. The evidence base assessing clinical effectiveness, patient-centred outcomes, and cost-effectiveness is currently limited, and is expected to emerge with future studies. A summary of the reviews can be found on page 3 and page 4 of the respective reviews.

CADTH Condition Level Review on Post–COVID-19 Condition

With the context of a rapidly changing evidence landscape, emerging evidence needs, and many stakeholders working on various aspects of post–COVID-19 condition, CADTH is committed to developing relationships, understanding the Canadian and international landscape, and identifying ways to best support health care decision-making needs across Canada. CADTH is well positioned and has been engaged by jurisdictions across Canada to help broker and share information, and convene and connect stakeholders to reduce duplication of efforts and rapidly respond to emerging evidence needs. With this focus, CADTH is currently conducting a Condition Level Review on post–COVID-19 condition.

A Condition Level Review is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of a condition, including prevention, identification, treatment, and management. CADTH has already conducted several initiatives as part of the Condition Level Review, with more ongoing and planned, as summarized in the following.

Pan-Canadian Stakeholder Panel on Post–COVID-19 Condition

To help ensure the highest priority research areas and decision-making needs are identified, and understand how we can best address those needs, CADTH has convened a pan-Canadian stakeholder panel. The stakeholder panel has representation from cross-jurisdictional decision-makers, clinicians actively working on post–COVID-19 condition, researchers, and patient representatives. An overarching goal of the panel is to support cross-jurisdictional collaboration, reduce duplication in research efforts, and broadly share, mobilize, and implement results. The panel has been instrumental in providing support for the overall direction of the CADTH Condition Level Review, and many members of the stakeholder panel are involved in the planning and delivery of the virtual roundtable. CADTH is grateful for their ongoing engagement and support.

Completed CADTH Initiatives

As part of the Condition Level Review, CADTH has completed:

- A Scoping Review (May 2022) that characterizes the current evidence landscape on post–COVID-19 condition and identifies evidence gaps. Between January 1, 2019, and December 20, 2021, 637 published articles, 247 protocols, and 8 preprints of systematic reviews were identified and included in the scoping review. CADTH is actively developing a protocol to keep aspects of this scoping review living (i.e., continuously updated). Refer to pages 30, 55, and 57 of this report for information on guidelines related to post–COVID-19 condition.
- A collaborative systematic review (April 2022) with the Public Health Agency of Canada (PHAC) and the Alberta Research Centre for Health Evidence (ARCHE) on risk factors and preventive interventions for Post–COVID-19 condition.
- A webinar (October 13, 2021) entitled The Implications of Long COVID.
- A Horizon Scan (September 2021) that provides an overview of post–COVID-19 Condition.
- A *Hospital News* article (January 2022) that describes post–COVID-19 condition and what it means for a struggling health care system.

Ongoing CADTH Initiatives

- Collaborating with McMaster University and Cochrane Canada to develop and populate a portal that will host Canadian and international post–COVID-19 condition guidelines, building off their Canadian Institutes of Health Research (CIHR)-funded living recommendations map
- Evidence reviews:
  - Subtypes of Post–COVID-19 Condition
  - Post-COVID-19 Condition: A summary of existing guidelines
  - Monitoring the development of emerging health technologies, including medical devices, clinical interventions, and therapeutics that may support people with post–COVID-19 condition, for potential assessment

- Developing an evidence bundle and information hub to showcase existing guidelines, resources, and evidence reviews

Next Steps for CADTH

In addition to completing ongoing CADTH initiatives, and hosting this virtual roundtable event, next steps for CADTH include identifying, prioritizing, and continuing to respond to evidence needs to support Canada's health system decision-makers, and people living with post–COVID-19 condition. Building off our living scoping review, CADTH is well positioned to respond to direct requests for evidence rapidly. To find out more about CADTH, or to submit a request, talk to a Liaison Officer in your region.

Visit www.cadth.ca/longcovid to stay up to date and access completed and in progress CADTH resources.

Additional Resources

Please refer to these additional resources that may be of interest:

- Technical report: A report entitled Creating a provincial post–COVID-19 interdisciplinary clinical care network as a learning health system during the pandemic: Integrating clinical care and research.
- Resources for Health Care Professionals: Information and tools developed by Alberta Health Services to assess, refer, and provide continuing care for people after COVID-19.
- Evidence reviews: A collection of reports developed by Institut national d'excellence en santé et en services sociaux (INESSS) about the organization of care and services, assessment of physical rehabilitation interventions, and support tools for the clinical management of post–COVID-19 condition.

PARTICIPANT LIST

Name	Title	Organization	Jurisdiction
Scott Fullmer	Manager, Research, Evidence, and Policy Unit	Alberta Health Services	AB
Isabel Henderson	Executive Director – Special Projects Branch Director – Clinical Operations, Emergency Coordination Centre/Readiness & Recovery Centre Co-chair of AHS Post COVID Taskforce	Alberta Health Services	AB
Dr. Chester Ho	Senior Medical Director, Neurosciences, Rehabilitation & Vision Strategic Clinical Network	Alberta Health Services	AB
Paul Wright	Executive Director of Neuroscience, Rehabilitation and Vision, Strategic Clinical Network	Alberta Health Services	AB
Dr. Adeera Levin	Professor of Medicine, Head Division of Nephrology & Executive Director of BC Renal	University of British Columbia	BC
Maureen O'Donnell	Associate Deputy Minister Health System Innovation	British Columbia Ministry of Health	BC

Victoria Schukel	Executive Director of Research & Technology	British Columbia Ministry of Health	BC
Dr. Cornelia (Kristel) Van Ineveld	Associate Professor, Geriatric Medicine Site Medical Lead, Geriatrics	St. Boniface Hospital	MB
Robert Shaffer	Assistant Deputy Minister Insurance Division	Manitoba Health	MB
Susan Brien	Vice-President of Medical, Academic and Research Affairs	Horizon Health Network	NB
Eric Levesque	A/Assistant Deputy Minister, Health Services and Programs, Department of Health	Public Health New Brunswick	NB
Dr. Janice Fitzgerald	Chief Medical Officer of Health	Department of Health and Community Services	NL
Andrea McKenna	Deputy Minister	Department of Health and Wellness	NL
Dr. Christy Bussey	COVID-19 Inpatient Unit Medical Lead, Central Zone, Nova Scotia Health	Nova Scotia Health	NS
Ashley Harnish	Health Services Manager, Primary Health Care	Nova Scotia Health	NS

Jo-Anne Cecchetto	Assistant Deputy Minister - Health Programs	Government of Northwest Territories	NT
Dr. Katherine Kessler	A/Territorial Medical Director	Government of Northwest Territories	NT
Dr. Francois deWet	Territorial Chief of Staff	Government of Nunavut	NU
Suzannah Bennett	Manager, Clinical & Quality Standards, Clinical Institutes and Quality Programs	Ontario Health	ON
Dr. Angela Cheung	Professor of Medicine and the KY and Betty Ho Chair of Integrative Medicine	University Health Network/University of Toronto	ON
Robert Francis	Director, Strategic Policy Branch	Ontario Ministry of Health and Long-Term Care	ON
Cheryl Banks	Director, COVID Operations	Health PEI	PEI
Dr. Heather Morrison	Chief Public Health Officer	Health PEI	PEI
Dr. Karen Phillips	Provincial Epidemiologist, Chief Public Health Office	Health PEI	PEI
Lucie Bedard	Gestionnaire de projet, Centre d'expertise des maladies complexes	Centre hospitalier de l'Université de Montréal (CHUM)	QC

Dr. Anne Bhéreur	Professeure adjointe de clinique Faculté de médecine - Département de médecine de famille et de médecine d'urgence	Université de Montréal	QC
Simon Décary	Professeur adjoint, Laboratoire sur les soins de santé durables	Université de Sherbrooke	QC
Jade Falardeau	Coordonnatrice clinique en maladies rares et programmes spécifiques, Direction des services hospitaliers, Direction générale des affaires universitaires, médicales, infirmières et pharmaceutiques Direction des services hospitaliers	Ministère de la Santé et des Services sociaux	QC
Dr. Emilia Falcone	Director of the IRCM Post-COVID-19 (IPCO) Research Clinic Director of the Microbiome and Mucosal Defence Research Unit Canada Research Chair (Tier 2) in the Role of the Microbiome in Primary Immune Deficiencies	Institut de recherches cliniques de Montréal (IRCM)	QC
Dr. Gary Groot	Medical Director of Clinical Quality Improvement	Saskatchewan Health Authority	SK
Nicole Lapointe	Strategic Policy/Program Analyst Connected Care Services Branch	Saskatchewan Ministry of Health	SK

Dr. Paul Hasselback	A/Medical Officer of Health	Yukon Department of Health & Social Services	YK
Caitlin Kerwin	Director, Strategic Policy and Planning	Yukon Department of Health & Social Services	YK
Alannah Brown	Senior Advisor, Centre for Research on Pandemic Preparedness and Health Emergencies	Canadian Institutes of Health Research (CIHR)	Federal
Nicholas Charney	Director, COVID-19 Task Force	Health Canada	Federal
Tammy Clifford	Vice-President Research – Learning Health Systems	Canadian Institutes of Health Research (CIHR)	Federal
Robert Geneau	Director, Applied Research Division Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal
Francesca Reyes Domingo	Research Scientist, Evidence Synthesis and Knowledge Translation Unit, Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal
Tolga Yalkin	Assistant Deputy Minister	Health Canada	Federal

21(1)	Post-COVID Patient		Patient Partner
21(1)	Post-COVID Patient		Patient Partner
21(1)	Post-COVID Patient		Patient Partner
21(1)	21(1)	CADTH	
21(1)	21(1)	CADTH	
21(1)	21(1)	CADTH	

From: Levesque, Eric J. (DH/MS)
To: Dan Coulombe (DH/MS) (Dan.Coulombe@gnb.ca)
Cc: Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca)
Subject: FW: Proposal received by HHN Stakeholders
Date: July 1, 2022 10:45:00 AM
Attachments: Horizon Post-Covid 19 Condition Proposal Final.pdf
FW Post-COVID-19 Roundtable Follow-up..msg

Hi Dan,
As discussed yesterday, I would like to have Joanna become the point person for the Department on Long COVID as we work with the RHAs to get treatments pathways in place. Jennifer and I would like to take a project approach to this, where the she and I and the RHA VPs already engaged on this (see attached email) act as a Steering Committee, but that we have a project team made up of RHA and department staff. You can talk to Jennifer about who else we should engage from the Department. MOHs and PHNB are working on an educational package for PCPs already.
As a starting point, you can share all the attached information with Joanna so she can get started and get her to start drafting TORs for the Steering Committee and Project Team.
We hope to meet again with the RHAs with a draft of those in two-three weeks time.
Thanks.

Éric Levesque
Associate Deputy Minister / Sous-ministre délégué
Acute Care, Decision Support and Francophone Affairs / Soins aigus, soutien aux décisions et affaires francophones
Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783
E-mail / Courriel : eric.j.levesque@gnb.ca
www.gnb.ca

From: Foley, Gary (HorizonNB) <Gary.Foley@horizonnb.ca>
Sent: Thursday, June 30, 2022 9:43 AM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>; Elliott, Jennifer (DH/MS) <Jennifer.Elliott@gnb.ca>; Legacy, Stephane (VitaliteNB) <Stephane.Legacy@VitaliteNB.ca>; Banville, Natalie (VitaliteNB) <Natalie.Banville@vitalitenb.ca>; Brien, Dr. Susan (HorizonNB) <Susan.Brien@HorizonNB.ca>
Subject: Proposal received by HHN Stakeholders
Attached is a document received from HHN stakeholders. It has not gone to our Executive Leadership Team yet (just Susan and I) Good points raised and good involvement from a

multidisciplinary perspective.

From: Levesque, Eric J. (DH/MS) []
To: Foley, Gary (HorizonNB) [Gary.Foley@horizonnb.ca]; Legacy, Stephane (VitaliteNB) [Stephane.Legacy@VitaliteNB.ca]; Brien, Dr. Susan (HorizonNB) [Susan.Brien@HorizonNB.ca]; Banville, Natalie (VitaliteNB) [Natalie.Banville@vitalitenb.ca]; Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca) [Jennifer.Elliott@gnb.ca]
CC: Dan Coulombe (DH/MS) (Dan.Coulombe@gnb.ca) [Dan.Coulombe@gnb.ca]
Subject: FW: Post-COVID-19 Roundtable Follow-up.
Date: Tuesday, June 28, 2022 10:27:21
Attachment 1: PARTICIPANT LIST - CADTH Post-COVID Roundtable - June 1 2022.pdf
Attachment 2: Agenda–June1-2022.pdf
Attachment 3: Meeting-Material-Pre-Reading.pdf
Attachment 4: PARTICIPANT LIST roundtable June 1.pdf
Attachment 5: image002.gif
Attachment 6: image004.png

Bonjour,

Sharing with everyone prior to our meeting later this week. / Je vous partage ces informations avant notre rencontre plus tard cette semaine.

Éric Levesque
Associate Deputy Minister / Sous-ministre délégué

Acute Care, Decision Support and Francophone Affairs / Soins aigus, soutien aux décisions et affaires francophones
Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783
E-mail / Courriel : eric.j.levesque@gnb.ca
www.gnb.ca

From: 21(1) @cadth.ca> **On Behalf Of** 21(1)
Sent: Thursday, June 2, 2022 3:13 PM
Cc: 21(1) @cadth.ca>; 21(1) @cadth.ca>
Subject: Post-COVID-19 Roundtable Follow-up.

ATTENTION! External email / courriel externe.

Good afternoon,

Thank you again for your participation in the Roundtable on Post-COVID-19 Condition held on June 1, 2022.

We thank you for taking a few moments to complete the evaluation survey as it helps us understand if these types of sessions are valuable, meeting your jurisdiction's needs, and any improvements we can make. The link to the evaluation survey for the event can be found here: CADTH Post-COVID-19 Roundtable Evaluation Survey.

A list of attendees has been attached to this email, as was requested during the roundtable, to support connectivity and collaboration. We recognize we were unable to accommodate all requests for attendance, as efforts were made efforts to limit the number of attendees to allow for more conversation among the group. A recording of the roundtable presentations can be found here: CADTH Post-COVID-19 presentations. Please feel free to share this link with those who may be interested.

A summary of the roundtable discussion including key themes will be provided to all those in attendance, and forwarded to Ministry of Health leads. A brief will also be developed by our team at CADTH to further explore some of the outputs from the discussion yesterday. Thank you all for the valuable input and discussion and for sharing your insights on this important issue.

Sincerely,

21(1) [redacted]

[redacted]

CADTH

Email: 21(1) [redacted]

Ottawa: Located on the traditional, unceded territory of the Algonquin Nation

Francesca Reyes Domingo francesca.reyes.domingo@phac-aspc.gc.ca	Research Scientist, Evidence Synthesis and Knowledge Translation Unit, Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal
Tolga Yalkin Tolga.Yalkin@hc-sc.gc.ca	Assistant Deputy Minister	Health Canada	Federal
21(1) [redacted]	Post-COVID Patient		Patient Partner
21(1) [redacted]	Post-COVID Patient		Patient Partner
21(1) [redacted]	Post-COVID Patient		Patient Partner
21(1) [redacted]	21(1) [redacted]	CADTH	
21(1) [redacted]	21(1) [redacted]	CADTH	
21(1) [redacted]	21(1) [redacted]	CADTH	

Agenda

Virtual Roundtable on Post–COVID-19 Condition Models of Care — June 1, 2022

Meeting Objectives

- To increase awareness and understanding of evidence pertaining to post–COVID-19 condition models of care and service delivery (e.g., Décary et al. [2021] living systematic review, WHO guidelines and framework, and relevant elements of CADTH scoping review in progress)
- To increase awareness of pan-Canadian initiatives related to the planning, development, and implementation of service delivery and models of care for the post–COVID-19 condition patient population
- To facilitate connections among those currently working on the funding, planning, development, implementation, and/or evaluation of service delivery and models of care for the post–COVID-19 Condition patient population across Canadian jurisdictions
- To create opportunities for identification of merging evidence needs related to post–COVID-19 condition models of care and service delivery and/or other post–COVID-19 evidence topics T

Agenda: 11 a.m. – 4 p.m. Eastern Time

Moderator: 21(1) [redacted]

Join Zoom Meeting:
https://cadth.zoom.us/j/83867196110?pwd=bzlRUWprelF1UzR3RFBSZytIYUtuZz09

Meeting ID: 22(1)(b) [redacted]

Passcode: 22(1)(b) [redacted]

Time	Description	Speakers
11:00 a.m. – 11:15 a.m.	Welcome and Introductions	21(1) [redacted]
11:15 a.m. – 11:30 a.m.	Post–COVID-19 Condition in Canada	Dr. Angela Cheung
11:30 a.m. – 11:50 a.m.	Post–COVID-19 Condition Perspectives and Experience	Dr. Anne Bhéreur
11:50 p.m. – 12:00 p.m.	Questions and Discussion	
12:00 p.m. – 12:20 p.m.	Discussion #1 1. What is the current state of post–COVID-19 service delivery in your jurisdiction?	

Agenda

Time	Description	Speakers
12:20 p.m. – 12:35 p.m.	Break	
12:35 p.m. – 12:55 p.m.	Models of Care Related to Post–COVID-19 Condition	Simon Décary
12:55 p.m. – 1:05 p.m.	Questions and Discussion	
1:05 p.m. – 1:50 p.m.	Presentations: Early Experiences Developing and Implementing Models of Care for Post–COVID-19 Condition	Dr. Adeera Levin Dr. Chester Ho
1:50 p.m. – 2:00 p.m.	Questions and Discussion	
2:00 p.m. – 2:45 p.m.	Discussion #2 1. How do you see your jurisdiction delivering care for people with post–COVID-19 condition (e.g., motivation, funding, collaborators)? 2. What opportunities exist for developing models of care?	
2:45 p.m. – 3:00 p.m.	Break	
3:00 p.m. – 3:30 p.m.	Discussion #3 1. What information, evidence, or resources would assist your decision-making related to models of care for post–COVID-19 condition?	
3:30 p.m. – 3:50 p.m.	Closing Remarks	21(1) [redacted]
4:00 p.m.	Adjournment	21(1) [redacted]

21(1)

Dr. Angela Cheung

Dr. Angela M. Cheung is Professor of Medicine, KY and Betty Ho Chair in Integrative Medicine at University of Toronto, and Senior Scientist at University Health Network. She is currently holding a Tier 1 Canada Research Chair in Musculoskeletal and Postmenopausal Health, and has earned a Canadian Institutes of Health Research Senior Investigator Award, the Canadian Society of Internal Medicine David Sackett Senior Investigator Award, the Ontario Premier Research Award, and the University of Toronto Eugenie Stuart Mentorship Award. She is a member of the Endocrine Society Clinical Guidelines Committee, and is the Co-Lead of the Canadian COVID-19 Prospective Cohort Study (CANCOV). She obtained her MD degree from Johns Hopkins University School of Medicine in 1988, and her PhD degree from Harvard University in 1997. She is a Fellow of the Royal College of Physicians of Canada and has been in clinical practice for more than 30 years.

Twitter @AngelaMCheung

Dr. Anne Bhéreur

Anne Bhéreur has been a family and palliative care physician since 2003 at the Centre intégré universitaire de santé et de services sociaux (CIUSSS) du Nord-de-l'Île-de-Montréal. She is also an Associate Clinical Professor at the Université de Montréal. Currently away from practice because of long COVID, she is a physician-researcher on long COVID and participates in work related to care models. She is co-director and patient-partner of the Restoration axis of the Quebec COVID-Pandemic Network (rqcp.ca) and a member of the Institut national d'excellence en santé et en services sociaux (INESSS) Consultative Committee on Post–COVID-19 Conditions.

Dr. Paul Hasselback	A/Medical Officer of Health	Yukon Department of Health & Social Services	YK
Caitlin Kerwin	Director, Strategic Policy and Planning	Yukon Department of Health & Social Services	YK
Alannah Brown	Senior Advisor, Centre for Research on Pandemic Preparedness and Health Emergencies	Canadian Institutes of Health Research (CIHR)	Federal
Nicholas Charney	Director, COVID-19 Task Force	Health Canada	Federal
Tammy Clifford	Vice-President Research – Learning Health Systems	Canadian Institutes of Health Research (CIHR)	Federal
Robert Geneau	Director, Applied Research Division Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal
Francesca Reyes Domingo	Research Scientist, Evidence Synthesis and Knowledge Translation Unit, Centre for Surveillance and Applied Research	Public Health Agency of Canada (PHAC)	Federal
Tolga Yalkin	Assistant Deputy Minister	Health Canada	Federal

21(1)	Post-COVID Patient		Patient Partner
21(1)	Post-COVID Patient		Patient Partner
21(1)	Post-COVID Patient		Patient Partner
21(1)	21(1)	CADTH	
21(1)	21(1)	CADTH	
21(1)	21(1)	CADTH	

From: Leger, Dr. Yves (DH/MS)
To: Levesque, Eric J. (DH/MS)
Subject: FW: projet clinique Covid longue
Date: July 8, 2022 4:30:51 PM
Attachments: image001.png

PTI…. J'attends le project proposal/outline pour plus de details. Elle m'a contactee pour m'en faire part. Ca sonne bien comme projet, il semble avoir peu de donnes a date sur les moyens de rehabilitation
Yves

Dr. Yves A. Leger, MD, MHSc, FRCPC
Acting Deputy Chief Medical Officer of Health
Medecin-hygeniste en chef ajoint par interim
N.B. Department of Health / Ministère de la Sante du N.B.

From: Banville, Natalie (VitaliteNB) <Natalie.Banville@vitalitenb.ca>
Sent: July 8, 2022 3:19 PM
To: Witkowski, Ludivine (VitaliteNB) <Ludivine.Witkowski@vitalitenb.ca>; Sonier-Ferguson, Brigitte (VitaliteNB) <Brigitte.Sonier-Ferguson@vitalitenb.ca>; Pelletier, Anick (R6) <Anick.Pelletier@vitalitenb.ca>; 21(1) [redacted] Desrosiers, Dr. France (VitaliteNB) <Dr.France.Desrosiers@vitalitenb.ca>; Legacy, Stephane (VitaliteNB) <Stephane.Legacy@VitaliteNB.ca>
Cc: Leger, Dr. Yves (DH/MS) <Yves.Leger@gnb.ca>; Saïd Mekari <said.mekari@usherbrooke.ca>; Olivier Dupuy <olivier.dupuy@univ-poitiers.fr>; Jose, Caroline (VitaliteNB) <Caroline.Jose@vitalitenb.ca>; Mathieu Bélanger (mathieu.belanger@umoncton.ca) <mathieu.belanger@umoncton.ca>
Subject: RE: projet clinique Covid longue

Bonjour,
Merci beaucoup de cette implication et initiative.
Je vais immédiatement envoyé au ministère de la santé afin d'avoir un suivi.
Moi et M. Stephane Lagacé sommes sur un comité provinciale sur le sujet, nous allons présenter ceci.
Nous vous revenons par la suite.
Beau travail, merci

Dre Natalie Banville
V.-P. Affaires médicales / VP Medical Affair

RÉSEAU DE SANTÉ vitalité HEALTH NETWORK

PALMARÈS CANADIEN DES 40 HÔPITAUX DE RECHERCHE 2021

Siège social / Head Office
275 rue Main Street - Bureau/Suite 600
Bathurst, NB E2A 1A9
Téléphone / Telephone: 506-544-2162
Télécopieur / Fax: 506-544-2145
natalie.banville@vitalitenb.ca

www.VitaliteNB.ca

••

From: Witkowski, Ludivine (VitaliteNB) <Ludivine.Witkowski@vitalitenb.ca>
Sent: July 8, 2022 12:17 PM
To: Sonier-Ferguson, Brigitte (VitaliteNB) <Brigitte.Sonier-Ferguson@vitalitenb.ca>; Pelletier, Anick (R6) <Anick.Pelletier@vitalitenb.ca>; Banville, Natalie (VitaliteNB) <Natalie.Banville@vitalitenb.ca>;
21(1) [redacted]
Cc: Leger, Dr. Yves (DH/MS) <Yves.Leger@gnb.ca>; Saïd Mekari <said.mekari@usherbrooke.ca>; Olivier Dupuy <olivier.dupuy@univ-poitiers.fr>; Jose, Caroline (VitaliteNB) <Caroline.Jose@vitalitenb.ca>; Mathieu Bélanger (mathieu.belanger@umoncton.ca) <mathieu.belanger@umoncton.ca>
Subject: projet clinique Covid longue

Bonjour à tous,

J'ai le plaisir de vous contacter pour vous annoncer que nous sommes actuellement en train de constituer un programme d'entrainement destiné à améliorer les troubles cognitifs des personnes présentant un syndrome post-Covid (covid longue). Il s'agit d'un très beau projet qui comprendra un versant biologique, un versant d'imagerie cérébrale fonctionnelle, un versant de testing neurocognitif et psychologique ainsi qu'un programme d'entrainement.

Nous venons de terminer une première étude qui a démontré que 20 pour cent de notre population présentait des troubles cognitifs post covid, et que 30 pour cent avait de la dépression, 40 pour cent de l'anxiété, et 30 pour cent des difficultés d'inhibition. Les populations réclament une clinique spécialisée, ainsi que les médecins de familles qui se sentent peu outillés face aux patients.

Je sais que les régies de santé ont à cœur de développer une clinique de Covid longue, et j'aimerais pouvoir m'entretenir du projet avec une personne impliquée. Il serait important de promouvoir notre initiative, et un appui serait grandement apprécié. Nous bénéficions déjà de partenariat via le CFMNB, le BARR, l'université de Sciences de Poitiers, et de fonds via le Canadian Clinical Trials Network (CCRN) des IRSC. Le CFMNB montre aussi un grand intérêt à nous appuyer financièrement.

Je me tiens à votre disposition pour présenter le projet et vous souhaite une bonne journée,

Ludivine Witkowski.

Ludivine Chamard Witkowski, MD, Assoc. Prof.
fellow SEP et démences précoces/MS and young onset dementia fellow
Neurologue clinicien chercheur/Neurologist clinician-researcher
Réseau de santé Vitalité Health Network
Centre hospitalier universitaire Dr-Georges-L.-Dumont
Dr. Georges-L.-Dumont University Hospital Center,
Centre de Formation Médicale du Nouveau-Brunswick,Moncton, NB, Canada.

From: Sargent, Jessica (DH/MS)
To: Levesque, Eric J. (DH/MS)
Subject: FW: Information bundle - Monday, July 18, 2022
Date: July 19, 2022 8:18:04 AM
Attachments: OCSO Post-COVID Condition Scan_27_July15_2022.pdf

---

Hi Eric
See attached updated OCSO Post COVID-19 Condition Scan. If you have other contact people I should be sharing with please let me know
Thank you,
Jessica

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #27

July 2-July 15, 2022

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer (OCSO).

CURRENT STATE OF KNOWLEDGE

According to the World Health Organization (WHO), post COVID-19 condition (PCC) refers to persistent symptoms occurring 12 weeks or more after an acute COVID-19 infection, which persist or reoccur for a minimum of 8 weeks. The most common symptoms that we know of in adults include: fatigue, memory problems, sleep disturbances, shortness of breath, anxiety and depression, general pain and discomfort, difficulty thinking or concentrating and post-traumatic stress disorder (PTSD). There is still a lot that we don't know about post COVID-19 condition in children.

PCC is also referred to as long COVID, post-acute sequelae, post COVID-19 symptoms, and post-acute COVID-19 syndrome. Prior to the WHO definition, a number of studies reported on post-acute sequelae (PAS) from 4 to 12 weeks post diagnosis. The Public Health Agency of Canada (PHAC) released a review of the current international evidence (November 2021). Over 100 symptoms or difficulties conducting usual activities of daily living were reported.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There's currently no universally agreed-upon approach to diagnose and treat post COVID-19 condition. Early evidence suggests that vaccination with 2 or more doses may help reduce the risk of developing post COVID-19 condition if infected. Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with PCC. Multidisciplinary teams in "long COVID" clinics have been set up to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

People who have been hospitalized or who needed intensive care during recovery appear to be at greater risk of experiencing longer-term effects. However, recent research shows about 30% to 40% of people who weren't hospitalized for their initial COVID-19 infection still report symptoms beyond 12 weeks. Canadians suffering from PCC and who are unable to work because of their symptoms may be eligible for support through: Employment and Skills Development Canada's Employment Insurance (EI) Program and Canada Pension Plan Disability Benefits.

This week's scan includes a systematic review examining the link between diabetes and long COVID, as well as a study by Manhas et al. on a rehabilitation framework for post-COVID conditions (PCC) to support persons with PCC in Alberta, Canada.

GUIDELINES OR STANDARDS

- **WHO** developed a clinical case definition of PCC in October 2021. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges.
    - *"Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time."*
    - **WHO:** Q&A page on Post-COVID-19 Condition (February 2022).

- **US CDC** describes Post-COVID conditions as a wide range of new, returning, or ongoing health problems that people experience after first being infected with the virus that causes COVID-19. The CDC posted Interim Guidance (Updated June 2021) for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions (Updated March 2022). CDC is using science to learn more about post-COVID conditions.

- UK **NICE**: Rapid guidelines for managing the long-term effects of COVID-19 (Updated March 2022).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition (continuously updated)

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC) (last updated April 2022)

- *Wiener klinische Wochenschrift*: Guideline S1: Long COVID: Diagnostics and treatment strategies (December 2021)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance & Breathing Discomfort Guidance (December 2021).

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for patients with post–COVID-19 conditions (December 2021).

- European Society of Clinical Microbiology and Infectious Diseases (**ESCMID**): Rapid guidelines for assessment and management of long COVID (February 2022)

- **ACAS** (UK-based Advisory, Conciliation and Arbitration Service): Long COVID – advice for employers and employees (last reviewed April 2022)

- **Ontario Health** Post COVID-19 Condition - Guidance for Primary Care (PDF)

- **Scottish Government Guidelines:** Managing the long-term effects of COVID-19

NATIONAL AND INTERNATIONAL DEVELOPMENTS *(JULY 2 – JULY 15)*

CANADA

- (NEW) On July 7th, the Government of Canada announced they will be investing $10 million to create a pan-Canadian platform to advance research into the effectiveness and clinical challenges of new COVID-19 treatments in non-hospitalized patients. The Canadian ADAptive Platform Trial of COVID-19 Therapeutics in Community Settings (Can-ADAPT COVID) will be led by Dr. Andrew Pinto. Dr. Pinto will investigate outpatient medications for COVID-19 such as nirmatrelvir/ritonavir and provide key insights into whether treatments prevent hospitalization and post COVID-19 condition ("long COVID").
- (NEW) A study by Manhas et al. describes the development and composition of a codesigned, multidisciplinary, integrated, systematic rehabilitation framework for post-COVID conditions (PCC) that spans the care continuum to streamline and standardize rehabilitation services to support persons with PCC in Alberta, Canada.
- (NEW) The new post-COVID rehab program at The Ottawa Hospital combines physiotherapy and occupational therapy, but also includes an important core of mental health supports

UK

- (NEW) According to recent UK ONS data, of triple-vaccinated adults, 4.5%, 4.2% and 5.0% self-reported having long COVID 12 to 16 weeks after a first laboratory-confirmed coronavirus (COVID-19) infection compatible with the Omicron BA.1, Omicron BA.2 or Delta variants, respectively, using data to 27 May 2022. There was no statistical evidence of differences in the odds of reporting long COVID between infections compatible with the Omicron BA.1, Omicron BA.2 and Delta variants among adults who were triple vaccinated when infected; this was after statistically adjusting for socio-demographic characteristics for all comparisons, and for time since last vaccine dose when comparing Omicron BA.1 and BA.2.

US

- (NEW) CDC published a checklist designed to help patients and caregivers get the most out of appointments with healthcare providers for post-COVID conditions.

EMERGING SCIENTIFIC EVIDENCE *(JULY 2 – JULY 15)**

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
Post COVID-19 complications, adjunct therapy explored, and steroidal after effects (Sonkar et al)	Review (Available in *Can J Chem)*	Review discusses various post-COVID-19 complications observed and adjunctive therapies used along with common COVID-19 treatment and spotlights their side effects and consequences. This review provides the latest literature on COVID-19, which emphasizes the subsequent complications in various organs, side effects of drugs, and alternative regimens used to treat COVID-19.
Association of COVID-19 with Diabetes: A Systematic Review and Meta-Analysis	Systematic Review *(Available in*	Emerging evidence suggests that long COVID-19 may lead to a wide range of post-acute sequelae outcomes, including new onset of diabetes. Aim of this meta-analysis was to estimate the incidence of newly diagnosed diabetes in survivors of COVID-19. Multiple electronic databases

(Ssentongo et al)	*Research Square)*	(MEDLINE, Scopus, Cochrane Central Register of Controlled Trials and the World Health Organization Global Literature on Coronavirus Disease) and clinical trial registries were searched to June 25, 2022, for studies reporting the association of COVID-19 and diabetes. Two investigators independently assessed studies for inclusion. Risk of bias was assessed using the Newcastle-Ottawa Scale. We estimated the effect of COVID-19 on incident diabetes by random-effects meta-analyses using the generic inverse variance method. We identified 5 eligible studies consisting of 1,130,773 COVID-19 patients and 16,630,187 controls. Median age was 43 years and 34.8 % were female. COVID-19 was associated with a 74% higher risk of incident diabetes. Average risk of bias assessment was 7.5. In this systematic review and meta-analysis, COVID-19 was associated with higher risk for developing new onset diabetes among survivors.

SELECTED LITERATURE

TITLE AND AUTHOR	SOURCE	SUMMARY
Searching for Factors Influencing the Severity of the Symptoms of Long COVID (Mińko et al)	*Int J Environ Res Public Health*	The purpose of this study was to look for factors that influence the type and severity of Long COVID symptoms. In total, 932 individuals with a history of COVID-19 were qualified for the study using an original questionnaire based on the COVID-19 Yorkshire Rehab Screen (C19-YRS) questionnaire. Older adults were more likely to report problems with mobility and in performing daily activities. Those with a higher BMI showed significantly more symptoms such as dyspnea at rest and on exertion, feelings of chronic fatigue, problems with mobility and in performing daily activities. The data show that those with Long COVID should receive multidisciplinary help including additional medical and psychological support. Particular attention should be paid to elderly and obese persons.
Safety and efficacy of low dose naltrexone in a long covid cohort; an interventional pre-post study (O'Kelly et al)	*Brain Behav Immun Health*	In this single centre interventional pre post study, the safety of Low Dose Naltrexone (LDN) was explored in patients with Post COVID-19 Syndrome (PCS). Patients were recruited through a Post COVID clinic, had a baseline quality of life questionnaire in symmetrical Likert format, were prescribed 2 months of LDN and repeated the same questionnaire at the end of the second month. Patients were monitored to adverse events. 52 patients participated of whom 40 (76.9%) were female. Median age was 43.5 years. Healthcare workers represented the largest occupational cohort n = 16(34.8%). Median time from diagnosis of COVID-19 until enrolment was 333 days. 38 participants (73.1%) were known to commence LDN, two of whom (5.3%) stopped taking LDN post commencement due to new onset diarrhoea and also described fatigue. In total 36(69.2%) participants completed the questionnaire at the end of the two-month period. Improvement was seen in 6 of 7 parameters measured; recovery from COVID-19, limitation in activities of daily living, energy levels, pain levels, levels of concentration and sleep disturbance, improvement in mood approached but was not significant. LDN is safe in patients with PCS and may improve well-being and reduce symptomatology in this cohort.
Post COVID-19 condition diagnosis: A population-based cohort study of occurrence, associated	*Research Square prepub*	Our aim was to investigate these aspects in SARS-CoV-2 positive individuals with and without a post COVID-19 condition diagnosis. We conducted a population-based cohort study of adults in the entire Stockholm Region, Sweden, with a positive SARS-CoV-2 test from 1 March

factors, and healthcare use by severity of acute infection (Hedberg et al)		2020 to 31 July 2021, stratified by severity of the acute infection. The study outcome was a post COVID-19 condition diagnosis registered any time 90 to 360 days after positive test. We performed Cox regression models to assess baseline characteristics associated with post COVID-19. Individuals with post COVID-19 were then propensity-score matched to individuals without post COVID-19 to assess healthcare use beyond the acute infection. Among 204 805 SARS-CoV-2-positive individuals, the proportion receiving a post COVID-19 diagnosis was 1% among individuals not hospitalized for their COVID-19 infection, 6% among hospitalized, and 32% among ICU-treated individuals. Female sex was associated with post COVID-19 among non-hospitalized and hospitalized individuals, with interactions between age and sex. Among individuals with post COVID-19, the monthly proportion with outpatient care visits after the infection compared to before the infection was substantially elevated up to one year after the acute infection, with substantial proportions of this care attributed to care related to post COVID-19.
Long COVID and symptom trajectory in a representative sample of Americans in the first year of the pandemic (Wu et al)	*Sci Rep*	We use a sample representing the U.S. community population from the Understanding America Study COVID-19 Survey, which surveyed around 8000 respondents bi-weekly from March 2020 to March 2021. Our final sample includes 308 infected individuals who were interviewed one month before, around the time of, and 12 weeks after infection. About 23% of the sample experienced new-onset symptoms during infection which lasted for more than 12 weeks, and thus can be considered as having long COVID. The most common new-onset persistent symptoms among those included in the study were headache (22%), runny or stuffy nose (19%), abdominal discomfort (18%), fatigue (17%), and diarrhea (13%). Long COVID was more likely among obese individuals and those who experienced hair loss, headache and sore throat) during infection. There was a lack of evidence relating risk to age, gender, race/ethnicity, education, current smoking status, or comorbid chronic conditions. This work provides national estimates of long COVID in a representative sample after accounting for pre-infection symptoms.
Remodeling of T Cell Dynamics During Long COVID Is Dependent on Severity of SARS-CoV-2 Infection (Wiech et al)	*Front immunol*	We performed longitudinal studies of mild, moderate and severe COVID-19-convalescent patients, at two time points (3 and 6 months from the infection), to assess the dynamics of T cells immune landscape, integrated with patients-reported symptoms. We show that alterations among T cell subsets exhibit different, severity- and time-dependent dynamics, that in severe convalescents result in a polarization towards an exhausted/ senescent state of CD4+ and CD8+ T cells and perturbances in CD4+ Tregs. CD8+ T cells exhibit a high proportion of CD57+ terminal effector cells, together with significant decrease of naïve cell population, augmented granzyme B and IFN-γ production and unresolved inflammation 6 months after infection. Mild convalescents showed increased naïve, and decreased central memory and effector memory CD4+ Treg subsets. Patients from all severity groups can be predisposed to the long COVID symptoms, and fatigue and cognitive dysfunctions are not necessarily related to exhausted/senescent state and T cell dysfunctions, as well as unresolved inflammation that was found only in severe convalescents. In conclusion, post-COVID-19 functional remodeling of T cells could be seen as a two-step process, leading to distinct convalescent immune states at 6 months after infection. Our data imply that attenuation of the functional

		polarization together with blocking granzyme B and IFN-γ in CD8+ cells might influence post-COVID alterations in severe convalescents.
Detection of Post-COVID-19 Patients Using Medical Scent Detection Dogs—A Pilot Study (Twele et al)	*Front Med*	Previous research proved dogs' ability to detect acute SARS-CoV-2 infections, but has not yet shown if dogs also indicate samples of patients with post-COVID-19 condition (Long COVID). Nine dogs, previously trained to detect samples of acute COVID-19 patients, were confronted with samples of Long COVID patients in two testing scenarios. In test scenario I (samples of acute COVID-19 vs. Long COVID) dogs achieved a mean sensitivity (for acute COVID-19) of 86.7% and a specificity of 95.8%When dogs were confronted with Long COVID and negative control samples in scenario IIa, dogs achieved a mean sensitivity (for Long COVID) of 94.4 and a specificity of 96.1%. In comparison, when acute SARS-CoV-2 positive samples and negative control samples were comparatively presented (scenario IIb), a mean sensitivity of 86.9 and a specificity of 88.1% was attained. This pilot study supports the hypothesis of volatile organic compounds (VOCs) being long-term present after the initial infection in post-COVID-19 patients. Detection dogs, trained with samples of acute COVID-19 patients, also identified samples of Long COVID patients with a high sensitivity when presented next to samples of healthy individuals.
Development of a Novel Care Rehabilitation Pathway for Post-COVID Conditions (Long COVID) in a Provincial Health System in Alberta, Canada (Manhas et al)	*Phys Ther*	The purpose of this study was to describe the development and composition of a codesigned, multidisciplinary, integrated, systematic rehabilitation framework for post-COVID conditions (PCC) that spans the care continuum to streamline and standardize rehabilitation services to support persons with PCC in Alberta, Canada. A collaborative, consensus-based approach was used, involving 2 iterative provincial taskforces in a Canadian provincial health system. The first taskforce (59 multidisciplinary stakeholders) sought to clarify the requisite facets of a sustainable, provincially coordinated rehabilitation approach for post-COVID rehabilitation needs, based on available research evidence. The second taskforce (129 multidisciplinary stakeholders) translated that strategy and criteria into an operational framework for provincial implementation. Both taskforces sought to align with operational realities of the provincial health system. The summation of this collaborative, consensus approach resulted in the Provincial Post COVID-19 Rehabilitation Response Framework (PCRF). The PCRF includes 3 care pathways across the care continuum, specifically targeting in-hospital care, continuing care, and community-based care, with 3 key elements: (1) the use of specific symptom screening and assessment tools to systematically identify PCC symptoms and functional impairments; (2) pathways to determine patients' rehabilitation trajectory and to guide their transition between care settings; and, (3) self-management and education resources for patients and providers.
Chronic fatigue, depression and anxiety symptoms in Long COVID are strongly predicted by neuroimmune and neuro-oxidative pathways which are caused by the inflammation during acute infection (Al-Hakeim et al)	*medRxiv*	The severity of the Long COVID physio-affective phenome is largely predicted by peak body temperature (BT) and lowered oxygen saturation (SpO2) during the acute infectious phase. This study aims to delineate whether the association of BT and SpO2 during the acute phase and the Long COVID physio-affective phenome is mediated by neurotoxicity (NT) resulting from activated immune-inflammatory and oxidative stress pathways. We recruited 86 patients with Long COVID (3-4 months after the acute phase) and 39 healthy controls and assessed serum C-reactive protein (CRP), caspase-1, interleukin (IL)-1β, IL-18, IL-10, myeloperoxidase (MPO), advanced oxidation protein products (AOPP), total antioxidant

		capacity (TAC), and calcium (Ca), as well as peak BT and SpO2 during the acute phase. Cluster analysis revealed that a significant part (34.9%) of Long COVID patients (n=30) show a highly elevated NT index computed based on IL-1β, IL-18, Caspase-1, CRP, MPO and AOPP. Partial Least Squares analysis showed that 61.6% of the variance in the physio-affective phenome of Long COVID is explained by the NT index, lowered Ca, peak BT/SpO2 in the acute phase, and prior vaccinations with Astra-Zeneca or Pfizer. The most important predictors of the physio-affective phenome are Ca, CRP, IL-1β, AOPP and MPO. The infectious-immune-inflammatory core of acute COVID-19 strongly predicts the development of physio-affective symptoms 3-4 months later, and these effects are partly mediated by neuro-immune and neuro-oxidative pathways.
Using Logistic Regression to Predict Long COVID Conditions in Chronic Patients (Kulenovic et al)	*Stud Health Technol Inform*	This paper presents a method for predicting selected long COVID conditions in chronic and multimorbidity patients. It produces a logistic regression model for each long COVID condition by examining electronic medical records (EMRs) of COVID-19 patients and taking their chronic conditions as predictors. The models were developed and tested using the Jumpstart EMR database, provided in the COVID-19 Research Environment of Hopkins University, containing about 250,000 EMRs of the outpatient and ambulatory COVID-19 patients across the US. They are illustrated by predictions of 20 prevalent acute and chronic long-COVID conditions in patients diagnosed with frequent pre-COVID chronic diseases. These models can aid in investigating long COVID impacts on various chronic patients, finding their underlying pathophysiology, and establishing guidelines for their treatment and prevention.
The Role of Acupuncture for Long COVID: Mechanisms and Models (Williams & Moramarco)	*Med Acupunct*	Objective was to establish an evidence-based role for acupuncture as a safe and effective treatment for managing Long COVID in the integrative medical setting. Background: COVID-19 progresses to a chronic state, termed Long COVID, in about 30% of cases with estimates as high as 40% for prolonged illness. Symptoms are diverse and range over several body systems, including unrelenting fatigue, persistent malaise, chronic pain, and mood changes. Early clinical reports suggest acupuncture can effectively address both symptoms and the underlying causes of Long COVID. Historically, acupuncture is well defined in Traditional Chinese Medicine writings to treat influenza-like febrile illnesses. Contemporary scientific literature and case studies support the value of acupuncture for symptoms associated with acute and chronic respiratory viral infections, such as influenza, including SARS and COVID-19. Recent reports provide early evidence of acupuncture's effectiveness in managing Long COVID symptoms and may also have disease-modifying benefits.
Deriving and validating a risk prediction model for long COVID-19: protocol for an observational cohort study using linked Scottish data (Daines et al)	*BMJ Open*	In this protocol, we describe plans to develop a prediction model to identify individuals at risk of developing long-COVID.We will use the national Early Pandemic Evaluation and Enhanced Surveillance of COVID-19 (EAVE II) platform, a population-level linked dataset of routine electronic healthcare data from 5.4 million individuals in Scotland. We will identify potential indicators for long-COVID by identifying patterns in primary care data linked to information from out-of-hours general practitioner encounters, accident and emergency visits, hospital admissions, outpatient visits, medication prescribing/dispensing and mortality. We will investigate the potential indicators of long-COVID by performing a matched analysis between those with a positive reverse transcriptase PCR (RT-PCR) test for SARS-CoV-2 infection and two control

		groups: (1) individuals with at least one negative RT-PCR test and never tested positive; (2) the general population (everyone who did not test positive) of Scotland. Cluster analysis will then be used to determine the final definition of the outcome measure for long-COVID. We will then derive, internally and externally validate a prediction model to identify the epidemiological risk factors associated with long-COVID.
Long COVID in K18-hACE2 mice causes persistent brain inflammation and cognitive impairment (Sriramula et al)	*Research Square prepub*	We establish an animal model of long COVID by eliciting mild disease in K18-hACE2 mice. Following recovery from infection with a low dose of SARS-CoV-2, K18-hACE2 mice show the characteristic lung fibrosis associated with SARS-CoV-2 infection, which correlates with increased expression of the pro-inflammatory kinin B1 receptor (B1R). These mice also have elevated expression of B1Rs and inflammatory markers in the brain and exhibit cognitive impairments such as elevated anxiety and attenuated exploratory behavior. Our data demonstrate that K18-hACE2 mice exhibit persistent effects of SARS-CoV-2 infection on brain tissue, revealing the potential of this model for investigating long COVID. The results further imply that elevated B1R expression may drive the long-lasting inflammatory response associated with SARS-CoV-2 infection.
Race, Ethnicity, and Utilization of Outpatient Rehabilitation for Treatment of Post COVID-19 Condition (Hentschel et al)	*PM&R*	Objective was to examine factors associated with outpatient rehabilitation use following COVID-19 and to ascertain whether differential incidence of sequelae explain variation in post-COVID rehabilitation utilization by race and ethnicity. U.S. adults with COVID-19 during 2020 in the TriNet X database were participants. From 406,630 laboratory-confirmed COVID-19 cases, we identified 8,724 individuals who received outpatient rehabilitation and matched 28,719 controls. Of rehabilitation users, 43.3% were 40 years old or younger, 54.8% were female, 58.2% were white, 17.9% were African American/Black, 2.1% were Asian, 13.0% were Hispanic, 39.2% had no comorbidities, and 40.3% had been hospitalized for COVID-19. Dyspnea (20.4%), fatigue (12.4%), and weakness (8.2%) were the most frequently identified symptoms. Although there were no racial differences in the incidence of the 6 post COVID-19 condition symptoms considered, African American/Black individuals were significantly less likely to receive outpatient rehabilitation than their white counterparts. Hispanic individuals had higher outpatient rehabilitation utilization and a significantly higher incidence of post-COVID fatigue.
Neurological long-COVID in the outpatient clinic: Two subtypes, two courses (Grisanti et al)	*J Neurol Sci*	In this study, we evaluated a population of patients with prior COVID-19 infection who showed signs and symptoms consistent with neurological long-COVID. We prospectively collected demographic and acute phase course data from patients with prior COVID-19 infection who showed symptoms related to neurological involvement in the long-COVID phase. Firstly, we performed a multivariate logistic linear regression analysis to investigate the impact of demographic and clinical data, the severity of the acute COVID-19 infection and hospitalization course, on the post-COVID neurological symptoms at three months follow-up. Secondly, we performed an unsupervised clustering analysis to investigate whether there was evidence of different subtypes of neurological long COVID-19. 109 patients referred to the neurological post-COVID outpatient clinic. Clustering analysis on the most common neurological symptoms returned two well-separated and well-balanced clusters: long-COVID type 1 contains the subjects with memory disturbances, psychological impairment, headache, anosmia and ageusia, while long-COVID type 2

		contains all the subjects with reported symptoms related to PNS involvement. The analysis of potential risk-factors among the demographic, clinical presentation, COVID 19 severity and hospitalization course variables showed that the number of comorbidities at onset, the BMI, the number of COVID-19 symptoms, the number of non-neurological complications and a more severe course of the acute infection were all, on average, higher for the cluster of subjects with reported symptoms related to PNS involvement.
A Case-Crossover Phenome-wide Association Study (PheWAS) for Understanding Post-COVID-19 Diagnosis Patterns (Haupert et al)	*medRxiv*	Objective was to assess which diagnoses appear more frequently after a COVID-19 infection and how they differ by COVID-19 severity and vaccination status. We applied a case-crossover phenome-wide association study (PheWAS) in a retrospective cohort of COVID-19 survivors, comparing the occurrences of 1,649 diagnosis-based phenotype codes (PheCodes) pre- and post-COVID-19 infection periods in the same individual using a conditional logistic regression. Patients tested for or diagnosed with COVID-19 at Michigan Medicine from March 10, 2020 through May 1, 2022. We compared the rate of occurrence of 1,649 disease classification codes in "pre-" and "post-COVID-19 periods". We studied how this pattern varied by COVID-19 severity and vaccination status at the time of infection. Using a case-crossover PheWAS framework, we found mental, circulatory, and respiratory disorders to be strongly associated with the "post-COVID-19 period" for the overall COVID-19-positive cohort. A total of 325 PheCodes reached phenome-wide significance and top hits included cardiac dysrhythmias, respiratory failure, insufficiency, arrest and anxiety. In the patients with severe disease, we found stronger associations with many respiratory and circulatory disorders, such as pneumonia and acute pulmonary heart disease and the "post-COVID-19 period," compared to those with mild/moderate disease. Our results confirm that patients experience myriad symptoms more than 28 days after SARS-CoV-2 infection, but especially mental, circulatory, and respiratory disorders.

*Note: Content may have been published prior to this scan period but was only available through applying our search strategies during this period.

COMMENTARIES, LETTERS AND OPINION PIECES *(JULY 2 – JULY 15)*

- **Call for action: Health services in the European region must adopt integrated care models to manage Post-Covid-19 Condition (*Lancet*):** With the emergence of Post-Covid-19 Condition there is now a further increase in the overall rehabilitation needs within health systems. In a call for action, the recommendation is to: 1) Build capacity for early identification and recognition of symptoms of Post-Covid-19 Condition, 2) Strengthen primary health care to manage Post-Covid-19 Condition when medically indicated, and to be the point of referral for more severe cases, 3) Acknowledge the need for individualized long-term rehabilitative care for persons with Post-Covid-19 Condition, and 4) Strengthen the health system to be able to provide an individualised multidisciplinary care pathway in which patient's multi-system symptoms and rehabilitation needs are assessed and managed, informed by real world outcome data and patient experience.

- **Long COVID: A New Challenge for Prevention of Obesity in Women *(American Journal of Lifestyle Medicine):*** Long COVID affects individuals that do not recover for several weeks or months following the onset of symptoms of COVID-19. Obesity could play a role in the long COVID syndrome. During the pandemic, various factors contributed greatly to aggravating obesity in women leading to a pro-inflammatory and prothrombotic status. This commentary explores the relationship between long COVID and obesity in women.

MEDIA HIGHLIGHTS *(JULY 2 – JULY 15)*

CANADA

- **Montreal study looks for ways to treat COVID-19 long-haulers crippled by lingering symptoms (CBC News):** Dr. Thao Huynh is a researcher and epidemiologist-cardiologist with the McGill University Health Centre (MUHC) and she is conducting a study on the long-haul impacts of COVID-19 with the aim of better understanding the disease and treating its symptoms. Huynh said her research has so far uncovered clear indicators of heart damage in patients who have these long-COVID symptoms. Her study is uncovering active heart inflammation or heart scarring. There are also heart palpitations and other abnormalities, she said. In fact, a third of patients have heart problems, she said. The brain is also affected, she added, and the brain and heart are closely related. She said about 80% long-COVID patients are women and she believes it is an autoimmune issue. However, she admits, not everybody agrees with her on that. What is clear is that many people, including doctors and nurses, are crippled by the symptoms, she said. Huynh's Impact Quebec COVID-19 Long Haul Study launched a year ago.
- **Rehab program gives hope to 'long COVID' sufferers (CBC News):** A ground-breaking rehab program at The Ottawa Hospital is offering hope to people suffering from "long COVID." Its estimated that about four million Canadians have been infected, which means some 400,000 may have long COVID. Many sufferers report intense fatigue, trouble catching their breath, brain fog, anxiety and depression. The new post-COVID rehab program at The Ottawa Hospital combines physiotherapy and occupational therapy, but also includes an important core of mental health supports.

GLOBAL

- **Long Covid: what we know about it and how best to treat it (The Guardian):** Being vaccinated and boosted seems to protect against long Covid. Estimates of those with Covid who will develop long Covid range from 5% to 30%, but applying this prevalence to the general population is problematic. Prof Gail Matthews from the Kirby Institute is a lead investigator on the Adapt study examining patients for long Covid, which has been running since mid 2020. While there are some children who experienced more severe symptoms affecting function, most children who have symptoms after three months “are doing well and improve over time”.

POST COVID-19 CONDITION RESOURCES

- (NEWLY ADDED) Recovery & Rehabilitation After COVID-19: Resources for Health Professionals (Alberta Health Services)
- (NEWLY ADDED) ZB MED preprint Viewer: Website includes 45.543 COVID-19 related preprints from medRxiv and bioRxiv, ChemRxiv, ResearchSquare, arXiv and from Preprints.org. They have recently developed and incorporated a long COVID classifier based on state-of-the-art methods and manually curated data by experts
- Long COVID Physio: Long COVID Physio is an international peer support, education and advocacy, patient-led association of Physiotherapists living with Long COVID and allies. They post various educational videos on long COVID.
- John Hopkins Medicine - Long-Term Effects of COVID-19
- C19 Recovery Awareness (US): The mission of the Long Haul COVID Fighters is to provide support for those whose health has been affected by COVID-19, promote public awareness and education regarding lengthy COVID recovery, and advocate for the medical, mental health, and social interests of long haul COVID survivors.
- COVID-19 Virtual Library of Health Data and Evidence (Canada): Resources to knowledge products, data and evidence on the impacts of COVID-19, which includes post COVID-19 condition. This is a searchable collection of products funded and published by the Government of Canada.
- Lullabies for long COVID (UK): An online program developed in collaboration with the English National Opera could help with rehabilitation, by improving mental health and symptoms of breathlessness.
- Solve Long Covid Initiative (US): The Solve ME/CFS Initiative is a non-profit organization that serves as a catalyst for critical research into diagnostics, treatments, and cures for myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), Long Covid and other post-infection diseases.
- PASC Guide (University of Michigan): A resource for people with PASC/long COVID.

- Health Education England (HEE) e-learning modules: long COVID programme
- Voices of Long COVID (US): Voices of Long Covid campaign features testimonials from a diverse group of people ages 18-29 who are suffering from long-term complications of COVID-19 infection.
- Dignity Health (US): COVID-19 and Chronic Illness Recovery Program based in the U.S. has helped over 2,000 people struggling with COVID long-term effects ("COVID long haulers"). Treatment is exercise-based for lingering or long-term conditions (sequelae) from having the virus.
- Altea (Switzerland): A network for sharing evidence-based information on the long-term effects of COVID-19.
- Pandemic-Aid Networks: Long COVID research library.
- Post-COVID-19 Functional Status Scale: An overview of a patient self-reported scale that helps to support assessment of functional status and recovery after the SARS-CoV-2 infection.
- Ontario College of Family Physicians: Resources on Post-COVID Condition.
- Agency for Clinical Innovation (Australia): Living Evidence - post acute sequelae of COVID-19.
- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)
- PAHO Webinar Series on Post COVID-19 Condition launched 17 February, 2022, from 10:30 am to 12:30 pm (EST).
- Body Politic COVID-19 Support Group (Global): Housed on the Slack app, group members have access to dozens of different channels, which give space for more personal discussion. Some of the channels include those specifically for medical professionals, parents of children with Covid-19, LGBTQ+ individuals, BIPOC+, and different regions around the world.
- Patient-Led Research Collaborative (Global): Self-organized group of Long COVID patients working on patient-led research around the Long COVID experience.
- British Heart Foundation (UK): UK-based foundation with resources on long COVID.
- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)
- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.
- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.
- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.
- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.
- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.
- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From: Levesque, Eric J. (DH/MS)
To: Jennifer Elliott (DH/MS) (Jennifer.Elliott@gnb.ca)
Subject: FW: Information bundle - Monday, July 18, 2022
Date: July 19, 2022 9:13:00 AM
Attachments: OCSO Post-COVID Condition Scan_27_July15_2022.pdf

---

FYI

From: Sargent, Jessica (DH/MS) <Jessica.Sargent@gnb.ca>
Sent: Tuesday, July 19, 2022 8:18 AM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>
Subject: FW: Information bundle - Monday, July 18, 2022

Hi Eric
See attached updated OCSO Post COVID-19 Condition Scan. If you have other contact people I should be sharing with please let me know
Thank you,
Jessica

From: Levesque, Eric J. (DH/MS)
To: Elliott, Jennifer (DH/MS)
Subject: Accepted: Long COVID DH touchpoint

From: Levesque, Eric J. (DH/MS)
To: Watson, Ian (DH/MS)
Subject: Accepted: Long Covid Planning

From:	Levesque, Eric J. (DH/MS)
To:	Seeley, Joanna (DH/MS)
Cc:	Dan Coulombe (DH/MS) (Dan.Coulombe@gnb.ca); Ian Watson (DH/MS) (Ian.Watson@gnb.ca)
Subject:	FW: Update re CADTH Content on Long COVID / Post-COVID-19 Condition // Mise à jour du contenu de l"ACMTS au sujet du syndrome post-COVID-19
Date:	September 26, 2022 11:18:00 PM
Attachments:	image002.png Long COVID - clinician and patient resources.pdf

FYI

From: 21(1) [redacted] @cadth.ca>
Sent: Thursday, September 8, 2022 4:49 PM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>; Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>; Leger, Dr. Yves (DH/MS) <Yves.Leger@gnb.ca>; Elliott, Jennifer (DH/MS) <Jennifer.Elliott@gnb.ca>; Coulombe, Dan (DH/MS) <Dan.Coulombe@gnb.ca>; Donovan, Wendy (DH/MS) <Wendy.Donovan@gnb.ca>; Higdon, Penny (DH/MS) <penny.higdon@gnb.ca>; Brien, Dr. Susan (HorizonNB) <Susan.Brien@HorizonNB.ca>; Legacy, Stephane (VitaliteNB) <Stephane.Legacy@VitaliteNB.ca>
Subject: Update re CADTH Content on Long COVID / Post-COVID-19 Condition // Mise à jour du contenu de l'ACMTS au sujet du syndrome post-COVID-19

Good afternoon / Bonjour,
I am sharing along this update FYI regarding CADTH content related to Long COVID / Post-COVID-19 Condition.
Please share as you see fit and don't hesitate to touch base if you have any questions or information needs at this time.

- CADTH hosted a National Roundtable on Models of Care for Long COVID in June 2022. The Roundtable Summary Report is now available. [FYI, a more detailed Summary was shared with NB participants at the Event.)
- Post-COVID-19 Condition: A summary of existing guidelines (August 2022)
- *Collection of Clinician and Patient Resources* (see attached pdf – in English only) : Please note this document is not an exhaustive list. As much as possible, these links are organized by province and territory, and by intended audience.
- Our Condition-Level Review on this topic is ongoing.
- Our Long COVID evidence bundle is updated when new reports are available.

***
J'envoie cette mise à jour concernant le contenu de l'ACMTS lié au sujet du syndrome post-COVID-19.
Je vous encourage à faire circuler cette information et n'hésitez pas à nous contacter si vous avez des questions ou des demandes de renseignements.

- L'ACMTS a organisé une table ronde nationale sur les modèles de soins pour le syndrome post–COVID-19 en juin 2022. Le rapport sommaire de la table ronde est maintenant disponible (en anglais seulement).
- Post-COVID-19 Condition: A summary of existing guidelines (en anglais seulement – août 2022)

- *Collection of Clinician and Patient Resources* (voir ci-joint– en anglais seulement)
- La COVID-19 de longue durée : examen global d'une maladie – en cours
- Les preuves au sujet du syndrome post-COVID-19 - Vous trouverez ici les dernières données probantes et les ressources de l'ACMTS au sujet du syndrome post-COVID-19.

21(1) [redacted]

CADTH / ACMTS

Canada's Drug and Health Technology Agency | L'Agence des médicaments et des technologies de la santé au Canada

CADTH endeavours to provide credible sources of information, in particular available evidence from recognized Health Technology Assessment (HTA) organizations, where available, as an added support to our customers. No official endorsement of this information by CADTH is intended as a result of this message.
L'ACMTS s'efforce de fournir des sources fiables et crédibles d'information, particulièrement en ce qui a trait aux preuves produites par des organismes reconnus d'évaluation des technologies de la santé (ETS), lorsque disponibles, pour offrir un meilleur appui à ses clients. Cet avis ne signifie pas que l'ACMTS endosse officiellement l'information fournie et n'engage aucunement sa responsabilité.

Canada's Drug and Health Technology Agency

Post—COVID-19 Condition: Resources for Clinicians and Publics

August 2022

About this Document

This document provides a brief list of resources on post—COVID-19 condition. It is not an exhaustive list, but rather, many of the websites listed here contain links to other pages and resources. As much as possible, these links are organized by province and territory, and by intended audience.

Resources by Province and Territory

British Columbia

General Website

- http://www.phsa.ca/our-services/programs-services/post-covid-19-care-network

Clinician Resources

- http://www.phsa.ca/health-professionals/clinical-resources/post-covid-19-care

Public Resources

- http://www.phsa.ca/health-info/post-covid-19-care-recovery

Alberta

Clinician Resources

- https://www.albertahealthservices.ca/topics/Page17540.aspx

Public Resources

- https://www.albertahealthservices.ca/topics/Page17397.aspx

Saskatchewan

General Website

- https://saskhealthauthority.libguides.com/covid-19/repository/longcovid

Manitoba

Clinician Resources

- https://sharedhealthmb.ca/health-providers/long-covid/

Public Resources

- https://sharedhealthmb.ca/Public-care/long-covid/

Yukon

Other

- https://yukon.ca/en/news/new-working-group-formed-examine-post-covid-19-condition

Northwest Territories

No resources found.

Nunavut

No resources found.

Ontario

Clinician Resources

- https://www.ontariohealth.ca/sites/ontariohealth/files/2021-12/PostCovidConditionsClinicalGuidance_EN.pdf
- https://www.ontariofamilyphysicians.ca/tools-resources/covid-19-resources/long-covid

Public Resources

- https://rehabcareontario.ca/47/COVID-19_OutPublic_Rehabilitation_Programs/

Other

- https://www.publichealthontario.ca/-/media/Documents/nCoV/ipac/2022/04/post-acute-covid-syndrome-pacs.pdf?sc_lang=en
- https://covid19-sciencetable.ca/
- https://www.mcmasterforum.org/networks/covid-end

Quebec

Clinician Resources

- https://www.santeestrie.qc.ca/en/professionnels/ressources-pour-les-professionnels#c15382 (see: COVID longue)

Public Resources

- https://www.santeestrie.qc.ca/en/care-services/health-advice/infectious-and-communicable-diseases/coronavirus-covid-19/long-covid/resources-and-information-on-long-covid

Other

- https://www.ircm.qc.ca/en/post-covid-clinic

New Brunswick

No resources found.

Nova Scotia

Clinician Resources

- https://library.nshealth.ca/CovidRecovery/forproviders

Public Resources

- https://library.nshealth.ca/CovidRecovery/welcome

Prince Edward Island

No resources found.

Newfoundland and Labrador

No resources found.

Federal or National

Clinician Resources

- https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/post-covid-19-condition.html

Public Resources

- https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/symptoms/post-covid-19-condition.html
- https://cancov.net/patient-resources/
- https://www.covidlonghaulcanada.com/

International

Other

- https://www.who.int/teams/health-care-readiness/post-covid-19-condition

From: Levesque, Eric J. (DH/MS) on behalf of [redacted]
To: Legacy, Stephane (VitaliteNB); [redacted] Isabel.Henderson; nicole.lapointe@health.gov.sk.ca; Robert shaffer; FALCONE Emilia; noella.whelan@nshealth.ca; cabanks@ihis.org; Tammy.Clifford@cihr-irsc.gc.ca; Tom.wong@canada.ca; Tolga.Yalkin@hc-sc.gc.ca; francesca.reyes.domingo; anne.bhereur.cnmtl@ssss.gouv.qc.ca; chester.ho; Levin, Adeera [PH]; Angela.Cheung; Simon Décary; Gino De Angelis; Michelle Gibbens; Christa Bergquist; [redacted].ca; suzannah.bennett@ontariohealth.ca; Levesque, Eric J. (DH/MS); FdeWet@GOV.NU.CA; robert.geneau@canada.ca; Sylvia.Doody@nunatsiavut.com; andreamckenna@gov.nl.ca; Scott.Fullmer; Ashley.Harnish@nshealth.ca; Christy.Bussey@nshealth.ca; Francis, Robert (MOH); gary.groot@saskhealthauthority.ca; Dr. Karen Phillips; HGMORRISON@gov.pe.ca; Victoria Schuckel; Maureen.ODonnell@gov.bc.ca; alannah.brown@cihr-irsc.gc.ca; Brien, Dr. Susan (HorizonNB); Charney, Nicholas (HC/SC); katherine_kessler@gov.nt.ca; jade.falardeau@msss.gouv.qc.ca; janicefitzgerald@gov.nl.ca; Jo-Anne_Cecchetto@gov.nt.ca; Paul.Hasselback@yukon.ca; Caitlin.Kerwin@yukon.ca[redacted] ; lucie.bedard.chum@ssss.gouv.qc.ca; gary.groot@usask.ca; Barbara.Wasilewski@gov.mb.ca; Paul Wright
Cc: Chester Ho; Beth Ann Pardo; Wong, Tom; Sinwan Basharat; Andrea Smith; Leigh-Anne Gillespie; Aaron Naor; Angela Barbara; Sean Secord; Krista Kaminski; Yan Li; Geneau, Robert (PHAC/ASPC)
Subject: FW: Updated: CADTH Post-COVID-19 Virtual Roundtable
Attachments: Meeting-Material-Pre-Reading.pdf
Agenda–June1-2022.pdf
PARTICIPANT LIST roundtable June 1.pdf

-----Original Appointment-----
From[redacted] @cadth.ca>
Sent: [redacted]
To[redacted] Isabel.Henderson; nicole.lapointe@health.gov.sk.ca; Robert shaffer; FALCONE Emilia; noella.whelan@nshealth.ca; cabanks@ihis.org; Tammy.Clifford@cihr-irsc.gc.ca; Tom.wong@canada.ca; Tolga.Yalkin@hc-sc.gc.ca; francesca.reyes.domingo; anne.bhereur.cnmtl@ssss.gouv.qc.ca; chester.ho; Levin, Adeera [PH]; Angela.Cheung; Simon Décary; Gino De Angelis; Michelle Gibbens; Christa Bergquist; Sarah Garland; Michael Raj; [redacted] sque, Eric J. (DH/MS); FdeWet@GOV.NU.CA; robert.geneau@canada.ca; Sylvia.Doody@nunatsiavut.com; andreamckenna@gov.nl.ca; Scott.Fullmer; Ashley.Harnish@nshealth.ca; Christy.Bussey@nshealth.ca; Francis, Robert (MOH); gary.groot@saskhealthauthority.ca; Dr. Karen Phillips; HGMORRISON@gov.pe.ca; Victoria Schuckel; Maureen.ODonnell@gov.bc.ca; alannah.brown@cihr-irsc.gc.ca; Brien, Dr. Susan (HorizonNB); Legacy, Stephane (VitaliteNB); Charney, Nicholas (HC/SC); katherine_kessler@gov.nt.ca; jade.falardeau@msss.gouv.qc.ca; janicefitzgerald@gov.nl.ca; Jo-Anne_Cecchetto@gov.nt.ca; Paul.Hasselback@yukon.ca; Caitlin.Kerwin@yukon.ca[redacted] lucie.bedard.chum@ssss.gouv.qc.ca; gary.groot@usask.ca; Barbara.Wasilewski@gov.mb.ca; Paul Wright
Cc: Chester Ho; Beth Ann Pardo; Wong, Tom; Sinwan Basharat; Andrea Smith; Leigh-Anne Gillespie; Aaron Naor; Angela Barbara; Sean Secord; Krista Kaminski; Yan Li; Geneau, Robert (PHAC/ASPC)
Subject: Updated: CADTH Post-COVID-19 Virtual Roundtable
When: Wednesday, June 1, 2022 11:00 AM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Zoom (details within)

ATTENTION! External email / courriel externe.

Updated to include meeting materials and agenda.

Meeting to be held in Zoom:

Topic: CADTH Post-COVID Roundtable

Time: Jun 1, 2022 11:00 Eastern Time (US and Canada)

Join Zoom Meeting

https://cadth.zoom.us/j/83867196110?pwd=bzlRUWprelF1UzR3RFBSZytIYUtuZz09 <https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcadth.zoom.us%2Fj%2F83867196110%3Fpwd%3DbzlRUWprelF1UzR3RFBSZytIYUtuZz09&data=05%7C01%7CEric.Levesque2%40gnb.ca%7C5a912ff0a53d47c73aaa08da43debfff%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637896921999280479%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=qvDwaotsVYpn3nLcNof%2F9AxUZFZOmxFOCjvND3MtFn8%3D&reserved=0>

Meeting ID[redacted]

Passcode[redacted]

One tap mobile

+15873281099,,83867196110# Canada

+16473744685,,83867196110# Canada

Dial by your location

+1 587 328 1099 Canada

+1 647 374 4685 Canada

+1 647 558 0588 Canada

+1 778 907 2071 Canada

+1 780 666 0144 Canada

+1 204 272 7920 Canada

+1 438 809 7799 Canada

855 703 8985 Canada Toll-free

Meeting ID[redacted]

Find your local number: https://cadth.zoom.us/u/kcvZrF87gX <https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcadth.zoom.us%2Fu%2FkcvZrF87gX&data=05%7C01%7CEric.Levesque2%40gnb.ca%7C5a912ff0a53d47c73aaa08da43debfff%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637896921999436699%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=KoRDMT5llzw%2FGXQP%2BpzEv4%2F5ETxjlQ81FXViVxFFUTk%3D&reserved=0>

Models of Care for Post–COVID-19 Condition

In preparation for this roundtable, and to set the stage for CADTH's commitment to supporting post–COVID-19 condition decision-making needs moving forward, here we briefly describe some of our current initiatives related to post–COVID-19 condition, as well as future plans. Some additional resources of potential interest are also provided.

Post–COVID-19 Condition

People who have a COVID-19 infection usually feel unwell for a few days, or for up to 1 to 2 weeks. But a growing concern is that some people have symptoms that last for several weeks or months. This is known as post–COVID-19 condition, or long COVID. CADTH uses WHO's definition of post–COVID-19 condition, which refers to when people experience symptoms for more than 12 weeks after probable or suspected COVID-19 infection. People with post–COVID-19 condition may experience a range of persisting and debilitating symptoms, such as fatigue, shortness of breath, muscle aches, and cognitive and mental health challenges.

Recent estimates suggest that, in Canada, more than 480,000 people have post–COVID-19 condition. But that number is likely higher. For a health care system that is already struggling with the effects of acute COVID-19 infections, post–COVID-19 presents extra challenges.

Evidence Reviews About Models of Care

In preparation for the roundtable meeting, please refer to:

- Care Models for Long COVID: Rapid Systematic Review (June 2021)
- Care Models for Long COVID: Living Systematic Review – First Update (December 2021)

The reviews were authored by Simon Décary (a speaker at the roundtable meeting) and Annie LeBlanc's team on behalf of the SPOR Evidence Alliance and COVID-END. The reviews highlighted different models of care from international and Canadian jurisdictions. Common elements reported across several models included primary care pathways, specialty clinics, standardized symptoms assessment tools, virtual care, and access to rehabilitation services. The evidence base assessing clinical effectiveness, patient-centred outcomes, and cost-effectiveness is currently limited, and is expected to emerge with future studies. A summary of the reviews can be found on page 3 and page 4 of the respective reviews.

CADTH Condition Level Review on Post–COVID-19 Condition

With the context of a rapidly changing evidence landscape, emerging evidence needs, and many stakeholders working on various aspects of post–COVID-19 condition, CADTH is committed to developing relationships, understanding the Canadian and international landscape, and identifying ways to best support health care decision-making needs across Canada. CADTH is well positioned and has been engaged by jurisdictions across Canada to help broker and share information, and convene and connect stakeholders to reduce duplication of efforts and rapidly respond to emerging evidence needs. With this focus, CADTH is currently conducting a Condition Level Review on post–COVID-19 condition.

A Condition Level Review is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of a condition, including prevention, identification, treatment, and management. CADTH has already conducted several initiatives as part of the Condition Level Review, with more ongoing and planned, as summarized in the following.

Pan-Canadian Stakeholder Panel on Post–COVID-19 Condition

To help ensure the highest priority research areas and decision-making needs are identified, and understand how we can best address those needs, CADTH has convened a pan-Canadian stakeholder panel. The stakeholder panel has representation from cross-jurisdictional decision-makers, clinicians actively working on post–COVID-19 condition, researchers, and patient representatives. An overarching goal of the panel is to support cross-jurisdictional collaboration, reduce duplication in research efforts, and broadly share, mobilize, and implement results. The panel has been instrumental in providing support for the overall direction of the CADTH Condition Level Review, and many members of the stakeholder panel are involved in the planning and delivery of the virtual roundtable. CADTH is grateful for their ongoing engagement and support.

Completed CADTH Initiatives

As part of the Condition Level Review, CADTH has completed:

- A Scoping Review (May 2022) that characterizes the current evidence landscape on post–COVID-19 condition and identifies evidence gaps. Between January 1, 2019, and December 20, 2021, 637 published articles, 247 protocols, and 8 preprints of systematic reviews were identified and included in the scoping review. CADTH is actively developing a protocol to keep aspects of this scoping review living (i.e., continuously updated). Refer to pages 30, 55, and 57 of this report for information on guidelines related to post–COVID-19 condition.
- A collaborative systematic review (April 2022) with the Public Health Agency of Canada (PHAC) and the Alberta Research Centre for Health Evidence (ARCHE) on risk factors and preventive interventions for Post–COVID-19 condition.
- A webinar (October 13, 2021) entitled The Implications of Long COVID.
- A Horizon Scan (September 2021) that provides an overview of post–COVID-19 Condition.
- A *Hospital News* article (January 2022) that describes post–COVID-19 condition and what it means for a struggling health care system.

Ongoing CADTH Initiatives

- Collaborating with McMaster University and Cochrane Canada to develop and populate a portal that will host Canadian and international post–COVID-19 condition guidelines, building off their Canadian Institutes of Health Research (CIHR)-funded living recommendations map
- Evidence reviews:
  - Subtypes of Post–COVID-19 Condition
  - Post-COVID-19 Condition: A summary of existing guidelines
  - Monitoring the development of emerging health technologies, including medical devices, clinical interventions, and therapeutics that may support people with post–COVID-19 condition, for potential assessment

- Developing an evidence bundle and information hub to showcase existing guidelines, resources, and evidence reviews

Next Steps for CADTH

In addition to completing ongoing CADTH initiatives, and hosting this virtual roundtable event, next steps for CADTH include identifying, prioritizing, and continuing to respond to evidence needs to support Canada's health system decision-makers, and people living with post–COVID-19 condition. Building off our living scoping review, CADTH is well positioned to respond to direct requests for evidence rapidly. To find out more about CADTH, or to submit a request, talk to a Liaison Officer in your region.

Visit www.cadth.ca/longcovid to stay up to date and access completed and in progress CADTH resources.

Additional Resources

Please refer to these additional resources that may be of interest:

- Technical report: A report entitled Creating a provincial post–COVID-19 interdisciplinary clinical care network as a learning health system during the pandemic: Integrating clinical care and research.
- Resources for Health Care Professionals: Information and tools developed by Alberta Health Services to assess, refer, and provide continuing care for people after COVID-19.
- Evidence reviews: A collection of reports developed by Institut national d'excellence en santé et en services sociaux (INESSS) about the organization of care and services, assessment of physical rehabilitation interventions, and support tools for the clinical management of post–COVID-19 condition.

Agenda

Virtual Roundtable on Post–COVID-19 Condition Models of Care — June 1, 2022

Meeting Objectives

- To increase awareness and understanding of evidence pertaining to post–COVID-19 condition models of care and service delivery (e.g., Décary et al. [2021] living systematic review, WHO guidelines and framework, and relevant elements of CADTH scoping review in progress)
- To increase awareness of pan-Canadian initiatives related to the planning, development, and implementation of service delivery and models of care for the post–COVID-19 condition patient population
- To facilitate connections among those currently working on the funding, planning, development, implementation, and/or evaluation of service delivery and models of care for the post–COVID-19 Condition patient population across Canadian jurisdictions
- To create opportunities for identification of merging evidence needs related to post–COVID-19 condition models of care and service delivery and/or other post–COVID-19 evidence topics T

Agenda: 11 a.m. – 4 p.m. Eastern Time

Moderator: 21(1) [redacted]

Join Zoom Meeting:
https://cadth.zoom.us/j/83867196110?pwd=bzlRUWprelF1UzR3RFBSZytIYUtuZz09

Meeting ID: 22(1)(b) [redacted]

Passcode: 22(1)(b) [redacted]

Time	Description	Speakers
11:00 a.m. – 11:15 a.m.	Welcome and Introductions	21(1) [redacted]
11:15 a.m. – 11:30 a.m.	Post–COVID-19 Condition in Canada	Dr. Angela Cheung
11:30 a.m. – 11:50 a.m.	Post–COVID-19 Condition Perspectives and Experience	Dr. Anne Bhéreur
11:50 p.m. – 12:00 p.m.	Questions and Discussion	
12:00 p.m. – 12:20 p.m.	Discussion #1 1. What is the current state of post–COVID-19 service delivery in your jurisdiction?	

Agenda

Time	Description	Speakers
12:20 p.m. – 12:35 p.m.	Break	
12:35 p.m. – 12:55 p.m.	Models of Care Related to Post–COVID-19 Condition	Simon Décary
12:55 p.m. – 1:05 p.m.	Questions and Discussion	
1:05 p.m. – 1:50 p.m.	Presentations: Early Experiences Developing and Implementing Models of Care for Post–COVID-19 Condition	Dr. Adeera Levin Dr. Chester Ho
1:50 p.m. – 2:00 p.m.	Questions and Discussion	
2:00 p.m. – 2:45 p.m.	Discussion #2 1. How do you see your jurisdiction delivering care for people with post–COVID-19 condition (e.g., motivation, funding, collaborators)? 2. What opportunities exist for developing models of care?	
2:45 p.m. – 3:00 p.m.	Break	
3:00 p.m. – 3:30 p.m.	Discussion #3 1. What information, evidence, or resources would assist your decision-making related to models of care for post–COVID-19 condition?	
3:30 p.m. – 3:50 p.m.	Closing Remarks	21(1) [redacted]
4:00 p.m.	Adjournment	21(1) [redacted]

21(1)

Dr. Angela Cheung

Dr. Angela M. Cheung is Professor of Medicine, KY and Betty Ho Chair in Integrative Medicine at University of Toronto, and Senior Scientist at University Health Network. She is currently holding a Tier 1 Canada Research Chair in Musculoskeletal and Postmenopausal Health, and has earned a Canadian Institutes of Health Research Senior Investigator Award, the Canadian Society of Internal Medicine David Sackett Senior Investigator Award, the Ontario Premier Research Award, and the University of Toronto Eugenie Stuart Mentorship Award. She is a member of the Endocrine Society Clinical Guidelines Committee, and is the Co-Lead of the Canadian COVID-19 Prospective Cohort Study (CANCOV). She obtained her MD degree from Johns Hopkins University School of Medicine in 1988, and her PhD degree from Harvard University in 1997. She is a Fellow of the Royal College of Physicians of Canada and has been in clinical practice for more than 30 years.

Twitter @AngelaMCheung

Dr. Anne Bhéreur

Anne Bhéreur has been a family and palliative care physician since 2003 at the Centre intégré universitaire de santé et de services sociaux (CIUSSS) du Nord-de-l'Île-de-Montréal. She is also an Associate Clinical Professor at the Université de Montréal. Currently away from practice because of long COVID, she is a physician-researcher on long COVID and participates in work related to care models. She is co-director and patient-partner of the Restoration axis of the Quebec COVID-Pandemic Network (rqcp.ca) and a member of the Institut national d'excellence en santé et en services sociaux (INESSS) Consultative Committee on Post–COVID-19 Conditions.

From: Higdon, Penny (DH/MS)
To: (DH/MS)OCMOH - COVID19 Response Team; (DH/MS)Regional MOH
Subject: FW: SAC on COVID-19 Teleconference
Date: July 31, 2020 8:30:05 AM
Attachments:
1. SAC_Coronavirus Agenda_July 30_2020Final.doc
2. NCCPH Presentation July 30 2020.pptx
3. Role of the National Advisory Committee on Immunization in COVID-19 Vaccine Planning.pptx
4a. Core Principle for Healthy Living Messaging Presentation (EN).pptx
4b. Principes fondamentaux_Messages pour un mode de vie sain (FR).pptx
4c. Core Principles for Healthy Living Messaging (EN).pdf
4d. Principes fondamentaux_Messages pour un mode de vie sain (FR).pdf
5. SAC update and consultation on persistent COVID-19 symptomatology post infection.ppt
5a. Correspondence from a group of 52 Canadian patients.pdf
5b. Draft response - correspondence from a group of 52 Canadian patients for SAC July 30 2020.docx
6. Alberta Relaunch Guidance Trade Shows and Exhibiting Events.pdf

---

From: Russell, Dr. Jennifer (DH/MS)
Sent: July 30, 2020 2:48 PM
To: Dion, Rachel (EECD/EDPE) <Rachel.Dion@gnb.ca>; Liston, Heidi (DH/MS) <Heidi.Liston@gnb.ca>; Boudreau, René (DH/MS) <Rene.Boudreau@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>; Richard, Gérald (DH/MS) <Gerald.Richard@gnb.ca>; OCMOH EOC LO (DH/MS) <OCMOHEOCLO@gnb.ca>; Higdon, Penny (DH/MS) <penny.higdon@gnb.ca>; RaaFat Gad, Dr. Rita (DH/MS) <Rita.RaaFatGad@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Seaman, Pat (DH/MS) <Pat.Seaman@gnb.ca>; Patterson, Dr. Judy (DH/MS) <Judy.Patterson@gnb.ca>
Subject: FW: SAC on COVID-19 Teleconference
Many very important resources: re: policy in item 2. (National Collaborating Centre of Determinants of Health)

Jennifer Russell, **BA, BSc, MD, CCFP**
Chief Medical Officer of Health
Médecin-hygiéniste en chef
NB Department of Health/Ministère de la santé
Ph/Tél: (506) 444-2112
e-mail/courriel : jennifer.russell@gnb.ca

From: Hamel, Sonia (PHAC/ASPC) <sonia.hamel@canada.ca> **On Behalf Of** CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
Sent: July-30-20 12:11 PM
To: Ahmad, Rukshanda (PHAC/ASPC) <rukshanda.ahmad@canada.ca>; Almond, Richard (Ext.) <richard.almond@gov.bc.ca>; Arruda, Horacio (Ext.) <horacio.arruda@msss.gouv.qc.ca>; Bell, Tammy (PHAC/ASPC) <tammy.bell@canada.ca>; Bullion2, Olivier (PHAC/ASPC) <olivier.bullion2@canada.ca>; Cameron, Dory (PHAC/ASPC) <dory.cameron@canada.ca>; Campbell2, Leah (PHAC/ASPC) <leah.campbell2@canada.ca>; Charos, Gina (PHAC/ASPC) <gina.charos@canada.ca>; Cidsc Secretariat (PHAC/ASPC) <phac.cidsc.secretariat.aspc@canada.ca>; Clymans, Alixanderia (PHAC/ASPC) <alixanderia.clymans@canada.ca>; Dean, Kelly (Ext.) <kelly.dean@gov.ns.ca>; DesMeules, Marie (PHAC/ASPC) <marie.desmeules@canada.ca>; Dunn, Kathleen (PHAC/ASPC) <kathleen.dunn@canada.ca>; Emerson, Brian (Ext.) <brian.emerson@gov.bc.ca>; Follett, Juanita (Ext.) <juanitafollett@gov.nl.ca>; Guenette, Tara-Lynn (PHAC/ASPC) <tara-lynn.guenette@canada.ca>; Hamzawi2, Nancy (HC/SC) <nancy.hamzawi2@canada.ca>; Hanley, Brendan (Ext.) <brendan.hanley@gov.yk.ca>; Henry, Bonnie (Ext.) <bonnie.henry@gov.bc.ca>; Henry, Erin (PHAC/ASPC) <erine.henry@canada.ca>; House,

Althea (PHAC/ASPC) <althea.house@canada.ca>; HPOC Deputy EM / Députe GU COPS (PHAC/ASPC) <phac.hpoc.deputy.em-depute.gu.cops.aspc@canada.ca>; HPOC PHM / COPS MSP (PHAC/ASPC) <phac.hpoc.phm-msp.cops.aspc@canada.ca>; Irvine, Jessica (Ext.) <jessica.irvine@gov.mb.ca>; Kandola, Kami (Ext.) <kami_kandola@gov.nt.ca>; Kropp2, Rhonda (PHAC/ASPC) <rhonda.kropp2@canada.ca>; Lamarre, Catherine (PHAC/ASPC) <catherine.lamarre@canada.ca>; Look, Elaine (Ext.) <elaine_look@gov.nt.ca>; Maher, Maurica (Ext.) <maurica.maher@forces.gc.ca>; McDonald, Alexa (HC/SC) <alexa.mcdonald@canada.ca>; Morrison, Heather (Ext.) <hgmorrison@gov.pe.ca>; Muecke, Dr. Cristin (DH/MS) <Dr.Cristin.Muecke@gnb.ca>; Myran, Daniel (PHAC/ASPC) <daniel.myran@canada.ca>; Abraham, Natalia k (PHAC/ASPC) <nataliak.abraham@canada.ca>; Njoo, Howard (PHAC/ASPC) <howard.njoo@canada.ca>; Paddle, Lisa (PHAC/ASPC) <lisa.paddle@canada.ca>; Panchyshyn, Debbie (Ext.) <debbie.panchyshyn@gov.mb.ca>; PHISC Secretariat / Secretariat Du CDISP (PHAC/ASPC) <phac.phisc.secretariat-secretariat.du.cdisp.aspc@canada.ca>; Poirier, Samantha (Ext.) <samantha.poirier@gnb.ca>; Poliquin, Guillaume (PHAC/ASPC) <guillaume.poliquin@canada.ca>; PPIU-RO / OR-UPPI (PHAC/ASPC) <phac.ppiu-ro-or-uppi.aspc@canada.ca>; Raymond, Barbara (PHAC/ASPC) <barbara.raymond@canada.ca>; Rodin, Rachel (PHAC/ASPC) <rachel.rodin@canada.ca>; Rogers, Cindy (Ext.) <cindy.rogers@health.gov.sk.ca>; Romano, Anna (PHAC/ASPC) <anna.romano@canada.ca>; Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>; Sabapathy, David (Ext.) <dsabapathy@gov.pe.ca>; Seeds, Laura (Ext.) <laura.seeds@ontario.ca>; Shahab, Saqib (Ext.) <saqib.shahab@health.gov.sk.ca>; Sherren, Janice (Ext.) <jesherren@gov.pe.ca>; Siu, Winnie (PHAC/ASPC) <winnie.siu@canada.ca>; Slowey2, Charles (PHAC/ASPC) <charles.slowey2@canada.ca>; Sotiropoulos, Evan (Ext.) <evan.sotiropoulos@ontario.ca>; St Lawrence, Natalie (PHAC/ASPC) <natalie.stlawrence@canada.ca>; Strang, Robert (Ext.) <robert.strang@gov.ns.ca>; Sveinson, Michelle (Ext.) <michelle.sveinson@gov.mb.ca>; Tam, Dr Theresa (PHAC/ASPC) <drtheresa.tam@canada.ca>; Taylor, Stephanie (Ext.) <stephanie.taylor@gov.bc.ca>; Theriault4, Julie (PHAC/ASPC) <julie.theriault4@canada.ca>; Thornton, Sally (PHAC/ASPC) <sally.thornton@canada.ca>; Welbourne2, Maia (PHAC/ASPC) <maia.welbourne2@canada.ca>; Yeo, Lyn (Ext.) <lyn.yeo@health.gov.sk.ca>; Andre Corriveau <ACorriveau@gov.nu.ca>; Adams, Evan (SAC/ISC) <evan.adams@canada.ca>; Angela Alves <Angela.Alves@CSC-SCC.GC.CA>; Andy DelliPizzi <Andy_DelliPizzi@gov.nt.ca>; Auger, Julie (PHAC/ASPC) <julie.auger@canada.ca>; Avis Gray <avis.gray@gov.mb.ca>; Baillargeon, Jennifer He0 <Jennifer.Baillargeon2@health.gov.sk.ca>; Philip Christoff <philip.christoff@gov.yk.ca>; Bancej, Christina (PHAC/ASPC) <christina.bancej@canada.ca>; Dr. Barb Yaffe <barbara.yaffe@ontario.ca>; Barton, Kimby (PHAC/ASPC) <kimby.barton@canada.ca>; Richard Baydack <Richard.Baydack@gov.mb.ca>; Billard, Bev A <Bev.Billard@novascotia.ca>; Bodie, Margaret (PHAC/ASPC) <margaret.bodie@canada.ca>; Bryson, Maggie (PHAC/ASPC) <maggie.bryson@canada.ca>; Carlo Rossi <carlo.rossi@forces.gc.ca>; Carter, Luke (HC/SC) <luke.carter@canada.ca>; Catherine Elliott <catherine.elliott@gov.yk.ca>; CatherineOKeefe@gov.nl.ca; Charrier, Michèle (PHAC/ASPC) <michele.charrier@canada.ca>; Christine Drummond <cmdrummond@ihis.org>; Cindy Kruger <cindy.kruger@csc-scc.gc.ca>; Cleary, Eilish (SAC/ISC) <eilish.cleary@canada.ca>; Coleman, Gina (HC/SC) <gina.coleman@canada.ca>; Colleen Dudar <Colleen.Dudar@gov.mb.ca>; Currie, Andrea (PHAC/ASPC) <andrea.currie@canada.ca>; 21(1) [redacted] 'Dr. David Williams' <dr.david.williams@ontario.ca>; Renee.David@tpsgc-pwgsc.gc.ca; Davies, Stephanie (PHAC/ASPC) <stephanie.davies@canada.ca>; de Souza Henry (NHQ-AC) <Henry.deSouza@CSC-SCC.GC.CA>; 'Dr.

Deena Hinshaw' <deena.hinshaw@gov.ab.ca>; Denis, Joel (PHAC/ASPC) <joel.denis@canada.ca>; 'Diane Lu' <diane.lu@forces.gc.ca>; Dohoo, Carolyn <Carolyn.Dohoo@novascotia.ca>; 'George Doyle-Bedwell' <George.doyle-bedwell@novascotia.ca>; 'Brent Roussin' <brent.roussin@gov.mb.ca>; 'Dr. Denise Werker' <denise.werker1@health.gov.sk.ca>; Dr. Marguerite Cameron <mcameron@ihis.org>; Dr. Shannon McDonald <Shannon.McDonald@fnha.ca>; Elaine Barrett-Cramer <Elaine.Barrett-Cramer@cic.gc.ca>; Orawiec, Emma (HC/SC) <emma.orawiec@canada.ca>; Erin Bentley <ebentley@ihis.org>; Evans, Cindy (PHAC/ASPC) <cindy.evans@canada.ca>; Everitt, Louisa (PHAC/ASPC) <louisa.everitt@canada.ca>; Filipps2, Lisa (HC/SC) <lisa.filipps2@canada.ca>; 'Dr. Janice Fitzgerald' <janice.fitzgerald@gov.nl.ca>; Fournier, Sarah (PHAC/ASPC) <sarah.fournier@canada.ca>; 'Dr. George Giovinazzo' <george.giovinazzo@cic.gc.ca>; Gillian MacDonald <Gillian.MacDonald2@ontario.ca>; Greenwood, Katie (PHAC/ASPC) <katie.greenwood@canada.ca>; Halverson, Jessica (PHAC/ASPC) <jessica.halverson@canada.ca>; Hamel, Sonia (PHAC/ASPC) <sonia.hamel@canada.ca>; Hilderman, Tim Dr. (HSAL) <Tim.Hilderman@gov.mb.ca>; Hill, Allison (HC/SC) <allison.hill@canada.ca>; Hostrawser, Bonnie (PHAC/ASPC) <bonnie.hostrawser@canada.ca>; HPOC Chief Operations / Chef COPS (PHAC/ASPC) <phac.hpoc.chief.operations-chef.cops.aspc@canada.ca>; HPOC-COPS, PHAC-ASPC (PHAC/ASPC) <phac-aspc.hpoc-cops@canada.ca>; HPOC Translation Reception / Traduction COPS (PHAC/ASPC) <phac.hpoc.translation.reception-traduction.cops.aspc@canada.ca>; Huber, Pamela (PHAC/ASPC) <pamela.huber@canada.ca>; Humber, Lynn (PHAC/ASPC) <lynn.humber@canada.ca>; Hunter, Laurie (PHAC/ASPC) <laurie.hunter@canada.ca>; Ingraham, Erin (HC/SC) <erin.ingraham@canada.ca>; 'Dr. James Worthington' <dr.james.worthington@csc-scc.gc.ca>; 'Jasmine Pawa' <jpawa@gov.nu.ca>; 'Jason Letto (LAC PT co-chair)' <jasonletto@gov.nl.ca>; Jazz Atwal <Jazz.Atwal@gov.mb.ca>; Jenny Green <jegreen@ihis.org>; Johnatha Smith <Jonathan.Smith@CSC-SCC.GC.CA>; josee.pilon@rcmp-grc.gc.ca; McLachlan, Kailey (HC/SC) <kailey.mclachlan@canada.ca>; Kassam, Narmin (PHAC/ASPC) <narmin.kassam@canada.ca>; Kirsten Barnes <Kirsten.Barnes@forces.gc.ca>; Knelsen, Ryan (PHAC/ASPC) <ryan.knelsen@canada.ca>; Lachapelle, Stephane (PHAC/ASPC) <stephane.lachapelle@canada.ca>; Lalonde, Fanie (PHAC/ASPC) <fanie.lalonde@canada.ca>; Laura.Lang@gov.yk.ca; Thompson, Laurel HLTH:EX <Laurel.Thompson@gov.bc.ca>; Ledrew, Beverly (PHAC/ASPC) <beverly.ledrew@canada.ca>; Lewis, Darlene (SAC/ISC) <darlene.lewis@canada.ca>; Lior, Lee (PHAC/ASPC) <lee.lior@canada.ca>; Lisa Haubrich <Lisa.Haubrich@health.gov.sk.ca>; Lori Carpenter <lori.carpenter@fnha.ca>; MacDonald2, Tammy (PHAC/ASPC) <tammy.macdonald2@canada.ca>; MacKenzie, Sara (HC/SC) <sara.mackenzie@canada.ca>; Macmillan, Pamela (IGA/MAI) <Pamela.Macmillan@gnb.ca>; Manji, Natasha (HC/SC) <natasha.manji@canada.ca>; Marcia Johnson <Marcia.Johnson@gov.ab.ca>; Allen, Mark (DH/MS) <Mark.Allen@gnb.ca>; Marlène Mercier <Marlene.Mercier@msss.gouv.qc.ca>; Matthew Pals <Matthew.Pals@gov.ab.ca>; Maureen Carew <MAUREEN.CAREW@forces.gc.ca>; McCarney, Jane (PHAC/ASPC) <jane.mccarney@canada.ca>; McGarr, Holly (PHAC/ASPC) <holly.mcgarr@canada.ca>; McGuire, Marissa (PHAC/ASPC) <marissa.mcguire@canada.ca>; McLeod, Robyn (PHAC/ASPC) <robyn.mcleod@canada.ca>; McNeill, Robin (PHAC/ASPC) <robin.mcneill@canada.ca>; Meghnath Kashmeera (NHQ-AC) <Kashmeera.Meghnath@CSC-SCC.GC.CA>; Dr. Michael Patterson <mpatterson@gov.nu.ca>; Michelle Craplewe <Michelle.Craplewe@gov.ab.ca>; Milenka Mitrovic <milenka.mitrovic@hrsdc-rhdcc.gc.ca>; Mitra, Debjani (PHAC/ASPC) <debjani.mitra@canada.ca>; Nadine Sicard <nadine.sicard@msss.gouv.qc.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Northwood, Brandon (PHAC/ASPC)

<brandon.northwood@canada.ca>; OCMOH EOC LO (DH/MS) <OCMOHEOCLO@gnb.ca>; Olivia Varsaneux <Olivia.Varsaneux@CSC-SCC.GC.CA>; Dawn Osciak <dawn.osciak@gov.mb.ca>; Passerini, Linda <Linda.Passerini@novascotia.ca>; Seaman, Pat (DH/MS) <Pat.Seaman@gnb.ca>; Patterson, Dr. Judy (DH/MS) <Judy.Patterson@gnb.ca>; Pennock, Jennifer (PHAC/ASPC) <jennifer.pennock@canada.ca>; Higdon, Penny (DH/MS) <penny.higdon@gnb.ca>; Perron, Roxanne (PHAC/ASPC) <roxanne.perron@canada.ca>; Peters, Shelley (PHAC/ASPC) <shelley.peters@canada.ca>; Petiquan, Alexandre (SAC/ISC) <alexandre.petiquan@canada.ca>; Polan, Clayton (PHAC/ASPC) <clayton.polan@canada.ca>; Comeau, Rachel (DH/MS) <Rachel.Comeau@gnb.ca>; Rachel Mailhot <Rachel.mailhot@cic.gc.ca>; Reka Gustafson <reka.gustafson@phsa.ca>; Carol Kurbis <Carol.Kurbis@gov.mb.ca>; RaaFat Gad, Dr. Rita (DH/MS) <Rita.RaaFatGad@gnb.ca>; Robinson, Kerry (PHAC/ASPC) <kerry.robinson@canada.ca>; Rosann Seviour <RosannSeviour@gov.nl.ca>; Sabourin, Michele (PHAC/ASPC) <michele.sabourin@canada.ca>; Salvadori, Marina (PHAC/ASPC) <marina.salvadori@canada.ca>; Samantha Thomas <Samantha_Thomas@gov.nt.ca>; Samantha.Salter@gov.yk.ca; Sciberras, Jill (PHAC/ASPC) <jill.sciberras@canada.ca>; Shah, Lena (PHAC/ASPC) <lena.shah@canada.ca>; Sharma, Supriya (HC/SC) <supriya.sharma@canada.ca>; Shattuck, Kathleen (PHAC/ASPC) <kathleen.shattuck@canada.ca>; Landsburg, Shelley (DH/MS) <Shelley.Landsburg@gnb.ca>; Simms, Colleen (Ext.) <colleensimms@gov.nl.ca>; SK CMOH Single Window <OCMHO@health.gov.sk.ca>; SK Secretariat <SKPHNCsecretariat@health.gov.sk.ca>; Smith, Cheryl (HC/SC) <cheryl.smith@canada.ca>; Smith, Sharon E (PHAC/ASPC) <sharone.smith@canada.ca>; Stacey Burns <slburns@ihis.org>; Stevens, Catherine L <Catherine.L.Stevens@novascotia.ca>; Sylvie Poirier <Sylvie.Poirier@msss.gouv.qc.ca>; 'Tami Denomie' <tami.denomie@health.gov.sk.ca>; Tara Goodwin-Chief <Tara.Goodwin-Chief@gov.yk.ca>; Taylor, Dorcas (PHAC/ASPC) <dorcas.taylor@canada.ca>; Tracey Aylward <TraceyAylward@gov.nl.ca>; Mann, Valerie HE0 <Valerie.Mann@health.gov.sk.ca>; 'Vanessa Blyan' <vanessa.blyan@gov.ab.ca>; Ward, Rob (PHAC/ASPC) <rob.ward@canada.ca>; 'Jennifer Wheatley' <Jennifer.Wheatley@CSC-SCC.GC.CA>; Jennifer White <jennifer.white2@gov.mb.ca>; Whitmore, Lindsay (PHAC/ASPC) <lindsay.whitmore@canada.ca>; Wong, Tom (SAC/ISC) <tom.wong@canada.ca>; 'YK Surveillance' <YCDCsurveillance@gov.yk.ca>; 'Yoon Suk Cho' <yoonsuk.cho@health.gov.sk.ca>; 'Yves Jalbert' <yves.jalbert@msss.gouv.qc.ca>; Tanya Straight <Tanya.Straight@rcmp-grc.gc.ca>; Heisz, Marianne (PHAC/ASPC) <marianne.heisz@canada.ca>; Hoult, Colin (HC/SC) <colin.hoult@canada.ca>; Medalla, Rocio (PHAC/ASPC) <rocio.medalla@canada.ca>; Bolduc, Christine (PHAC/ASPC) <christine.bolduc@canada.ca>; Morrison, Reed (PHAC/ASPC) <reed.morrison@canada.ca>; Redford, Vinessa (Ext.) <vinessa.redford@ontario.ca>; Henderson, Marianne [BCCDC] <marianne.henderson@bccdc.ca>; HPOC Planning Chief / Chef Planification COPS (PHAC/ASPC) <phac.hpoc.planning.chief-chef.planification.cops.aspc@canada.ca>; Linklater, Les (HC/SC) <les.linklater@canada.ca>; Greg Haley <GREG.Haley@forces.gc.ca>; HPOC Sitrep / COPS (PHAC/ASPC) <phac.hpoc.sitrep-cops.aspc@canada.ca>; Jeffrey, Heather (HC/SC) <heather.jeffrey@canada.ca>; Liston, Heidi (DH/MS) <Heidi.Liston@gnb.ca>; Haymes, Greg (PHAC/ASPC) <greg.haymes@canada.ca>; nel.wieman@fnha.ca; Sean.Wachtel@fnha.ca; eric.litvak@msss.gouv.qc.ca; Clark, Ray (PHAC/ASPC) <ray.clark@canada.ca>; Sanaz.Vaseghi@health.gov.sk.ca; michael.nicholls@rcmp-grc.gc.ca; Katrina.Brook@gov.bc.ca; Diogo, Brigitte (PHAC/ASPC) <brigitte.diogo@canada.ca>; Renata.Ruffell@gov.bc.ca; Tunis, Matthew (PHAC/ASPC) <matthew.tunis@canada.ca>; Ismail, Shainoor (PHAC/ASPC) <shainoor.ismail@canada.ca>; Zhao, Linlu (PHAC/ASPC) <linlu.zhao@canada.ca>; Killikelly, April

(PHAC/ASPC) <april.killikelly@canada.ca>; Michel, Pascal (PHAC/ASPC) <pascal.michel@canada.ca>; Fortin3, Marc (HC/SC) <marc.fortin3@canada.ca>; Cleary, Eilish (SAC/ISC) <eilish.cleary@canada.ca>; Hill, Allison (HC/SC) <allison.hill@canada.ca>; Ingraham, Erin (HC/SC) <erin.ingraham@canada.ca>; McLachlan, Kailey (HC/SC) <kailey.mclachlan@canada.ca>; McDonald, Alexa (HC/SC) <alexa.mcdonald@canada.ca>; Sharma, Supriya (HC/SC) <supriya.sharma@canada.ca>; Simms, Colleen (Ext.) <colleensimms@gov.nl.ca>; Wong, Tom (SAC/ISC) <tom.wong@canada.ca>; Redford, Vinessa (Ext.) <vinessa.redford@ontario.ca>; Orawiec, Emma (HC/SC) <emma.orawiec@canada.ca>; Bolduc, Christine (PHAC/ASPC) <christine.bolduc@canada.ca>; Morrison, Reed (PHAC/ASPC) <reed.morrison@canada.ca>; Linklater, Les (HC/SC) <les.linklater@canada.ca>
Cc: Strang, Robert <Robert.Strang@novascotia.ca>; Watson-Creed, Gaynor <Gaynor.Watson-Creed@novascotia.ca>; Watkins2, Kerri (PHAC/ASPC) <kerri.watkins2@canada.ca>; McKeown, David (MOH) <David.McKeown@ontario.ca>; Nandy, Mona (PHAC/ASPC) <mona.nandy@canada.ca>; Gorber, Timna (PHAC/ASPC) <timna.gorber@canada.ca>; LeBlond, Jocelyn HE0 <Jocelyn.LeBlond@health.gov.sk.ca>; Lin, Joanne (PHAC/ASPC) <joanne.lin@canada.ca>; Rongve, Ian HLTH:EX <Ian.Rongve@gov.bc.ca>; Ta, Vanessa (PHAC/ASPC) <vanessa.ta@canada.ca>; Dicum, Julia (PHAC/ASPC) <julia.dicum@canada.ca>
Subject: SAC on COVID-19 Teleconference

Dear SAC members,
Please find attached the agenda and meeting materials for today's call.
The documents have also been added to CNPHI.
Thank you
SAC Secretariat

PAN-CANADIAN PUBLIC HEALTH NETWORK

RÉSEAU PANCANADIEN DE SANTÉ PUBLIQUE

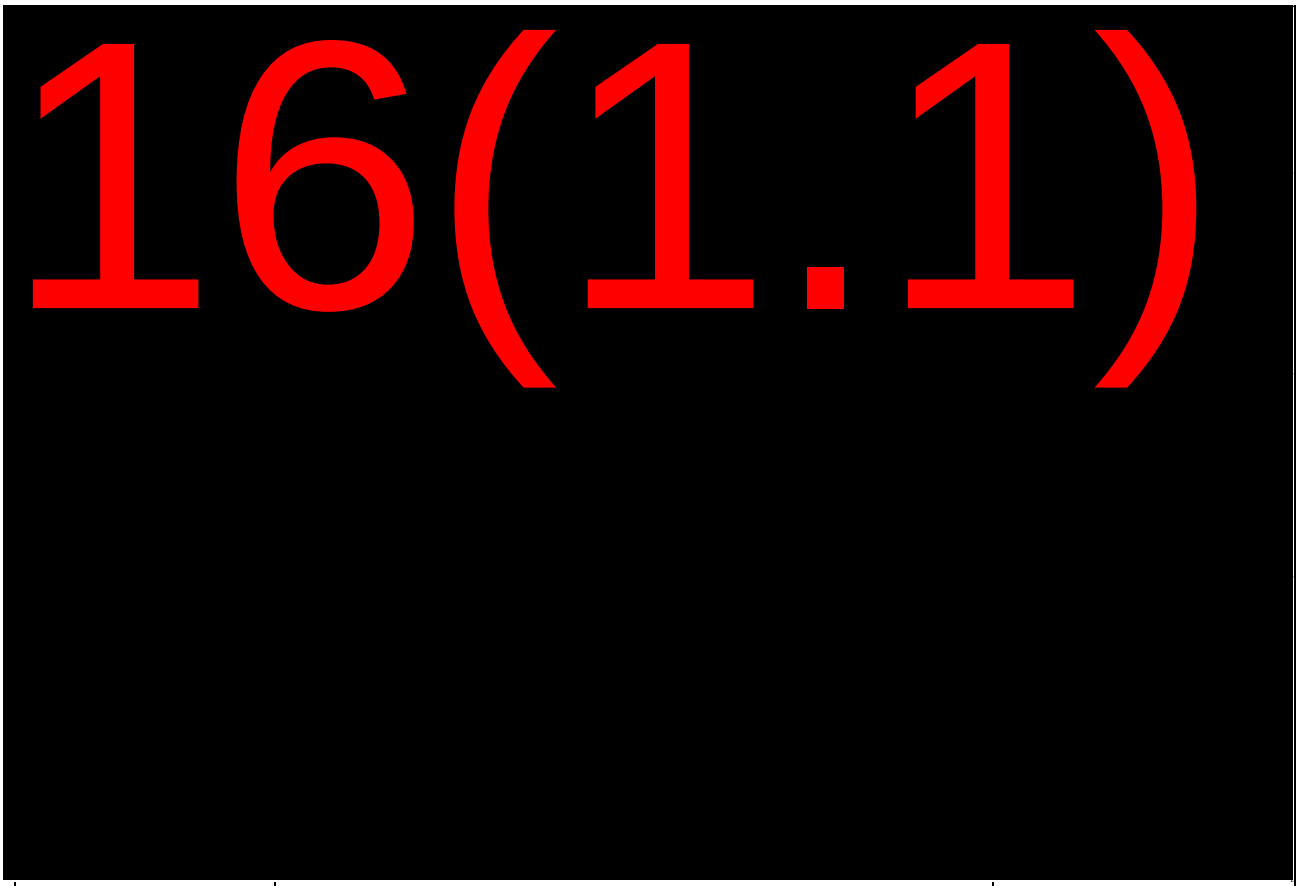
Special Advisory Committee Teleconference
COVID-19

AGENDA

July 30, 2020

1:30 - 3:00 pm ET

N. American Dial-in: 1-877-413-4782 **Int'l/Local dial-in:** 613-960-7511
Conference code: 3009575#



2:30 – 2:45	**5.**	**Long-term health effects of COVID-19 and patient group perspective** ➢ *For discussion* • Update and consultation on persistent COVID-19 symptomatology post infection • Draft response to correspondence from a group of 52 Canadian patients	**Dr. Marina Salvadori PHAC** **Kerry Robinson SAC Secretariat**
15 minutes			

16(1.1)

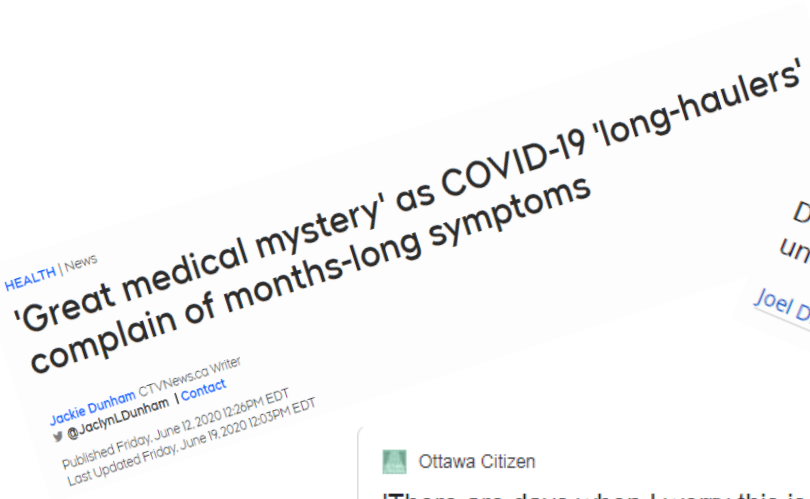
Upcoming Teleconferences: August 6th, 2020

SAC update and consultation on persistent COVID-19 symptomatology post infection

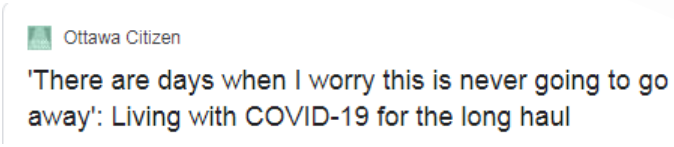
July 30, 2020

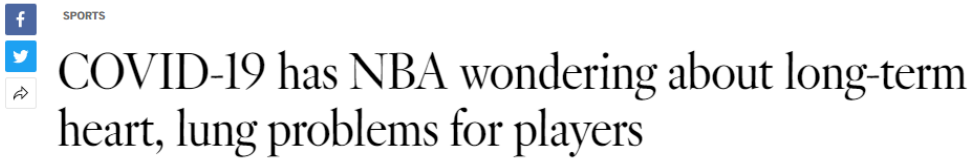

Science Weekly
Coronavirus outbreak
Covid-19: Why are people suffering long-term symptoms?
Weeks and months after having a confirmed or suspected Covid-19 infection, many people are finding they still haven't fully recovered. Emerging reports describe lingering symptoms ranging from fatigue and brain-fog to breathlessness and tingling toes. So why does Covid-19 cause lasting health problems? Ian Sample discusses some of the possible explanations with Prof Danny Altmann, and finds out how patients might be helped in the future


Vox
TWITTER
FACEBOOK
What happens if Covid-19 symptoms don't go away? Doctors are trying to figure it out.
People with long-term Covid-19 complications are meanwhile struggling to get care.
By Lois Parshley | Jul 14, 2020, 2:50pm EDT


HEALTH | News
'Great medical mystery' as COVID-19 'long-haulers' complain of months-long symptoms
Jackie Dunham CTVNews.ca Writer
@JaclynLDunham | Contact
Published Friday, June 12, 2020 12:26PM EDT
Last Updated Friday, June 19, 2020 12:03PM EDT


Meet 2 COVID-19 'long-haulers' — those whose symptoms persist for months
Dr. Deena Hinshaw says the long-term impacts of the virus are still not fully understood
Joel Dryden · CBC News · Posted: Jul 25, 2020 10:22 AM MT | Last Updated: July 25


Ottawa Citizen
'There are days when I worry this is never going to go away': Living with COVID-19 for the long haul


SPORTS
COVID-19 has NBA wondering about long-term heart, lung problems for players

The problem

- Anecdotal experience of prolonged or lasting effects of COVID-19 is increasingly being shared by patients (including health care professionals) on social and traditional media, and through patients' groups.
- As the number of convalescents increases, the health care and public health professionals are likely to witness a rise in individuals presenting with lingering physical and psychological/emotional symptoms (e.g. anxiety, depression, adjustment disorder, PTSD) following COVID-19.
- In particular, patients who have required mechanical ventilation in intensive care are likely to require significant rehabilitation to manage the physical and mental health consequences of treatment.
- The social and economic impacts (e.g. social isolation and unemployment) may additionally contribute to adverse health consequences.

The evidence

- Research (aside from anecdotal evidence) remains limited
- A report on the long term effects of 143 COVID-19 patients in Italy*:
  - 87% continued experiencing at least one symptom 60 days after onset
  - 13% were completely free of any symptoms, 32% had one or two symptoms, and 55% had three or more.
  - Most commonly reported symptoms included fatigue (53%), dyspnoea (43%), joint pain (27%), and chest pain (22%)
  - 44% reported a worsened quality of life
- A report on 274 outpatients in the US** interviewed 14–21 days after testing:
  - the median interval to symptom resolution ranged from 4 to 8 days
  - 35% did not report returning to their usual state of health
  - among individuals who reported returning to their usual state of health, 34% still had one or more COVID-related symptoms
  - symptoms least likely to have resolved included cough (43%) and fatigue (35%)
- The UK Covid-19 Symptom Study app data** (symptom information from nearly four million users) identified that approximately 10% of COVID-19 patients remain symptomatic for three weeks or more

* Carfì A et al. Persistent symptoms in patients after acute covid-19. JAMA2020;9. doi:10.1001/jama.2020.12603. pmid:3264412

** Tenforde MW et al. Symptom Duration and Risk Factors for Delayed Return to Usual Health Among Outpatients with COVID-19 in a Multistate Health Care Systems Network — United States, March–June 2020. MMWR Morb Mortal Wkly Rep

*** https://covid.joinzoe.com/post/covid-long-term

The evidence – cardiovascular/chronic disease implications

- Lindner et al. Association of cardiac infection with SARS-CoV-2 in confirmed COVID-19 autopsy cases. JAMA:
  - 39 autopsy cases of COVID-19 patients with pneumonia listed as the primary cause of death
  - evidence of viral presence in the myocardium in two thirds of patients despite not meeting the histopathological criteria of acute myocarditis
  - suggestive that COVID-19 may lead to myocardial injury via direct viral infection of the heart
- Puntmann et al. Outcomes of cardiovascular magnetic resonance in patients recently recovered from COVID-19. JAMA:
  - In 100 patients (67% of whom recovered at home) evaluated a mean of 71 days post diagnosis:
    - 78% had demonstrable cardiac involvement via cardiac MRI
    - 76% had detectable high-sensitivity troponin
    - 60% had evidence of active myocardial inflammation by abnormal native T1 and T2
  - Compared with controls:
    - left ventricular ejection fraction was lower
    - 32% manifestied late gadolinium enhancement
    - 22% with pericardial involvement
- Adds to previous postmortem case reports describing direct (myocarditis/myocardial injury) and indirect (via immunologically or virally enhanced prothrombotic states and microvascular clot formation) effects of infection on the cardiovascular system.

The SARS and MERS experience

- Psychological assessments of SARS and MERS survivors found persisting morbidity (including chronic fatigue, depression and PTSD symptoms) to be frequently present beyond 6 months post infection (Moldofsky P et al., 2011; Tansey CM et al., 2007; Lee AM et al., 2007; Wing YK et al., 2012; Lee SH et al., 2019; Gardner J et al., 2015)

- A recently conducted SR (preprint) also identified long term respiratory dysfunction, reduced exercise capacity and reduced quality of life in s in CoV survivors after hospitalization/ICU admission (Ahmed et al., 2020)

The Lyme experience

- The AMMI Canada Position Statement on the Diagnosis and Treatment of People with Persistent Symptoms That Have Been Attributed to Lyme Disease:
  - Symptoms such as body pain, fatigue and difficulty concentrating are non-specific and are commonly found in the general population, after other infectious diseases (Hickie et al., 2006), and with other diagnoses. (Sharpe and Wilks, 2002; Ricci et al., 2007; Patrick et al., 2015; Dahlhamer et al., 2018).
  - Using data from the 2014 Canadian Community Health Survey and the 2012 Canadian Community Health Survey-Mental Health it is estimated that 1.3 million adults in Canada aged 25 or older live with medically unexplained physical symptoms (Park and Gilmour 2017).

Ongoing research

- The Post-hospitalisation COVID-19 study (PHOSP-COVID) will aim to recruit 10,000 patients across the UK, who will be followed for more than a year.

- The NIAID Longitudinal Study of COVID-19 Sequelae and Immunity is recruiting adults who have recovered from documented COVID-19

- No similar studies have been registered in Canada

Dr. Theresa Tam
Chief Public Health Officer
of Canada

Dr. Bonnie Henry
Provincial Health Officer
British Columbia

Dr. Deena Hinshaw
Chief Medical Officer of Health
Alberta

Dr. Saqib Shahab
Chief Medical Health Officer
Saskatchewan

Dr. Brent Roussin
Chief Provincial Public Health Officer
Manitoba

Dr. David Williams
Chief Medical Officer of Health
Ontario

Dr. Horacio Arruda
National Director of Public Health
Quebec

Dr. Robert Strang
Chief Public Health Officer
Nova Scotia

Dr. Jennifer Wylie-Russell
Chief Medical Officer of Health
New Brunswick

Dr. Heather Morrison
Chief Health Officer
Prince Edward Island

Dr. Janice Fitzgerald
Chief Medical Officer of Health
Newfoundland and Labrador

Dr. Brendan Hanley
Chief Medical Officer of Health
Yukon

Dr. Kami Kandola
Chief Public Health Officer
Northwest Territories

Dr. Michael Patterson
Chief Public Health Officer
Nunavut

June 30, 2020

Dear Doctors,

We are a group of Canadians and permanent residents who have all experienced, or are still experiencing, symptoms of COVID-19 for months. Without any medical answers or insight into our condition, we are left living in limbo, unable to access treatment and therapies, and filled with uncertainty about our futures.

We are calling on you as the leaders of Canada's public health response to COVID-19 to establish and coordinate research into long-term illness caused by COVID-19, to ensure that medical support and care is provided to those who are experiencing COVID-19 symptoms for many weeks and months, and to implement effective standards for a presumptive diagnosis of COVID-19 for patients without a positive test.

We also call for greater public awareness of the potential for prolonged symptoms and for public health guidelines to be updated to ensure that physicians, policy makers, and employers are aware that some individuals experience long COVID-19 illnesses.

Research

Initial guidelines provided by the World Health Organization and various Centers for Disease Control around the world all stated that recovery for mild cases would take two weeks. However, many of us have had cases that did not require hospitalization and yet we are having persistent symptoms three, four, even five months after symptom onset.

We are not alone. Reports have emerged from Italy, France, the Netherlands, the United Kingdom, and the United States of patients with similar patterns of prolonged illness. Some of us have experienced periods of being asymptomatic followed by the return of symptoms. Others have had new symptoms develop over time, and still others have experienced symptoms consistently without a break since the onset of our illness.

COVID-19 is a new illness. Not only are the actual national or regional infection rates unknown, but there is no solid data on prolonged cases of COVID-19 illness. However, there is reason to believe that the number of people experiencing prolonged symptoms is not a tiny minority of COVID-19 cases. Data collected by the COVID Symptom Study app in the UK, which asked people to voluntarily enter their symptoms into an online app, suggests that 1 in 10 cases of individuals with COVID-19 symptoms experience those symptoms for three weeks or longer.[1] A Swedish phone survey conducted in early May found that nearly one-third of randomly sampled Swedes who reported experiencing at least one symptom of COVID-19 had been experiencing those symptoms for ten weeks or more.[2]

Public health guidance in Canada has directed people who are not critical to manage their symptoms at home to ease the burden on the medical system. As a result, many Canadians have not contacted their doctors despite experiencing ongoing symptoms. Others have tried to seek medical care and been dismissed, either for not having a positive test or because they are told COVID-19 does not last beyond two weeks. It is therefore impossible to say how many Canadians are experiencing a lingering COVID-19 illness or longer-term, possibly permanent, disability as a result of the illness.

The symptoms that we are experiencing affect every part of the body, and include:

- Fever and profuse sweating;
- A sore or scratchy throat; sneezing; runny, dry, or stuffed up nose; and sinus pain;
- Persistent cough, shortness of breath, and lung pain;
- Chest pain and pressure, including a bubbling or burning sensation in the chest, a stabbing sensation in the chest, costochondritis, and pleurisy;
- Heart issues including pericarditis, myocarditis, tachycardia, bradycardia, and arrhythmia;
- Neurological issues, including headaches, dizziness, brain fog, orthostatic intolerance, vasovagal syncope, loss of taste and smell, metallic taste, sore tongue, tinnitus, and light and sound sensitivity;
- Swollen glands and lymph nodes;
- Skin rashes and sores, random bruising, mucosal membrane sores, and esophageal burning;
- Tingling and numbness in face, hands and feet, or neuropathy;
- Muscle aches and soreness, muscle weakness, and severe muscle and joint pain;

---

[1] COVID Symptom Study, "How Long Does COVID-19 Last?" June 8, 2020, https://covid.joinzoe.com/post/covid-long-term.

[2] Novus, Coronastatus 0511, https://novus.se/coronastatus-0511/.

- Conjunctivitis, dry eyes, and vision issues;
- Extreme fatigue, and insomnia or difficulty sleeping;
- Gastrointestinal pain, nausea, diarrhea, and bloating.

Secondary infections such as thrush, strep, urinary tract infections, and skin infections are also common.

There are many theories as to what might be causing our ongoing symptoms, including persistent viral infection, an immune overreaction to dead viral RNA, molecular mimicry, dysautonomia, post-viral fatigue, the reactivation of dormant viruses within the body by COVID-19, and the onset of new illnesses such as diabetes. However, these are all very different conditions that require differing therapeutic approaches. Patients and doctors can't know what the best treatment to pursue is without an adequate understanding of the cause.

We also don't know when it is safe for us to be around others. Medical advice in some provinces has been to self-isolate for either fourteen days or until 24 hours or 72 hours after symptoms have resolved. Some of us have been having symptoms without a break for months, afraid to be around our own family members for fear of transmitting the virus to them. Others have had symptoms go away for days or even weeks only to have them reappear again. When this happens, we don't know whether we need to self-isolate again to protect people around us. It is difficult mentally, emotionally, and physically to self-isolate for months with no end in sight. We are also deeply worried about transmitting the illness to our loved ones or our communities.

There also needs to be research into the average duration of COVID-19 symptoms in order to better understand what recovery looks like and provide appropriate guidance to physicians, employers, and public officials. In addition to understanding what therapeutic needs COVID-19 survivors have, policymakers and employers need to understand how much sick time might be required to fully recover or what kinds of accommodations and supports might need to accompany a return-to-work. Public screening guidelines need to account for the fact that an individual might have symptoms for months, which creates challenges for accessing medical care and other essential services.

Medical support

To ask someone to self-isolate at home and manage their own symptoms without medical support for two weeks and for five months are two very different prospects. It is not reasonable to ask people with such extensive physical symptoms and such a prolonged illness to go without medical support. We need family doctors and emergency room physicians alike to have a greater awareness of the havoc this virus is causing throughout our bodies. We need access to medical tests, in addition to symptom management and care.

We have been trying, for months, to deal with symptoms that are often severe and scary, and that significantly affect quality of life. Some of us continue to visit the Emergency Department with heart issues, neurological issues, or shortness of breath months after the onset of symptoms. Some of us are formerly fit athletes who are still unable to walk around the block or up stairs due to stabbing chest pain, shortness of breath, and postural tachycardia months after initial illness.

Seeking medical care from personal care physicians has been challenging as many are only offering telephone consultations. Some of us have received supportive care, but many of us have had the experience of being told by our family doctor or a specialist that there's nothing they can do for us despite persistent coughing, shortness of breath, chest pain, or chronic gastrointestinal issues. As a

result, some of us have spent hundreds of dollars on supplements and alternative care practitioners such as naturopaths to try to gain some symptom relief.

Often doctors and specialists are compassionate but admit that they simply don't know why COVID-19 affects the body the way it does and are unable to offer any assistance.

However, many of us have also had the experience of being dismissed as having anxiety rather than having our symptoms taken seriously. We have been told that our symptoms can't possibly be related to COVID-19 because:

- We didn't meet the restrictive criteria for testing that was in place in March and April;
- We haven't traveled internationally or been exposed to a known case;
- Some doctors don't believe that COVID-19 illnesses persist beyond 2-6 weeks; or
- We had a negative COVID-19 test (despite the fact that the rate of false negatives is known to be high and the risk of having a false negative increases with the amount of time that has passed after symptom onset).

This lack of support from the medical community causes great psychological harm and stress, which can exacerbate our physical symptoms.

Furthermore, many of us fall into a gray area of not having a positive test or a recent exposure but still having COVID-19 symptoms. This means that many medical services and other health and wellness appointments are not available to us. We can't go to the dentist or get a massage. We can't have in-person appointments with our primary care physicians. We are in limbo, unsure if we are infectious but unable to pass a screening questionnaire. Physicians and health care facilities, meanwhile, are struggling to decide on a case-by-case basis whether to allow individuals with symptoms to access their services.

Presumptive diagnosis

For many reasons, access to testing was extremely limited across Canada during the early phase of the pandemic. Many of us did not qualify for early testing. Some of us had doctors confirm that we likely had COVID-19 but were told to stay home and manage our symptoms rather than seeking testing. Some had to fight for several weeks to access a test, arguing that our symptoms merited a diagnosis. As a result, many of us have never been tested.

Some of us were tested but only weeks after symptom onset. Research has shown that the timing of the test can significantly affect the results, with the likelihood of receiving a false negative dramatically increasing nine days after symptom onset. By Day 21, the likelihood of a false negative is 66%.[3] A throat or nasal swab also cannot determine whether the virus might be present elsewhere in the body. Despite these limitations, doctors continue to be influenced by negative tests results in spite of the swabs having been done weeks after symptom onset to either tell us that we never had COVID-19 or that our ongoing symptoms can't possibly be COVID-19 related any longer.

Similar questions are being raised about the accuracy of COVID-19 antibody tests. There is also early research emerging which suggests that not everyone who had a COVID-19 infection develops

[3] Lauren M. Kucirka, Stephen A. Lauer, Oliver Laeyendecker, Denali Boon, and Justin Lessler, Variation in False-Negative Rate of Reverse Transcriptase Polymerase Chain Reaction–Based SARS-CoV-2 Tests by Time Since Exposure. *Annals of Internal Medicine* (2020). https://doi.org/10.7326/M20-1495.

antibodies.[4] We are very concerned about reports from France, the UK, and the US that COVID-19 antibody tests are also being used to deny diagnosis and medical treatment to COVID-19 patients.

The accuracy of tests and the newness of the virus both argue in favour of also using a presumptive diagnosis, rather than just testing, to identify COVID-19 patients. However, the extreme limitations that were placed on testing in the early months of the pandemic demand that a presumptive diagnosis be adopted. Otherwise, too many Canadians in need of medical care will be and are being excluded.

Although there is limited data so far, evidence from a comprehensive survey of long-term COVID-19 illnesses conducted by patients themselves suggests that there is no difference in the pattern of symptoms between those who tested positive and those who tested negative or were not able to access a test.[5] Adopting a standard but comprehensive list of symptoms, in combination with factors such as a pattern of relapse/recovery, exposure to known cases, and timing of illness onset, could result in a presumptive diagnosis that will allow individuals to participate in research and access medical care.

In addition to access to medical care, we are concerned about the implications of not using a presumptive diagnosis for access to sick leave and income security programs such as the Canada Emergency Response Benefit. When employers don't understand that COVID-19 can be a very lengthy illness and demand a medical note; when public programs such as the CERB and Employment Insurance require a medical note for sick leave; and when penalties are being implemented for fraud and misrepresentation, we are very concerned that some of us can't access a diagnosis and appropriate medical care. This will force people back to work before they are ready, putting their long-term health at risk and potentially putting the health and safety of others at risk.

There also needs to be acknowledgement of how many people became ill in the early weeks of the pandemic when access to testing was extremely limited and the struggle we have waged since to obtain a diagnosis and official recognition that our illness and ongoing symptoms are COVID-19.

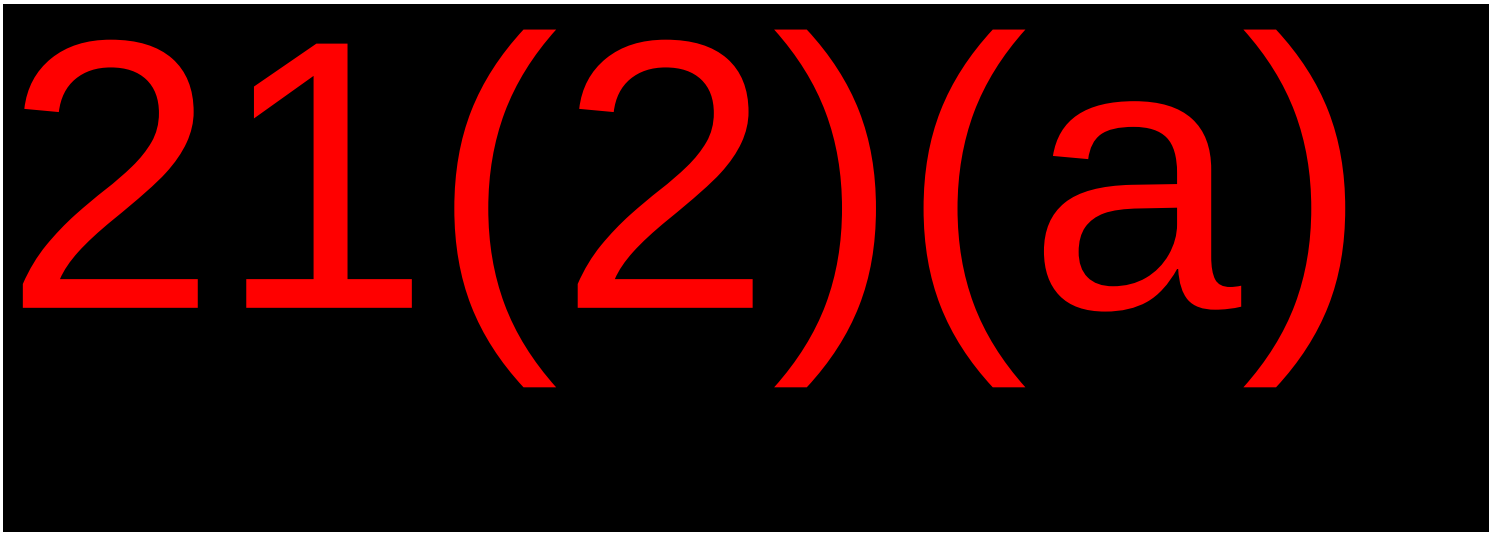
Our experience

We are different ages and ethnicities, coming from different regions across the country, with different career fields. Some of us were extremely healthy before getting sick; others had chronic health conditions. Our symptoms have varied; some of us have been and still are seriously ill, while others are dealing with lingering or occasional symptoms. Some of us have children and family members with similar symptoms and ongoing health issues; others have experienced this journey alone. What we all share in common is an extremely prolonged experience of COVID-19 symptoms and a need for answers and medical support.

---

[4] Payne DC, Smith-Jeffcoat SE, Nowak G, et al. SARS-CoV-2 Infections and Serologic Responses from a Sample of U.S. Navy Service Members — USS Theodore Roosevelt, April 2020. MMWR Morb Mortal Wkly Rep 2020;69:714–721. DOI: http://dx.doi.org/10.15585/mmwr.mm6923e4

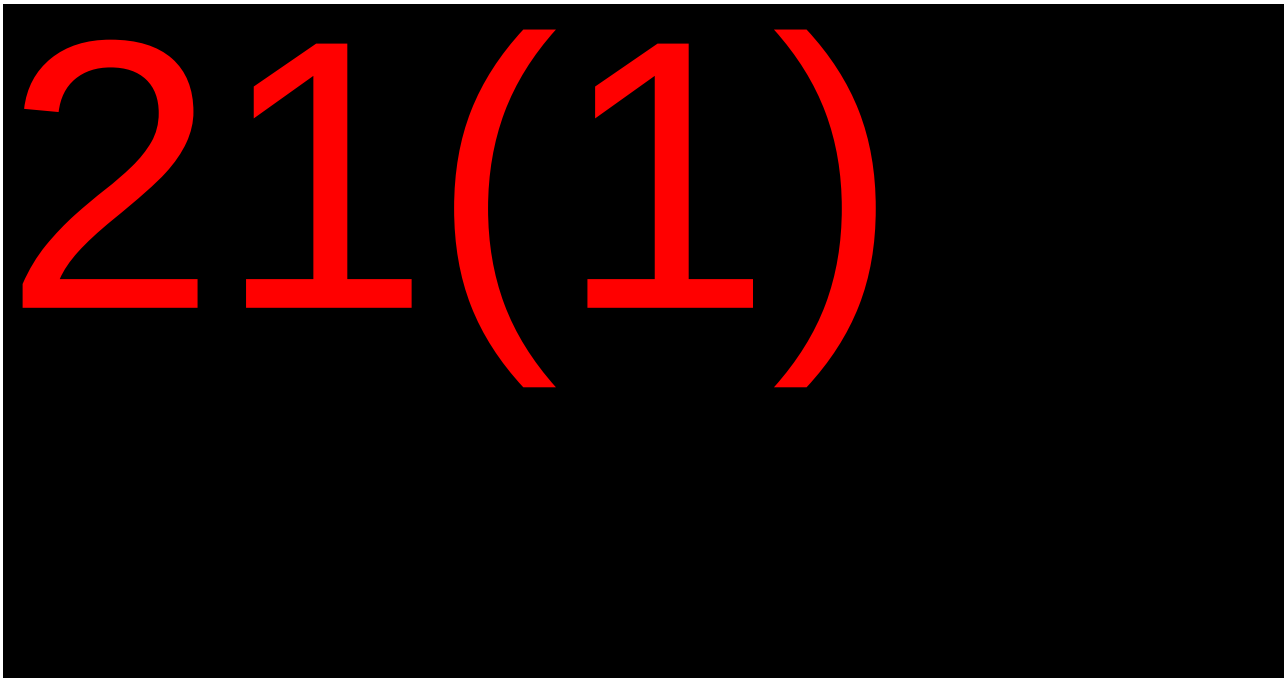
[5] Patient-Led Research for COVID-19, *Report: What Does COVID-19 Recovery Actually Look Like?,* May 11, 2020, https://patientresearchcovid19.com/research/report-1/.



We ask you to urgently address these concerns: to commence research into long-term COVID-19 illnesses, to ensure that medical support and care are provided to those who are experiencing COVID-19 symptoms for many weeks, and to implement standards for a presumptive diagnosis of COVID-19 for patients without a positive test.

Thank you for your attention and support, as well as all of the hard work you are doing to guide Canada through this unprecedented public health situation. If we can assist you in any way, please know that we are ready and willing to do so. You can contact us at LongHaulCovidCanada@gmail.com.

Sincerely,



From:	CDC Unit (DH/MS)
To:	(DH/MS)OCMOH - COVID19 Response Team; (DH/MS)Regional MOH
Subject:	FW: PAHO Report: 22 September 2020 - Additional categories that has been agreed to be able to document conditions that occur in the context of COVID-19.
Date:	September 23, 2020 8:28:38 AM
Attachments:	Post COVID codes ENG.pdf

FYI

From: HPOC-COPS, PHAC-ASPC (PHAC/ASPC) <phac-aspc.hpoc-cops@canada.ca>
Sent: September 22, 2020 11:21 PM
To: HPOC Chief Operations / Chef COPS (PHAC/ASPC) <phac.hpoc.chief.operations-chef.cops.aspc@canada.ca>; ihr / rsi (PHAC/ASPC) <phac.ihr-rsi.aspc@canada.ca>; alexander.skinner@international.gc.ca; Champion, Margaret (PS/SP) <margaret.champion@canada.ca>; DFHP-DPSF <DFHP-DPSF@forces.gc.ca>; Dominique Tremblay <Dominique.Tremblay@cbsa-asfc.gc.ca>; Elaine Barrett-Cramer <Elaine.Barrett-Cramer@cic.gc.ca>; Ellis, Andrea (CFIA/ACIA) <andrea.ellis@canada.ca>; GAC OC <Watchunit.csw@international.gc.ca>; GOC / COG (PS/SP) <ps.goc-cog.sp@canada.ca>; Medical Intelligence <MedicalIntelligence.RenseignementMedical@forces.gc.ca>; Michael MacKinnon <Michael.MacKinnon@cic.gc.ca>; NEOC / CNOU (CFIA/ACIA) <cfia.neoc-cnou.acia@canada.ca>; Peter Lavallee (TC) <peter.lavallee@tc.gc.ca>; SITCEN <SITCEN@tc.gc.ca>; TC.EMplanning-planificationGU.TC <TC.EMplanning-planificationGU.TC@tc.gc.ca>; Vincent Beswick-Escanlar <VINCENT.BESWICK-ESCANLAR@forces.gc.ca>; Admin: Tiffany Heindl <tiffany.heindl@gov.mb.ca>; Corriveau, Andre (Ext.) <andre_corriveau@gov.nt.ca>; Danuta Skowronski <Danuta.skowronski@bccdc.ca>; David Patrick <David.Patrick@bccdc.ca>; Eleni Galanis <Eleni.Galanis@bccdc.ca>; Morrison, Heather (Ext.) <hgmorrison@gov.pe.ca>; Jason Letto <jasonletto@gov.nl.ca>; Jim MacDougall <jim.macdougall@novascotia.ca>; Kristin Klein <Kristin.Klein@gov.ab.ca>; Marguerite Fenske <marguerite.fenske@gov.yk.ca>; Michael Patterson <mpatterson@gov.nu.ca>; Michel Savard <michel.savard@msss.gouv.qc.ca>; Monica Naus <Monika.Naus@bccdc.ca>; CDC Unit (DH/MS) <CDCUnit@gnb.ca>; NS HEOC <DHWDutyOfficer@novascotia.ca>; ON HEMD <clint.shingler@ontario.ca>; Landsburg, Shelley (DH/MS) <Shelley.Landsburg@gnb.ca>; Tim Macaulay <tmacaulay@health.gov.sk.ca>; Barton, Kimby (PHAC/ASPC) <kimby.barton@canada.ca>; Graham, Mary Louise (PHAC/ASPC) <marylouise.graham@canada.ca>; Heisz, Marianne (PHAC/ASPC) <marianne.heisz@canada.ca>; Schreuders, Basia (PHAC/ASPC) <basia.schreuders@canada.ca>; Lalonde, Edith (PHAC/ASPC) <edith.lalonde@canada.ca>; Pinard, Julie (PHAC/ASPC) <julie.pinard@canada.ca>; Anne, Ama (PHAC/ASPC) <ama.anne@canada.ca>; Di Stefano-Walker, Sabrina (PHAC/ASPC) <sabrina.distefano-walker@canada.ca>; Ferguson, Rhea (PHAC/ASPC) <rhea.ferguson@canada.ca>; Fleurant, Annie (PHAC/ASPC) <annie.fleurant@canada.ca>; Grimard Ouellette, Nany (PHAC/ASPC) <nany.grimardouellette@canada.ca>; Hickey, Raymonde (PHAC/ASPC) <raymonde.hickey@canada.ca>; Kadykalo, Stefanie (PHAC/ASPC) <stefanie.kadykalo@canada.ca>; Muntz, Stephanie (PHAC/ASPC) <stephanie.muntz@canada.ca>; Pachal, Nicole (PHAC/ASPC) <nicole.pachal@canada.ca>; Watkins2, Kerri (PHAC/ASPC) <kerri.watkins2@canada.ca>; Greenwood, Katie (PHAC/ASPC) <katie.greenwood@canada.ca>; Kassam, Narmin (PHAC/ASPC) <narmin.kassam@canada.ca>; tpp / ppv (PHAC/ASPC) <phac.tpp-ppv.aspc@canada.ca>; Tischer2, Cynthia (PHAC/ASPC) <cynthia.tischer2@canada.ca>; Yellow Fever / Fièvre Jaune (PHAC/ASPC) <phac.yellow.fever-fievre.jaune.aspc@canada.ca>; HSIB / DGISS (PHAC/ASPC) <phac.hsib-

dgiss.aspc@canada.ca>; Hunter, Laurie (PHAC/ASPC) <laurie.hunter@canada.ca>; Scott, Cheryl (PHAC/ASPC) <cheryl.scott@canada.ca>; Lior, Lee (PHAC/ASPC) <lee.lior@canada.ca>; Bott, Jeremy (PHAC/ASPC) <jeremy.bott@canada.ca>; Gooding, Elizabeth (PHAC/ASPC) <elizabeth.gooding@canada.ca>; gphin / rmisp (PHAC/ASPC) <phac.gphin-rmisp.aspc@canada.ca>; Menard, Lynn (PHAC/ASPC) <lynn.menard@canada.ca>; Filipps2, Lisa (HC/SC) <lisa.filipps2@canada.ca>; HPOC Communications / COPS (PHAC/ASPC) <phac.hpoc.communications-cops.aspc@canada.ca>; Lefebvre, Jennifer (HC/SC) <jennifer.lefebvre@canada.ca>; MacKenzie, Sara (HC/SC) <sara.mackenzie@canada.ca>; Russo, Laura (HC/SC) <laura.russo@canada.ca>; Acs-Charter, Katharine (PHAC/ASPC) <katharine.acs-charter@canada.ca>; Kaboré, Boniface (PHAC/ASPC) <boniface.kabore@canada.ca>; Watson, Jennifer (PHAC/ASPC) <jennifer.watson@canada.ca>; Burt, Christopher (PHAC/ASPC) <christopher.burt@canada.ca>; Zaghlool, Abdelhamid (PHAC/ASPC) <abdelhamid.zaghlool@canada.ca>; Gibbons, Tracy (PHAC/ASPC) <tracy.gibbons@canada.ca>; Diogo, Brigitte (PHAC/ASPC) <brigitte.diogo@canada.ca>; Gomes, Lisa (PHAC/ASPC) <lisa.gomes@canada.ca>; HSIB / DGISS (PHAC/ASPC) <phac.hsib-dgiss.aspc@canada.ca>; Brooks, James (PHAC/ASPC) <james.brooks@canada.ca>; GravelTropper, Denise (PHAC/ASPC) <denise.graveltropper@canada.ca>; Pelude, Linda (PHAC/ASPC) <linda.pelude@canada.ca>; Coady2, Andrea (PHAC/ASPC) <andrea.coady2@canada.ca>; Defalco, Katherine (PHAC/ASPC) <katherine.defalco@canada.ca>; Dunn, Kathleen (PHAC/ASPC) <kathleen.dunn@canada.ca>; Ephrem, Bersabel (PHAC/ASPC) <bersabel.ephrem@canada.ca>; Gale-Rowe, Margaret (PHAC/ASPC) <margaret.gale-rowe@canada.ca>; Popalyar, Adina (PHAC/ASPC) <adina.popalyar@canada.ca>; Wu, Jun (PHAC/ASPC) <jun.wu@canada.ca>; Yan, Ping (PHAC/ASPC) <ping.yan@canada.ca>; TB Travel / Voyage (PHAC/ASPC) <phac.tb.travel-voyage.aspc@canada.ca>; Bergeron, Frederic (PHAC/ASPC) <frederic.bergeron@canada.ca>; Henry, Carly (PHAC/ASPC) <carly.henry@canada.ca>; Paquette, Dana (PHAC/ASPC) <dana.paquette@canada.ca>; Avery, Brent (PHAC/ASPC) <brent.avery@canada.ca>; Carson, Carolee (PHAC/ASPC) <carolee.carson@canada.ca>; Irwin, Rebecca (PHAC/ASPC) <rebecca.irwin@canada.ca>; Kambo, Dolly (PHAC/ASPC) <dolly.kambo@canada.ca>; Landry, Lisa (PHAC/ASPC) <lisa.landry@canada.ca>; Reid-Smith, Richard (PHAC/ASPC) <richard.reid-smith@canada.ca>; Ahmad, Rukshanda (PHAC/ASPC) <rukshanda.ahmad@canada.ca>; Coulthart, Michael (PHAC/ASPC) <michael.coulthart@canada.ca>; Doering, Lesley (PHAC/ASPC) <lesley.doering@canada.ca>; Buck, Peter (PHAC/ASPC) <peter.buck@canada.ca>; Deilgat, Michel (PHAC/ASPC) <michel.deilgat@canada.ca>; Lee-Fuller, Christina (PHAC/ASPC) <christina.lee-fuller@canada.ca>; Vrbova, Linda (PHAC/ASPC) <linda.vrbova@canada.ca>; Parker, Stephen (PHAC/ASPC) <stephen.parker@canada.ca>; Weaver, Victoria (PHAC/ASPC) <victoria.weaver@canada.ca>; Cutler, Jennifer (PHAC/ASPC) <jennifer.cutler@canada.ca>; Enteric Outbreak / Éclosion Entérique (PHAC/ASPC) <phac.enteric.outbreak-eclosion.enterique.aspc@canada.ca>; Hexemer, April (PHAC/ASPC) <april.hexemer@canada.ca>; McGill, Erin (PHAC/ASPC) <erin.mcgill@canada.ca>; Samadhin, Mark (PHAC/ASPC) <mark.samadhin@canada.ca>; Thomas, Kate (PHAC/ASPC) <kate.thomas@canada.ca>; Bourgeois, Annie-Claude (PHAC/ASPC) <annie-claude.bourgeois@canada.ca>; Flockhart, Logan (PHAC/ASPC) <logan.flockhart@canada.ca>; Koffi, Jules (PHAC/ASPC) <juleskonan.koffi@canada.ca>; Schillberg, Erin (PHAC/ASPC) <erin.schillberg@canada.ca>; Tataryn, Joanne (PHAC/ASPC) <joanne.tataryn@canada.ca>; Zheng, Hui (PHAC/ASPC) <hui.zheng@canada.ca>; Zoonotic Outbreak / Épidémie Zoonotique (PHAC/ASPC) <phac.zoonoticoutbreak-epidemiezoonotique.aspc@canada.ca>; Bancej, Christina (PHAC/ASPC)

<christina.bancej@canada.ca>; ERP / PRE (PHAC/ASPC) <phac.erp-pre.aspc@canada.ca>; FluWatch / Épigrippe (PHAC/ASPC) <phac.fluwatch-epigrippe.aspc@canada.ca>; vpd / mev (PHAC/ASPC) <phac.vpd-mev.aspc@canada.ca>; Antonation, Kym (PHAC/ASPC) <kym.antonation@canada.ca>; Corbett, Cindi (PHAC/ASPC) <cindi.corbett@canada.ca>; Gilmour, Matthew (PHAC/ASPC) <matthew.gilmour@canada.ca>; Guercio, Steven (PHAC/ASPC) <steven.guercio@canada.ca>; NML BADD / EEDMM LNM (PHAC/ASPC) <phac.nml.badd-eedmm.lnm.aspc@canada.ca>; OCNML DIR / LNMCO (PHAC/ASPC) <PHAC.OCNML-DIR-LNMCO.ASPC@CANADA.CA>; Poliquin, Guillaume (PHAC/ASPC) <guillaume.poliquin@canada.ca>; Drebot, Mike (PHAC/ASPC) <mike.drebot@canada.ca>; Fernando, Lisa (PHAC/ASPC) <lisa.fernando@canada.ca>; NML Special Pathogens / LNM Agents Pathogènes spéciaux (PHAC/ASPC) <phac.nml.sp-lnm.asp.aspc@canada.ca>; Safronetz, David (PHAC/ASPC) <david.safronetz@canada.ca>; Bodie, Margaret (PHAC/ASPC) <margaret.bodie@canada.ca>; Boucher2, Suzanne (PHAC/ASPC) <suzanne.boucher2@canada.ca>; Colas, Lindsay (PHAC/ASPC) <lindsay.colas@canada.ca>; Colas, Régine (PHAC/ASPC) <regine.colas@canada.ca>; Coleman, Gina (HC/SC) <gina.coleman@canada.ca>; Coward, Leanne (PHAC/ASPC) <leanne.coward@canada.ca>; House, Althea (PHAC/ASPC) <althea.house@canada.ca>; Jensen, Christina (PHAC/ASPC) <christina.jensen@canada.ca>; Lynch, Josée (PHAC/ASPC) <josee.lynch@canada.ca>; Pisanu, Annie (PHAC/ASPC) <annie.pisanu@canada.ca>; Raymond, Barbara (PHAC/ASPC) <barbara.raymond@canada.ca>; Sciberras, Jill (PHAC/ASPC) <jill.sciberras@canada.ca>; Siu, Winnie (PHAC/ASPC) <winnie.siu@canada.ca>; Squires, Susan (PHAC/ASPC) <susan.squires@canada.ca>; Theriault4, Julie (PHAC/ASPC) <julie.theriault4@canada.ca>; Williams, Jill (PHAC/ASPC) <jill.williams@canada.ca>; Macey, Jeannette (PHAC/ASPC) <jeannette.macey@canada.ca>; Tam, Dr Theresa (PHAC/ASPC) <drtheresa.tam@canada.ca>; Gaudreau, Marc-Andre (PHAC/ASPC) <marc-andre.gaudreau@canada.ca>; Njoo, Howard (PHAC/ASPC) <howard.njoo@canada.ca>; Iain Stewart <Iain.Stewart@nrc-cnrc.gc.ca>; Johnstone, Marnie (PHAC/ASPC) <marnie.johnstone@canada.ca>; Killen, Marita (PHAC/ASPC) <marita.killen@canada.ca>; Mead, Jobina (PHAC/ASPC) <jobina.mead@canada.ca>; Namiesniowski, Tina (PHAC/ASPC) <tina.namiesniowski@canada.ca>; ATL RECC / CCUR (PHAC/ASPC) <phac.atlrecc-ccur.aspc@canada.ca>; Kempton, Steven (PHAC/ASPC) <steven.kempton@canada.ca>; ECC MB SK / CCU (PHAC/ASPC) <phac.ecc.mb.sk-ccu.aspc@canada.ca>; Smoley, Ann (PHAC/ASPC) <ann.smoley@canada.ca>; Breton, Danielle (PHAC/ASPC) <danielle.breton@canada.ca>; Citron, Calli (PHAC/ASPC) <calli.citron@canada.ca>; Clymans, Alixanderia (PHAC/ASPC) <alixanderia.clymans@canada.ca>; Cechmistro Michie, Olga (PHAC/ASPC) <olga.cechmistromichie@canada.ca>; ON RECC / CRCU (PHAC/ASPC) <phac.on.hp.recc-crcu.ps.aspc@canada.ca>; ON RECC / CRCU (PHAC/ASPC) <phac.on.hp.recc-crcu.ps.aspc@canada.ca>; ECC QC / CCU (PHAC/ASPC) <phac.eccqc-ccu.aspc@canada.ca>; Gauthier, Lise (PHAC/ASPC) <lise.gauthier@canada.ca>; McCourt, Patricia (PHAC/ASPC) <patricia.mccourt@canada.ca>; westhprecc (PHAC/ASPC) <phac.westhprecc.aspc@canada.ca>; Sternthal, Steven (PHAC/ASPC) <steven.sternthal@canada.ca>
Cc: Menard, Lynn (PHAC/ASPC) <lynn.menard@canada.ca>; Demers, Danielle (PHAC/ASPC) <danielle.demers@canada.ca>; HPOC OCIP Support / Soutien PICO COPS (PHAC/ASPC) <phac.hpoc.ocip.support-soutien.pico.cops.aspc@canada.ca>
Subject: PAHO Report: 22 September 2020 - Additional categories that has been agreed to be able to document conditions that occur in the context of COVID-19.

DL - 5 - No Further Dissemination Authorized.
FOR OFFICIAL USE ONLY
This report is for official use within the Public Health Agency of Canada only. Further disclosure, dissemination, distribution or copying of it or its contents is prohibited.
Please find below a report provided to us by the Pan American Health Organization (PAHO).

NEW REPORT
Subject: Additional categories that has been agreed to be able to document conditions that occur in the context of COVID-19.
Please refer to the below and attached PDF.
The IHR National Focal Point Office for Canada will continue to monitor and communicate any new developments.
Health Portfolio Operations Centre, Public Health Agency of Canada
Centre des opérations du portefeuille de la santé, Agence de la santé publique du Canada
Tel/Tél : 613-952-7940

From: PAHO IHR <ihr@paho.org>
Sent: 2020-09-22 10:06 PM
To: PAHO IHR <ihr@paho.org>
Subject: 22 September 2020 - Additional categories that has been agreed to be able to document conditions that occur in the context of COVID-19.

To (in bcc): IHR National Focal Point Offices
Cc (in bcc): PAHO/WHO Focal Points

Dear IHR National Focal Point colleagues,
For your information and dissemination among the corresponding technical authorities, please find attached a set of additional categories that has been agreed to be able to document or flag conditions that occur in the context of COVID-19.
Both, 3 character and 4 character codes have been defined to respond to the different levels of coding depth that is in place in different countries. It is further noted that technological constraints may require to bridge national coding to the international codes until an update of the relevant IT systems allows to use the international codes directly.
PAHO/WHO encourages all the Member States to use the codes.
With best regards,
WHO IHR Regional Contact Point
Detection, Verification and Risk Assessment team (DVA)
Health Emergency Information and Risk Assessment Unit (HIM)
PAHO Health Emergencies Department (PHE)
Pan American Health Organization
Phone 24/7: +1 202 368 8929
Fax 24/7: +1 202 351 0548
email: ihr@paho.org

Update 3 in relation to the COVID-19

A set of additional categories has been agreed to be able to document or flag conditions that occur in the context of COVID-19.

Both, 3 character and 4 character codes have been defined to respond to the different levels of coding depth that is in place in different countries. It is further noted that technological constraints may require to bridge national coding to the international codes until an update of the relevant IT systems allows to use the international codes directly.

U09 **Post COVID-19 condition**

U09.9 **Post COVID-19 condition, unspecified**

Note: This optional code serves to allow the establishment of a link with COVID-19. This code is not to be used in cases that still are presenting COVID-19.

U10 **Multisystem inflammatory syndrome associated with COVID-19**

U10.9 **Multisystem inflammatory syndrome associated with COVID-19, unspecified**

Cytokine storm Kawasaki-like syndrome Paediatric Inflammatory Multisystem Syndrome (PIMS) Multisystem Inflammatory Syndrome in Children (MIS-C)	Temporally associated With COVID-19

Excludes: Mucocutaneous lymph node syndrome [Kawasaki] (M30.3)

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
To: 21(1) [redacted]
Subject: RE: [Web] Vaccination - forgotten NB seniors 60-69
Date: March 17, 2021 12:27:00 PM

Good afternoon 21(1) [redacted]

Thank you for your email.

The reasoning for vaccinating the younger population was that there is evidence from other jurisdictions that younger age groups are involved in increased spread of variant.

However, as announced on Friday March 12, 2021 more vaccine is becoming available to New Brunswick, and the vaccination plan was able to change to reflect the increase of doses
https://www2.gnb.ca/content/gnb/en/corporate/promo/covid-19/news/news_release.2021.03.0194.html

Therefore, ages 60-69 will be eligible for a vaccination in April/May.

Here is the link to the updated vaccination plan: www.gnb.ca/COVID19vaccine

Please be aware, the situation is fluid and the information changes daily. We strongly encourage you to visit our dedicated COVID-19 website for the most current information: www.gnb.ca/coronavirus

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

-----Original Message-----
From: DHW (DH/MS) <Health.Sante@gnb.ca>
Sent: March 8, 2021 1:45 PM
To: DHW (DH/MS) <Health.Sante@gnb.ca>
Subject: [Web] Vaccination - forgotten NB seniors 60-69

User Information

Name: 21(1) [redacted]

Email: 21(1) [redacted]

Telephone: 21(1) [redacted]

Questions or Comments: Dr Russell please revise the vaccination plan to prioritize adult seniors 60-69 rather than 16-24 olds. With the variants rising, this could amount to senicide: protecting youth and leaving vulnerable seniors unprotected from severe COVID, long COVID and death. Protect the vulnerable first.

From:	Shattuck, Kathleen (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	Catherine.Elliott@gov.yk.ca; denise.werker1@health.gov.sk.ca; Andy_DelliPizzi@gov.nt.ca; Archibald, Chris (PHAC/ASPC); Arruda, Horacio (Ext.); Barbara.Yaffe@ontario.ca; charlene.mack@gov.ab.ca; Rogers, Cindy (Ext.); Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; deidre_falck@gov.nt.ca; Emily.Karas@oahpp.ca; Fitzgerald-Husek, Alanna (PHAC/ASPC); Gaudreau, Marc-Andre (PHAC/ASPC); George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather_Hannah@gov.nt.ca; isabelle.goupil-sormany@msss.gouv.qc.ca; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Chalifoux, Mathieu (DH/MS); mcameron@ihis.org; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; Morrison, Heather (Ext.); nadine.sicard@msss.gouv.qc.ca; Njoo, Howard (PHAC/ASPC); OCMHO@health.gov.sk.ca; RaaFat Gad, Dr. Rita (DH/MS); Richard Mather; richard.masse@msss.gouv.qc.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; sarah_bembridge@gov.nt.ca; Sciberras, Jill (PHAC/ASPC); LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Teri.Cole@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca; veronic.clair@bccdc.ca
Cc:	Cidsc Secretariat (PHAC/ASPC); DesMeules, Marie (PHAC/ASPC); Crain, Jennifer (PHAC/ASPC)
Subject:	TAC Input - due COB Thursday April 29 - Best Brains Exchange on Long COVID in Canada
Date:	April 26, 2021 4:17:27 PM
Attachments:	TAC briefing Long COVID BBE (April-26-2021)FINAL.pptx BBE Backgrounder - Long COVID_Final (ENG).docx BBE Backgrounder - Long COVID_Final (FRE).docx Long COVID BBE Agenda - Final (ENG).docx Long COVID BBE Agenda - Final (FRE).docx

---

ATTENTION! External email / courriel externe.

TAC Members,

Following today's presentation on *Best Brains Exchange on Long COVID in Canada*, your input is requested on the documents presented today (attached), in particular:

- Current activities in jurisdictions (comprehensive scan not required at this stage) that TAC members may be aware of
- Suggestions for consideration / discussion for the BBE (eg potential data sources, populations of interest, etc)

Responses appreciated by **COB Thursday, April 29**.

Thanks,

TAC Secretariat

Public Health Agency of Canada | Agence de la santé publique du Canada

Canada

Long COVID in Canada: Evidence to Inform Health Equity-based Public Health Action

Briefing to the Technical Advisory Committee, April 26th, 2021

Marie DesMeules
A/Executive Director
Centre for Surveillance and Applied Research
Health Promotion and Chronic Disease Prevention Branch

PROTECTING AND EMPOWERING CANADIANS
TO IMPROVE THEIR HEALTH

Context: Early work on COVID-19's wider health impacts

- **April 2020:** PHAC was tasked with developing an Evidence Plan, for gathering information needed to understand the wider health impacts of the COVID-19 pandemic.
- Aimed to generate evidence quickly, working together with and using data from Canadian Institute for Health Information (CIHI) and Statistics Canada.
- Key health issues/questions and priority populations identified through wide consultation
- **May 2020:** Early presentation to FPT COVID-19 Special Advisory Committee highlighted key issues and priority populations
- **October 2020:** CPHO 2020 Annual Report focused on COVID-19 and addressed early evidence of the wider impacts of the pandemic

Key topics include:

- Family violence
- Self-harm/Suicide
- Chronic conditions (including long COVID)
- Problematic substance use
- Food insecurity
- Health-related behaviours
- Mental health
- Alcohol labelling

Long COVID and PHAC's role

- The issue of long COVID is garnering increased attention

- Early evidence is showing long COVID presenting as long-term health outcomes involving cardiovascular, pulmonary, hematologic, renal, gastrointestinal, and central nervous systems, plus psychosocial health effects, e.g.
  - Fatigue, general pain or discomfort
  - Sleep disturbances
  - Depression or post-traumatic stress disorder (PTSD)
  - Shortness of breath

- PHAC is conducting a systematic review on long COVID with a focus on its symptoms and prevalence (complete draft is currently under review)

- The Best Brain Exchange on long COVID is also timely and important for better understanding evidence gaps, including those related to health equity

Long COVID Best Brains Exchange, May 13th 2021

Best Brains Exchange (BBE) objectives:

- **Gain an understanding** of heterogeneity of the long COVID lived experience, and current Canadian and international evidence base:
  - the unique experiences of sub groups/populations that are disproportionately affected by Long COVID, and associated health equity issues in Canada
  - the risk and protective factors to Long COVID

- **Identify outstanding evidence gaps** (both surveillance and research) that need to be filled to inform appropriate public health action.

- **Establish a conceptual framework** for prioritizing evidence gaps, and share plans or potential opportunities to address them.

- **Establish a network of experts** on Long COVID, to support future public health action, from prevention through to management of long-term population and public health impacts.

Next steps and questions

- P/T jurisdictions are invited to participate (through SAC)
- Diversity of perspectives and participants – including lived experience and equity seeking groups
- Will debrief and discuss way forward with TAC / SAC after BBE
- Questions for TAC:
  - What work is underway in the jurisdictions?
  - What are your early thoughts on surveillance and research priorities?
  - Do you have any suggestions or comments on the BBE's scope, objectives, agenda?

Public Health Agency of Canada | Agence de la santé publique du Canada

CIHR IRSC Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Best Brains Exchange – Objectives Backgrounder

Long COVID in Canada: Evidence to Inform Health Equity-based Public Health Action

May 13, 2021/10:00 AM – 3:00 PM EST

The **Public Health Agency of Canada (PHAC)** in collaboration with
the **Canadian Institutes of Health Research (CIHR)**

Policy Issue:

The evidence base on Long COVID is rapidly evolving and there is increasing global recognition of the Long COVID condition and experience. There is a critical need for a collaborative approach to research and surveillance efforts to better understand its prevalence, symptoms, as well as risk and protective factors, particularly within the Canadian context. Using a health equity approach, the Best Brains Exchange (BBE) will convene people with lived experience, along with knowledge and policy leaders to collectively identify what surveillance and research in needed to inform public health action aimed at preventing and managing the impacts of Long COVID. By assessing what evidence already exists, and agreeing on the priority evidence gaps that still need to be filled, this will help lay the groundwork for collective action to address these gaps in our knowledge.

Best Brains Exchange (BBE) objectives:

1. Gain an understanding of the heterogeneity of the Long COVID lived experience, and current Canadian and international evidence base, focusing on:
   a. the unique experiences of sub groups/populations that are disproportionately affected by Long COVID, and associated health equity issues in Canada; and
   b. the risk and protective factors to Long COVID.
2. Identify outstanding evidence gaps (both surveillance and research) that need to be filled to inform appropriate public health action.
3. Establish a conceptual framework for prioritizing evidence gaps, and share plans or potential opportunities to address them.
4. Establish a network of experts on Long COVID, to support future public health action, from prevention through to management of long-term population and public health impacts.

Background and Policy Context

Long COVID is the term describing the longer term effects (chronic illness sequelae) of COVID-19 that can persist for weeks or months after the initial symptoms are resolved. People experiencing Long COVID are often informally referred to as 'long haulers'. Early evidence is showing Long COVID presenting as long-term health outcomes involving the cardiovascular, pulmonary, hematologic, renal, gastrointestinal, and central nervous systems, plus psychosocial health effects, among others.[1,2]

Best Brains EXCHANGE

The Canadian and global scientific communities have been responding to the need to generate knowledge to inform front line health care and public health action on Long COVID. In early December 2020, there were two key Long COVID events with international representation, namely a Long COVID Forum jointly organized by the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R) and the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC), and the Workshop on Post-Acute Sequelae of COVID-19 hosted by the National Institutes of Health (NIH). Moreover, PHAC held a CanCOVID Expert Session on Long COVID and a CanCOVID-PHAC SITE Exchange on Long-COVID in March 2021. CanCOVID is a new Canada-wide network of health, science and policy researchers to facilitate COVID-19 research collaboration.[3]

This Best Brains Exchange (BBE) is an opportunity to impart the Canadian public health experience of Long COVID, including where evidence gaps exist, as a complement to other knowledge shared at these events and others in Canada and internationally. The Long COVID Forum in particular, with its focus on the lived experiences of persons with Long COVID, revealed key learnings. Firstly, many persons with Long COVID symptoms feel unrecognized, alone, isolated, and stigmatized, and there was the acknowledgement that a holistic approach to care was therefore needed, involving support from both patients' health care providers and communities. Secondly, it was also noted that given the complex, heterogeneous, and multi-system nature of Long COVID, that it was important to better understand how to prioritize research efforts.

This BBE will convene subject matter experts, thought leaders, policy makers, academics, and people with lived experiences, to examine the evolving evidence base and lived experience, and engage in thoughtful discussions related to what surveillance and research are needed to rapidly inform public health action aimed at preventing and managing the impacts of Long COVID in Canada.

Need for Evidence

Long COVID is an emerging issue for which there is a dearth of information given that, globally, we only have approximately one year of experience with COVID-19. Data on the clinical presentation of Long COVID are limited; few studies have followed patients until their symptoms were completely resolved, and those that did had limited sample sizes.[2] There is also a lack of standardized definitions of chronicity, symptomatology post-COVID-19, and heavy reliance of self-reports, without comparison populations or objective tools.[2] The broader public health implications of Long COVID, are also not yet well understood.

The ongoing collection of high-quality quantitative and qualitative data is of paramount importance, for both monitoring changes in population health and health-related factors over the coming months/years, and for formulating and testing hypotheses about the direct and indirect impacts of the pandemic. This includes data from both traditional sources such as health administrative databases and surveys, and non-traditional sources such as crowd-sourcing and social media, to better understand the broader impacts.

This BBE will bring a health equity lens to the examination of current evidence and evidence gaps related to the prevalence of Long COVID, its symptoms/sequelae, and its broader public health impacts, setting the stage for targeted research, surveillance, and public health action. It is important to note that although treatment is a key element of any discussion on Long COVID, it is out of scope for the purposes of this BBE and its objectives.

Inequalities in health attributable to social, political, and economic disparities in Canada are widely acknowledged.[4] Early evidence of the impacts of COVID-19 is also showing that pre-existing health inequities and their risk factors also influenced COVID-19 illness and death, and the impact of public health action to address the pandemic.[5] Accordingly, Canada's Chief Public Health Officer Dr. Theresa Tam calls for

"…incorporating a health equity approach to pandemic preparedness, response, and recovery."[5] New evidence will also support post-COVID-19 public health measures and the response to future pandemics.

Furthermore, trends show an overall increasing burden of chronic disease in Canada due to several factors including our aging population, persistently high or increasing rates of risk factors including health inequalities, people developing chronic diseases at a younger age than previously and people living longer with chronic conditions due to improvements in disease management and treatment. Long COVID may be associated with both the new occurrence of certain chronic diseases and conditions as well as worse outcomes among those with pre-existing chronic diseases and conditions. In order to have an accurate picture of the impact of COVID-19 on people with chronic diseases, it will be important to monitor these associations. Reversing increasing chronic disease trends while concurrently building on the gains already made through health surveillance, promotion, and disease prevention efforts is key to PHAC's work.

Anticipated Outcomes

It is anticipated that participants will take the following away from this BBE:

1. A greater understanding of the current Canadian context of Long COVID, including the unique experiences of sub groups/populations that are disproportionately affected, associated health equity issues, and risk and protective factors.
2. Identification of Canadian evidence gaps on Long COVID, related to population and public health.
3. Ideas on how to prioritize and fill data and evidence gaps that consider the intersectionality of inequities, to drive public health policy and programming.
4. A more cohesive and defined network of subject matter experts on Long COVID, to generate evidence, share information, and support future public health action.

---

[1]Higgins V, D, Diamandis EP, Prassas I. COVID-19: from an acute to chronic disease? Potential long-term health consequences, Critical Reviews in Clinical Laboratory Sciences, 2020. Available from: https://doi.org/10.1080/10408363.2020.1860895

[2] Alberta Health Services. COVID-19 Scientific Advisory Group Rapid Response Report [Internet]. Edmonton, AB: Alberta Health Services; 2020 [cited 2021 Mar 9]. Available from: https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-sag-chronic-symptoms-of-covid-rapid-review.pdf

[3] Government of Canada [Internet]. Ottawa: ON; Government of Canada. CanCOVID Network; [2020 Apr 15; cited 2021 Mar 9]; [about three screens]. Available from: https://www.ic.gc.ca/eic/site/063.nsf/eng/h_98020.html.

[4] Public Health Agency of Canada. Key Health Inequalities in Canada: A National Portrait. [Internet]. Ottawa, ON: Government of Canada; 2018 [cited 2021 March 9]. Available from: https://www.canada.ca/en/public-health/services/publications/science-research-data/key-health-inequalities-canada-national-portrait-executive-summary.html

[5] Government of Canada. From risk to resilience: An equity approach to COVID-19 [Internet]. Ottawa, ON: Government of Canada; 2020 [cited 2021 March 9]. Available from: https://www.canada.ca/en/public-health/corporate/publications/chief-public-health-officer-reports-state-public-health-canada/from-risk-resilience-equity-approach-covid-19.html

Séance d'échanges Meilleurs Cerveaux – Fiche sur les objectifs

La COVID-19 de longue durée au Canada : des données probantes pour orienter des mesures de santé publique axées sur l'équité en santé

Le 13 mai 2021, de 10 h à 15 h (HE)

L'**Agence de la santé publique du Canada (ASPC)** en collaboration avec
les **Instituts de recherche en santé du Canada (IRSC)**

Question stratégique

La base de connaissances sur la COVID-19 de longue durée évolue rapidement. On reconnaît de plus en plus dans le monde entier cette affection et l'expérience qu'elle suscite. Un besoin criant se fait sentir d'une approche collaborative de la recherche et de la surveillance afin de mieux comprendre la prévalence et les symptômes de cette affection ainsi que les facteurs de risque et de protection, en particulier dans le contexte canadien. Faisant appel à une approche axée sur l'équité en santé, la séance d'échanges Meilleurs Cerveaux (EMC) réunira des personnes ayant une expérience concrète de la maladie ainsi que des leaders de la création de connaissances et des responsables des politiques, afin de déterminer ensemble les mécanismes de surveillance et les recherches nécessaires pour orienter les mesures de santé publique visant à prévenir et à gérer les répercussions de la COVID-19 de longue durée. En évaluant les données déjà existantes et en s'entendant sur les lacunes prioritaires qu'il faut encore combler à ce chapitre, cette rencontre aidera à jeter les bases d'une intervention collective pour remédier à ce manque de connaissances.

Objectifs de la séance :

1. Comprendre l'hétérogénéité de l'expérience de la COVID-19 de longue durée ainsi que la base de connaissances canadienne et internationale actuelle, avec un accent sur :
   a. les expériences uniques des sous-groupes et des populations qui sont touchés d'une manière disproportionnée par la COVID-19 de longue durée et les problèmes d'équité en santé au Canada associés à la maladie;
   b. les facteurs de risque et de protection liés à la COVID-19 de longue durée.
2. Cerner les lacunes persistantes dans les données (tant sur le plan de la surveillance que sur celui de la recherche) qu'il faut combler pour orienter des mesures de santé publique adéquates.
3. Établir un cadre conceptuel pour déterminer l'ordre de priorité des lacunes dans les connaissances et mettre en commun des occasions possibles ou des plans pour les pallier.
4. Établir un réseau d'experts sur la COVID-19 de longue durée afin de soutenir les futures mesures de santé publique, de la prévention de la maladie à la gestion des répercussions à long terme sur la santé publique et des populations.

Contexte général et stratégique

« COVID-19 de longue durée » est le terme décrivant les effets à plus long terme (séquelles sous forme de maladie chronique) de la COVID-19 qui peuvent persister pendant des semaines ou des mois après la disparition

des symptômes initiaux. Selon les premières données, la COVID-19 de longue durée se manifeste notamment sous forme de répercussions à long terme sur la santé, y compris sur les systèmes cardiovasculaire, hématopoïétique et nerveux central et les appareils respiratoire, rénal et digestif, sans compter les effets sur la santé psychosociale[1,2].

Les milieux scientifiques du Canada et du monde entier répondent au besoin de production de connaissances afin d'orienter les soins de santé de première ligne et les mesures de santé publique concernant la COVID-19 de longue durée. Au début décembre 2020, deux importantes rencontres d'envergure internationale ont eu lieu : un Forum sur la COVID-19 de longue durée (en anglais seulement), organisé conjointement par la Global Research Collaboration for Infectious Disease Preparedness (GloPID-R) et l'International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC), et l'Atelier sur les séquelles de la COVID-19 (en anglais seulement), organisé par les National Institutes of Health (NIH). En outre, l'ASPC a organisé une séance réunissant les experts de CanCOVID pour discuter de la COVID-19 de longue durée et une séance d'échanges CanCOVID-ASPC sur le même sujet en mars 2021. CanCOVID consiste en un nouveau réseau pancanadien de chercheurs en santé, en sciences et en politiques, pour faciliter la collaboration en recherche sur la COVID-19[3].

Cette séance d'EMC constitue une occasion de faire connaître l'expérience canadienne de la COVID-19 de longue durée du point de vue de la santé publique, y compris les lacunes dans les données, comme complément des autres connaissances transmises lors des rencontres susmentionnées et d'autres tenues au Canada et à l'étranger. En particulier, le Forum sur la COVID-19 de longue durée (en anglais seulement), avec son accent sur les expériences concrètes des personnes atteintes, a révélé d'importantes leçons. Premièrement, de nombreuses personnes présentant des symptômes de la COVID-19 de longue durée se sentent invisibles, seules, isolées et stigmatisées. On a alors reconnu la nécessité d'une approche globale en matière de soins qui comprend le soutien à la fois des fournisseurs de soins et des collectivités. Deuxièmement, on a également constaté qu'étant donné la nature complexe, hétérogène et multisystémique de la COVID-19 de longue durée, il importait de mieux comprendre l'établissement des priorités pour la recherche.

La séance réunira des experts en la matière, des leaders d'opinion, des responsables des politiques, des universitaires et des personnes ayant une expérience concrète afin d'examiner la base de connaissances en pleine évolution et le vécu, et de prendre part à des discussions approfondies sur les mécanismes de surveillance et les recherches nécessaires pour orienter rapidement les mesures de santé publique destinées à prévenir et à gérer les répercussions de la COVID-19 de longue durée au Canada.

Besoin de données probantes

La COVID-19 de longue durée constitue un nouveau problème à propos duquel il y a une pénurie d'information, étant donné qu'à l'échelle mondiale, la COVID-19 est étudiée depuis seulement environ un an. Les données sur le tableau clinique de la COVID-19 de longue durée sont limitées. Peu d'études ont suivi des patients jusqu'à la disparition complète des symptômes, et la taille de leurs échantillons était restreinte[2]. En outre, il y a un manque de définitions normalisées de la chronicité et de la symptomatologie post-COVID-19 ainsi qu'une forte dépendance envers les autodéclarations, sans populations témoins ni outils objectifs[2]. De surcroît, on connaît mal les répercussions plus vastes de la COVID-19 de longue durée sur la santé publique.

La collecte continue de données quantitatives et qualitatives de haute qualité est d'une importance capitale, à la fois pour la surveillance de l'évolution de la santé des populations et des facteurs sanitaires au cours des mois et des années à venir et pour la formulation et l'essai d'hypothèses sur les conséquences directes et indirectes de la pandémie. Il s'agit ici de données provenant de sources traditionnelles, comme les bases de données

administratives et les enquêtes sur la santé, et de sources non traditionnelles, comme l'externalisation ouverte et les médias sociaux, dans le but de mieux comprendre les répercussions plus larges.

Cette séance examinera sous l'angle de l'équité en santé les données et les lacunes actuelles sur la prévalence de la COVID-19 de longue durée, ses symptômes, ses séquelles et ses répercussions plus vastes sur la santé publique, préparant ainsi la voie à des recherches, à des activités de surveillance et à des mesures de santé publique ciblées. Il importe de souligner que, bien que le traitement constitue un élément clé de toute discussion sur la COVID-19 de longue durée, il est exclu de la portée de la séance et de ses objectifs.

Les inégalités en santé attribuables aux disparités sociales, politiques et économiques au Canada sont largement admises[4]. Or, les premières données sur l'incidence de la COVID-19 montrent que les inégalités en santé et leurs facteurs de risque ont influé sur l'expérience de la maladie et les décès ainsi que sur les répercussions des mesures de santé publique mises en œuvre contre la pandémie[5]. Par conséquent, la Dre Theresa Tam, administratrice en chef de la santé publique du Canada, préconise l'adoption d'une « approche d'équité en santé dans la préparation, l'intervention et le rétablissement en cas de pandémie[5]. » Également, les nouvelles données soutiendront les mesures de santé publique post-COVID-19 et les interventions contre les futures pandémies.

Qui plus est, les tendances indiquent que les maladies chroniques constituent un fardeau grandissant au Canada à cause de plusieurs facteurs, dont ceux-ci : le vieillissement de la population; des taux de facteurs de risque constamment élevés ou en hausse, y compris les inégalités en santé; l'apparition des maladies chroniques plus tôt qu'auparavant; l'allongement de la vie des personnes atteintes d'une affection chronique en raison de l'amélioration de la prise en charge et du traitement des affections chroniques. La COVID-19 de longue durée peut être associée à la fois à l'apparition de certaines maladies et affections chroniques et à l'aggravation de l'état des personnes déjà atteintes d'une maladie ou affection chronique. Afin d'avoir une idée précise de l'incidence de la COVID-19 sur les malades chroniques, il sera important de surveiller ces associations. Le renversement de ces tendances, conjugué à une mise à profit des gains déjà réalisés grâce aux activités de surveillance, de promotion de la santé et de prévention des maladies, est essentiel au travail de l'ASPC.

Résultats escomptés

Voici ce que les participants devraient retirer de la séance :

1. Une meilleure compréhension du contexte actuel de la COVID-19 de longue durée au Canada, y compris des expériences uniques des sous-groupes et des populations qui sont touchés d'une manière disproportionnée par cette maladie, des problèmes d'équité en santé qui lui sont associés et des facteurs de risque et de protection.
2. Une énumération des lacunes dans les connaissances canadiennes sur la COVID-19 de longue durée du point de vue de la santé publique et des populations.
3. Des idées sur la manière d'établir les priorités et de combler les lacunes dans les données et les connaissances en tenant compte de l'intersectionnalité des inégalités, afin de stimuler les politiques et les programmes de santé publique.
4. Un réseau plus serré d'experts sur la COVID-19 de longue durée pour produire les données, mettre en commun l'information et soutenir les futures mesures de santé publique.

[1]HIGGINS, V., et collab. « COVID-19: from an acute to chronic disease? Potential long-term health consequences », *Critical Reviews in Clinical Laboratory Sciences*, 2020. doi : 10.1080/10408363.2020.1860895.
[2] ALBERTA HEALTH SERVICES. *COVID-19 Scientific Advisory Group Rapid Response Report*, [En ligne], 2020. Edmonton (Alberta), Alberta Health Services. [https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-sag-chronic-symptoms-of-covid-rapid-review.pdf] (Consulté le 9 mars 2021).
[3] GOUVERNEMENT DU CANADA. *Le Réseau CanCOVID*, [En ligne], 15 avril 2020. Ottawa (Ontario), gouvernement du Canada. [https://www.ic.gc.ca/eic/site/063.nsf/fra/h_98020.html] (Consulté le 9 mars 2021).
[4] AGENCE DE LA SANTÉ PUBLIQUE DU CANADA. *Les principales inégalités en santé au Canada : un portrait national,* [En ligne], 2018. Ottawa (Ontario), gouvernement du Canada. [https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/science-research/key-health-inequalities-canada-national-portrait-executive-summary/key_health_inequalities_full_report-fra.pdf] (Consulté le 9 mars 2021).
[5] GOUVERNEMENT DU CANADA. *Du risque à la résilience : une approche axée sur l'équité concernant la COVID-19*, [En ligne], 2020. Ottawa (Ontario), gouvernement du Canada. [https://www.canada.ca/fr/sante-publique/organisation/publications/rapports-etat-sante-publique-canada-administrateur-chef-sante-publique/du-risque-resilience-approche-equite-covid-19.html] (Consulté le 9 mars 2021).

From: Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To: AHuang@gov.nu.ca; Andy_DelliPizzi@gov.nt.ca; annick.descormiers@msss.gouv.qc.ca; Archibald, Chris (PHAC/ASPC); Arruda, Horacio (Ext.); Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; Cidsc Secretariat (PHAC/ASPC); cindy.rogers@health.gov.sk.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; deidre_falck@gov.nt.ca; Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fitzgerald-Husek, Alanna (PHAC/ASPC); Gaudreau, Marc-Andre (PHAC/ASPC); George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; isabelle.goupil-sormany@msss.gouv.qc.ca; jesse kancir; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; Morrison, Heather (Ext.); Njoo, Howard (PHAC/ASPC); OCMHO@health.gov.sk.ca; RaaFat Gad, Dr. Rita (DH/MS); richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RSeviour@GOV.NU.CA; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; sarah_bembridge@gov.nt.ca; Sciberras, Jill (PHAC/ASPC); LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Teri.Cole@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca
Cc: Cidsc Secretariat (PHAC/ASPC)
Subject: OCSO Post COVID-19 Condition (Monthly) Scan
Date: August 24, 2021 5:40:18 PM
Attachments: OCSO_Post COVID Condition Scan 5_August_2021.pdf

---

TAC Members,

Please find attached the **OCSO Post COVID-19 Condition (Monthly) Scan** covering the period **July 24-Aug 20**. Key updates are highlighted by adding 'NEW' in the document.

Some highlights from the scan:

- WHO collaborating with researchers to streamline data collection and reporting on Post COVID-19 condition. The project, Post-COVID Condition Core Outcomes, will survey patients to establish what core patient outcomes need to be measured to understand the condition.
- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice*.
- Study in the *Lancet* suggesting long COVID-19 is rarer in children than adults.
- Study from the UK suggesting individuals who recovered from COVID-19, including those who no longer had symptoms, exhibited significant "cognitive deficits."
- Systematic Review in *Nature* reporting over 50 long-term effects of COVID-19.
- Editorial in BMJ calling for long COVID clinics to be run as research hubs.
- A $40 million study by the U.S. Children's National Hospital examining long-term effects of COVID-19 and multisystem inflammatory syndrome in children.

TAC Secretariat
for
on Behalf of the Office of Chief Science Officer and the PHAC Emerging Science Group Evidence Team

POST COVID-19 CONDITION

OCSO SCAN OF EVIDENCE #5 (MONTHLY EDITION)

July 24th - August 20th, 2021

SCOPE

This monthly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition.

There is limited data suggesting that the condition may be more likely to develop in those:

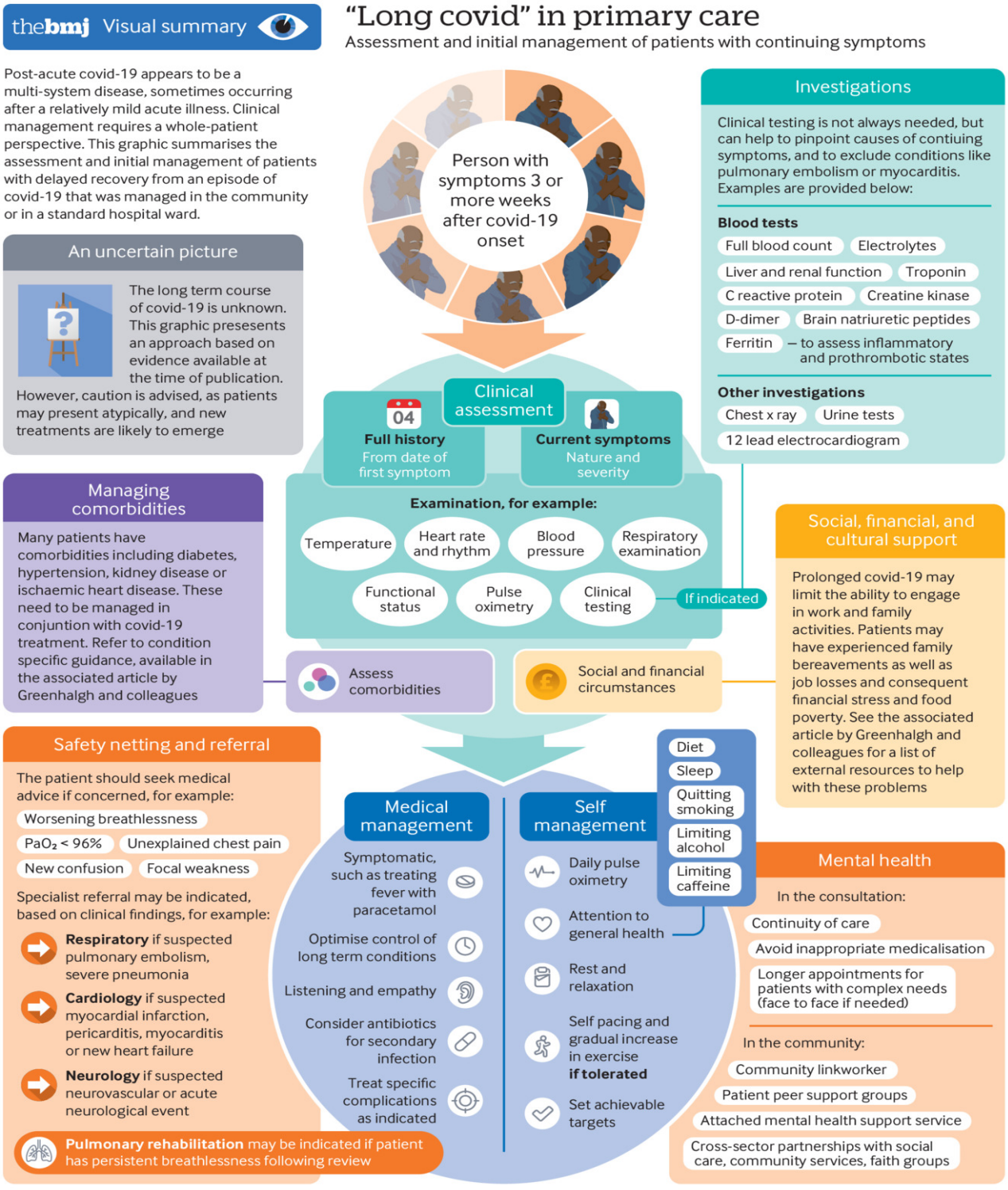
- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc.) Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition.

Internationally, multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. It is possible it will also have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. Further research with an equity lens on the predisposing conditions and risk factors is also needed. There is currently insufficient data available to definitively determine how common long-term effects of COVID-19 are in the Canadian population. Based on research conducted to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, approximately 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis.

This month's scan includes a study published in the *Lancet* suggesting long COVID-19 is rarer in children than adults, and a study from the UK suggesting that individuals who recovered from COVID-19, including those who no longer had symptoms, exhibited significant "cognitive deficits."



Source: Greenhalgh, T., Knight, M., Buxton, M., & Husain, L. (2020). Management of post-acute covid-19 in primary care. *BMJ*, *370*.

EMERGING GUIDELINES OR STANDARDS

- The **World Health Organization** proposed the updated terminology 'Post COVID-19 Condition.' The WHO conducted a Delphi survey to come to a consensus on the clinical case definition of Post-COVID 19 condition. A webinar was held on June 15 to present the consensus clinical case definition from the global Delphi exercise, and to understand the mechanisms that may cause post COVID-19 condition, and the care models to manage it. (NEW) WHO is working with researchers to streamline data collection and reporting on Post COVID-19 condition. The project, Post-COVID Condition Core Outcomes, will survey patients to establish what core patient outcomes need to be measured to understand the condition.

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience greater than four weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Treatment or Hospitalization, and 'New or Ongoing Symptoms'. The CDC released Interim Guidance on Evaluating and Caring for Patients with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals were published in UK **NICE** in December 2020, however the evidence is still limited (*Figure 1, Appendix*).

- (NEW) Guidelines to help doctors manage long COVID patients were published in August 2021 in the *British Journal of General Practice*. They offer an evidence-based toolkit to help doctors investigate causes of people's wide-ranging symptoms, and strategies for the effective and timely management of the condition.

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (Updated April 2021).

NATIONAL AND INTERNATIONAL DEVELOPMENTS

CANADA

- In Canada, only **6 public clinics** have been identified so far:
  - Four Post-COVID-19 Recovery Clinics in British Columbia: Vancouver General Hospital (Vancouver); St. Paul's Hospital (Vancouver); Jim Pattison Outpatient Care and Surgery Centre (Surrey); & Abbotsford Regional Hospital (Abbotsford).
  - Montreal Clinical Research Institute Post-COVID-19 Clinic in Montreal, Quebec.
  - COVID-19 Rehabilitation Clinic (established in association with the University Health Network) in Toronto, Ontario.
- Lifemark Health Group has a Post COVID-19 Rehabilitation and Recovery Program with several locations across 6 provinces.
- Alberta Health Services developed a resource intended to provide guidance to support rehabilitation and allied health providers across the care continuum who are working with patients recovering from symptoms of COVID-19.
- Hôtel-Dieu Grace Healthcare has launched a COVID Recovery program to help people who are suffering from the lingering effects of COVID-19.
- (NEW) Nova Scotia has launched a website to help people with long COVID. The website offers the most current information available about managing or treating the lingering symptoms of COVID-19.
- (NEW) The Other Pain Clinic Inc COVID Rehab & Survivorship Program in Alberta aims to treat people with post COVID symptoms to allow them to have a better quality of life. The program also has a virtual care option across Canada.

PHAC AND PARTNER ACTIVITIES:

- Monitoring latest research and evidence on Post COVID-19 condition and engaging with national and international experts.
  - **CIHR-PHAC Best Brain Exchange** (May 13, 2021) brought senior policy makers, researchers, implementation experts and patients with lived experience to identify and prioritize evidence gaps, and establish a network of experts to support future action.
  - **PHAC** maintains a living systematic review on the prevalence of Post COVID-19 condition, with also new reviews being undertaken to gain a better understanding of 1) biological and social risk factors and 2) effective clinical management strategies.
  - **CPHO** released a statement about Post COVID-19 Condition on July 7th, 2021.
- Exploring data sources for **surveillance**
  - Canadian Primary Care Sentinel Surveillance System.
  - Initial environmental scan of provincial/territorial initiatives examining impact of COVID-19 on vulnerable populations using administrative health data.
- **CIHR COVID-19 Rapid Research Funding Opportunity** (May 2020)
  - Over 10 projects directly examining long-term implications of COVID-19 (Figure 2, *Appendix*).
  - Canadian COVID-19 Prospective Cohort Study ($**~2.7M**): Evaluating early to 1-year outcomes in 2000 patients across AB, BC, ON, & BC with COVID-19 infection.
- **CIHR Emerging COVID-19 Research Gaps and Priorities Funding Opportunity** (March 2021)
  - Specific research focusing on identifying, defining & addressing Post COVID-19 condition to understand biological & psychological impacts.

UK

- NIHR & UKRI:
  - Previous calls: **~£25M** to better understand long-term effects of COVID-19 on physical & mental health
  - Current call: **~£20M** focused on non-hospitalized adults & children with post COVID-19 condition
  - NIHR awarded **£19.6M** to 15 projects across the UK to help diagnose and treat long COVID.
- NHS England and NHS Improvement will provide **£70 million** to expand long COVID services beyond Post-COVID Assessment Clinics to strengthen treatment and rehabilitation.
- Additional funding for ICSs adding to £24 million already provided to **89** specialist Post-COVID Assessment Clinics around England, bringing total investment in 2021/22 to **£94 million**. NHS will also establish specialist long COVID services for children and young people.
- UK Office for National Statistics released experimental statistics on long COVID showing overall UK prevalence estimate of **1.7%**. Research shows **2 million** people in England may have had long COVID, with women and lower-income people particularly susceptible.
- NHS Your COVID Recovery platform is an online, tailored rehabilitation program that enables patients to be monitored by local rehabilitation teams to ensure they are on track with their care.
- (NEW) The PHOSP COVID study is a national consortium, led by experts in the UK, to investigate long term impacts of COVID-19 on health outcomes for patients who were hospitalised due to COVID-19. Data that is collected during the study will be used globally, collaborating with the European Respiratory Society and Canadian Thoracic Society, to understand the long terms impacts of COVID-19 on health worldwide.

USA

Post-Acute Sequelae of SARS-COV-2 Infection Initiative (NIH PASC): $1.15B/4 years

- Focus: Understand biological basis of PASC & factors contributing to vulnerability
- Current call: Recovery Cohort Studies, Clinical Science, Data Resource & PASC Biorepository Cores

- NIH has invested in longitudinal studies to record the recovery paths of ~40,000 adults and children in a 'meta-cohort', to observe who develops long-term effects and who doesn't.
- Based on media reports, **80 post-COVID-19 clinics** were actively engaging with COVID-19 patients as of March 2021. 64 of these clinics surveyed have seen a combined total of **~10,000 patients**. (NEW) A Becker's Hospital Review article (Aug 2021) stated that **44** hospitals and health systems have launched post-COVID-19 clinics.
- Virtua Health offers a nationwide "Care After COVID" program aimed at helping those still experiencing lingering post COVID symptoms.
- (NEW) A **$40 million** multi-year study from Children's National Hospital and NIAID examining the long-term effects of COVID-19 and multisystem inflammatory syndrome in children.

EMERGING SCIENTIFIC EVIDENCE

EVIDENCE PRODUCTS (*JULY 24-AUG 20, 2021*)

TITLE	EVIDENCE TYPE	SUMMARY
More than 50 long-term effects of COVID-19: a systematic review and meta-analysis (Lopez-Leon et al)	Systematic Review (Available in *Nature)*	A search was performed to identify articles with data published before January 2021. The prevalence of 55 long-term effects was estimated. Included studies defined long-COVID as ranging from 14 to 110 days post-viral infection. 80% of infected patients developed one or more long-term symptoms. Most common symptoms were fatigue (58%), headache (44%), attention disorder (27%), hair loss (25%), and dyspnea (24%).
Long-Term Impact of COVID-19: A Systematic Review of the Literature and Meta-Analysis (Sanchez-Ramirez et al)	Systematic Review (Available in *Biomedicines)*	A search was performed in May 2021, to identify studies that reported persistent effects of COVID-19 beyond 3 months follow-up. Pooled prevalence of CT abnormalities was 59%, abnormal lung function was 39%, fatigue was 38%, dyspnea was 32%, chest paint/tightness was 16%, and cough was 13%. Decreased functional capacity and HRQoL were found in 36% and 52%, respectively. 8 out of 10 patients returned to work or reported no work impairment.
Long COVID, a comprehensive systematic scoping review (Akbarialiabad et al)	Scoping Review (Available in *Infection)*	Review aimed to find out what is known from literature about Long COVID up until January 2021. Of 120 publications, 49.1% focused on signs and symptoms, 23.3% on management, and 10.8% on pathophysiology. The controversies in long COVID's definition has impaired proper recognition and management. Predominant symptoms were: fatigue, breathlessness, arthralgia, sleep difficulties, and chest pain. Recent reports also point to risk of long-term sequela with cutaneous, respiratory, cardiovascular, musculoskeletal, mental health, neurologic, and renal involvement in those who survive acute phase of illness.
What is the incidence and duration of Long COVID cases? (Williams-Roberts et al)	Rapid Review (Available in *NCCMT*)	An estimated 1 in 50 persons experience long COVID symptoms after 12 weeks; however, higher estimates up to 80% have been reported in studies with a greater proportion of persons who were previously hospitalized. Wide range of symptoms affecting multiple organ systems reported. Symptoms improve over time while others experience persistent and/or new symptoms. Mechanism(s) leading to long COVID remain unclear but those experiencing post acute sequelae tend to be older, have a greater number of symptoms during the acute phase of illness or manifest specific symptoms and live with multiple comorbid conditions such as obesity. Lack of consensus on long COVID definition contributes to marked variations in robust prevalence estimates.
What are long COVID's demands on the healthcare system, and its severity of the illness? (McLean et al)	Rapid Review (Available in *NCCMT*)	Long COVID likely to increase healthcare demands across health system, including emergency departments, hospital admissions, primary care visits, specialist's appointments, and home care and rehabilitation services. Clinical care burden of long COVID-19 is the greatest in the first 3 months after testing and is likely to place the greatest demand on primary care services. Patients with severe COVID-19 illness are more likely to place longer-term demands (4-6 months) on specialist care due to respiratory, circulatory, endocrine, metabolic, psychiatric and unspecified condition.

SELECTED PRIMARY RESEARCH (JULY 24-AUG 20, 2021)

TITLE	SOURCE	SUMMARY
Post-COVID-19 Syndrome: Nine Months after SARS-CoV-2 Infection in a Cohort of 354 Patients: Data from the First Wave of COVID-19 in Nord Franche-Comté Hospital, France (Zayet et al)	*Microorganisms*	ANOSVID is an observational retrospective study in Nord Franche-Comté Hospital in France that included adult COVID-19 patients confirmed by RT-PCR from 1 March 2020 to 31 May 2020. The mean age of patients was 48.6 years and 63.8% patients were female. Post-COVID-19 syndrome was more frequent in patients with a past history of chronic rhinosinusitis. More than a third of our COVID-19 patients presented persistent symptoms after SARS-CoV-2 infection, particularly through loss of smell, loss of taste, fatigue, and dyspnea, with a high prevalence in HCWs among COVID-19 outpatients.
Duration of post–COVID-19 symptoms is associated with sustained SARS-CoV-2–specific immune responses (Files et al)	*JCI Insight*	Study investigated longitudinal peripheral blood samples in 50 individuals with previously confirmed infection, including 20 who experienced prolonged COVID-19 symptoms compared with 30 who had symptom resolution within 20 days. Individuals with prolonged symptoms maintained antigen-specific T cell response magnitudes to SARS-CoV-2 spike protein in CD4+ and circulating T follicular helper cell populations during late convalescence.
Long COVID - the physical and mental health of children and non-hospitalised young people 3 months after SARS-CoV-2 infection; a national matched cohort study (The CLoCk) Study (Stephenson et al)	*Research Square prepub*	Study described post-COVID symptomatology in national sample of 11-17-year-old children and young people (CYP) with PCR-confirmed infection compared to test-negative controls. At 3 months post-testing, 66.5% of test-positives and 53.3% of test-negatives had any symptoms, whilst 30.3% and 16.2%, respectively, had 3+ symptoms. Latent class analysis identified 2 classes, characterised by "few" or "multiple" symptoms. This latter class was more frequent among test-positives, females, older CYP and those with worse pre-test physical and mental health.
Post-COVID Care Center to Address Rehabilitation Needs in COVID-19 Survivors: A Model of Care (Ahmad et al)	*Am J Med Qual*	A post-COVID Care center was established to identify patients with disease sequalae and deliver early multidisciplinary rehabilitation services. After 6-month period, 278 unique referrals were made to address symptoms reported by 114 patients in specialities including pulmonology, cardiology, and psychiatry. This framework allowed for individualized patient treatment and monitoring of disease after acute phase of infection.
Neuro-COVID long-haulers exhibit broad dysfunction in T cell memory generation and responses to vaccination (Visvabharathy et al)	*medRxiv*	Virus-specific immunity in patients who suffer from chronic neurologic symptoms after mild acute COVID remain poorly understood. Neuro-PASC patients have a specific signature composed of humoral and cellular immune responses that are biased towards different structural proteins compared to healthy COVID convalescents. Severity of cognitive deficits or quality of life markers in neuro-PASC patients are associated with reduced effector molecule expression in memory T cells. Study demonstrates that T cell responses to SARS-CoV-2 mRNA vaccines are aberrantly elevated in longitudinally sampled neuro-PASC patients compared with healthy COVID convalescents. This data provides framework for rational design of diagnostics and predictive biomarkers for long-COVID, as well as a blueprint for improved therapeutics.

Long Covid in adults discharged from UK hospitals after Covid-19: A prospective, multicentre cohort study using the ISARIC WHO Clinical Characterisation Protocol (Sigfrid et al)	*Lancet*	This study sought to establish the long-term effects of Covid-19 following hospitalisation. Survivors of Covid-19 experienced long-term symptoms, new disability, increased breathlessness, and reduced quality of life. Findings were even present in young, previously healthy working age adults, and most common in younger females. Policymakers should fund further research to identify effective treatments for long COVID and ensure healthcare, social care and welfare support is available for individuals with long COVID
"I can't cope with multiple inputs": Qualitative study of the lived experience of 'brain fog' after Covid-19 (Callan et al)	*medRxiv*	Authors aim to explore the lived experience of brain fog following COVID-19. Qualitative analysis revealed: mixed views on appropriateness of term brain fog; descriptions of experience of neurocognitive impairments (executive function, attention, memory and language), accounts of how illness fluctuated, and in some cases, resolved, over time. Profound psychosocial impact of the condition on relationships, personal and professional identity; self-perceptions of guilt, shame and stigma; strategies used for self-management; challenges accessing and navigating the healthcare system; and participants search for physical mechanisms to explain their symptoms.
Long COVID in hospitalized and non-hospitalized patients in a large cohort in Northwest Spain, a prospective cohort study (Perez Gonzalez et al)	*medRxiv*	Aim of study was to describe persisting symptoms 6 months after COVID-19 diagnosis in a prospective cohort in Northwest Spain. 69.4% required hospitalization, and 10.2% needed critical care. At 6 months, 48% described one or more persisting symptoms. Most prevalent were: extra-thoracic symptoms (39.1%), chest symptoms (27%), dyspnoea (20.6%), and fatigue (16.1%). Symptoms more common in hospitalized patients (52.3% vs 38.2%) and in women (59.0% vs 40.5%). The multivariate analysis identified Chronic Obstructive Pulmonary Disease (COPD), female gender, and tobacco consumption as risk factors for long COVID.
Quantifying the ongoing epidemic of disability after covid-19 in the UK population aged under 35 years; secondary analysis of the ONS Infection Survey (Spiers)	*medRxiv*	Paper focuses on population aged under 35 years and uses the term disabling long COVID to describe those with symptoms lasting more than 12 weeks and daily activities limited a lot. Results suggest there will be approximately 39,000 cases of disabling long COVID in those aged under 35 seeded by Covid-19 infections confirmed to July 31. There is a need for rapid action to prevent infection in younger population and support those struggling with long COVID related disability.
Phenotyping of acute and persistent COVID-19 features in the outpatient setting: exploratory analysis of an international cross-sectional online survey (Sahanic et al)	*medRxiv*	Objective of study was to phenotype recovery trajectories of non-hospitalized COVID-19 individuals (Austria: n=1157, and Italy: n= 893). By cluster analysis, 2 acute symptom phenotypes could be discerned: non-specific infection phenotype and multi-organ phenotype (MOP), the latter encompassing multiple neurological, cardiopulmonary, gastrointestinal and dermatological features. Clustering of long COVID subjects yielded 3 distinct subgroups, with a subset of 48.7 - 55 % long COVID individuals particularly affected by post-acute MOP symptoms. The consistent findings of two independent cohorts further delineate patterns of acute and post-acute COVID-19 and emphasize importance of symptom phenotyping of home-isolated COVID-19 patients to predict protracted convalescence and to allocate medical resources.

Are mRNA Covid 19 vaccines safe in Long Covid patients? A Health Care Workers perspective (Gaber et al)	*Br J Med Pract*	A short questionnaire was sent to users of a long covid service supporting an NHS Trust staff in Wigan 2 weeks following the conclusion of a mRNA vaccine first dose roll out. 77 HCW were offered the vaccine. 10 respondents declined mainly because of concerns regarding worsening long covid symptoms. 67% of respondents did not experience any change in symptoms whilst 21% experienced improvement of symptoms. 12% experienced worsening of symptoms.

COMMENTARIES, LETTERS AND OPINION PIECES (JULY 24-AUG 20, 2021)

- **Long covid clinics should be run as research hubs (*BMJ*):** Substantial investment in specialist services to manage ongoing symptoms should proceed only under high quality research conditions. Multidisciplinary care is not magically beneficial, is resource intensive, and can exclude patients from decisions. Timely use of the skills and knowledge of different specialist professionals is helpful, but improved decisions require an evidence base showing meaningful benefit for patients and cost effectiveness. There are no plans for these new services to be run as research hubs or be formally evaluated. It may be that primary care could be resourced to deliver timely expert generalist care and social support more effectively than multidisciplinary clinics. Assumptions about benefit of new clinics, rather than critical evaluation and in-practice research, is likely to lead to poorer quality interventions.

- **Meeting the need for Long COVID policies – call for action (*CITF*):** According to a viewpoint article in *Science*, around 1 in 3 people with symptomatic COVID-19 still experience symptoms 12 weeks after onset of infection. While the mechanisms at play and risk factors of long COVID are not yet well understood, policy responses need to take into account the complexity of long COVID. Public health response to COVID-19 needs to adequately address long-term effects of SARS-CoV-2 infection. Strategies must be formulated to provide integrated care to those suffering from this chronic long-term illness.

- **Charting a course for the management of long COVID (*Lancet*):** A comprehensive, coordinated global research strategy for the post-acute sequelae of COVID-19, rather than a piecemeal approach, is clearly required, although difficult to achieve in the midst of a pandemic. For this reason, the Position Paper from the UK-based International COVID-19 Airways Diseases Group in The Lancet Respiratory Medicine, presenting research priorities for the long-term effects of COVID-19 in the context of airways disease, is to be welcomed.

- **Failure to prescribe - UK workers with occupational long covid-19 have been ignored (*BMJ*):** In 3872 covid-19 "workplace" outbreaks and 4253 education outbreaks, occupational morbidity has been seriously underestimated. Yet covid-19 is still not recognised as a prescribed industrial disease in the UK. Other European countries already list covid-19 as an occupational disease. IIAC is still examining the evidence. This unnecessary and damaging delay for affected workers reveals failures in the UK system. IIAC has recognised that several UK occupations were at more than double the risk of getting covid-19, including social care, nursing, transport, food processing, and retail work. But it argued that socioeconomic influences could be a contributing factor in these cases, so no action was taken.

MEDIA HIGHLIGHTS (*JULY 24-AUG 20, 2021*)

CANADA

- **COVID-19 linked to 'significant' drop in intelligence**: According to *CTV News*, a study published in *The Lancet*, researchers stated their results appear to show that COVID-19 infection is associated with cognitive deficits that can persist into the recovery phase, such as in cases of long COVID in which symptoms can last for weeks or months after the initial illness. The level of underperformance was also dependent on the severity of illness in the group who had COVID-19 during the pandemic. The study reported that those who had been placed on a ventilator during the pandemic exhibited the greatest cognitive deficits.
- **Researchers say many questions left to answer about long COVID:** *Moncton Times & Transcript* reported the SHA does not even have a way of tracking the number of people reporting long-term symptoms. Because long COVID symptoms are so varied and not everyone who experiences them has officially tested positive for the disease, it is difficult for health professionals to know exactly who the long COVID patients are. As leaders of the Long COVID Working Group, Groot and Linassi are putting together a proposal they plan to submit to the provincial government and the SHA in mid-August, outlining what the province can expect to see of long COVID and recommendations on how to prepare for it.
- **Long-haul COVID patients battle for disability benefits, says lawyer:** According to *Kitchener Today*, lawyer Steve Rastin says a battle is brewing between those with long-haulers who have been unable to work and are looking to use their benefits to survive, and insurers refusing to pay up. A year-old British study found that 10 per cent of those who have been infected with COVID-19 are believed to have symptoms that do not resolve over the subsequent months, describing it as a multi-system disease. Some with lingering symptoms who have been off work for an extended period have been hitting a brick wall as they apply for long-term disability benefits. Rastin says insurance companies want proof that the applicants are indeed ill and unable to work.
- **Reports of prolonged COVID-19 complications in kids is little understood, say experts:** *CTV News* reported Dr. Stephen Freedman, lead investigator in a CIHR study on COVID-19 outcomes in kids, noted the majority of children who test positive will only experience mild illness. One rare complication is a delayed reaction to the virus called multisystem inflammatory syndrome of children, or MIS-C, which roughly impacts 1 in 3,500 kids. MIS-C is different from long COVID, which can be harder to define and diagnose. The problem is that it's typically not clear whether the viral infection is causing prolonged symptoms or something else altogether.

GLOBAL

- **Eyes may signal 'long Covid':** The *Economic Times* reports that nerve fibre loss and an increase in key immune dendritic cells on the surface of the eye, cornea, may help identify patients with long Covid-19, according to a small study done by Turkish researchers. The findings, published in the *British Journal of Ophthalmology*, suggested corneal confocal microscopy (CCM), a real time, non-invasive, high-resolution imaging laser technique can be used to identify long Covid-19 symptoms correlated strongly with corneal nerve fibre loss.
- **Long COVID-19 among children rare, study suggests:** Among 1,734 children in the U.K. with a COVID-19 infection, less than 5% had symptoms that lasted 4 weeks or longer, suggesting long COVID-19 is rarer in children than adults, according to research in *The Lancet Child & Adolescent Health*. Overall, children were sick for 6 days on average. Headache was the most commonly reported symptom, followed by fatigue.
- **34,000 children in UK suffering from long Covid, ONS survey suggests:** According to the *Independent*, an estimated 34,000 children in the UK are suffering from long Covid, new research shows. This includes 11,000 two- to 11-year-olds and 23,000 12- to 16-year-olds, according to a survey conducted by the Office for National Statistics (ONS).
- **Biden says people with long-haul COVID symptoms should be protected under federal disability laws:** The Biden administration has acted to protect people suffering long-term health consequences from COVID-19 from discrimination. The departments of Health, Justice, Education and Labor released guidance explaining that long COVID can be a disability under various federal civil rights laws.

POST COVID-19 CONDITION ADVOCACY AND SUPPORT GROUPS

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. They also have a COVID long-haulers support group.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements in the U.S. connecting, supporting, and mobilizing COVID-19 Survivors to support medical, scientific and academic research. They have a list of Post-COVID Care Centers (PCC) on their site and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

NEWLY ADDED:

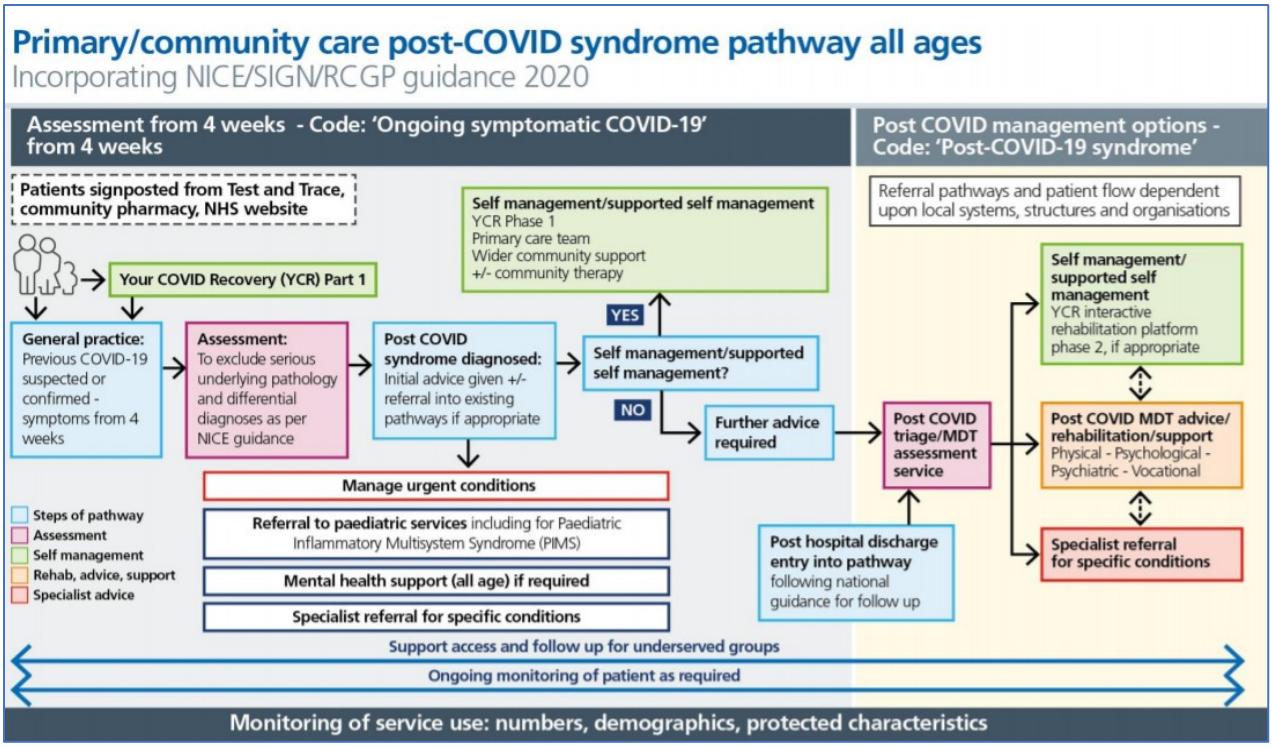
- BC ECHO for Post-COVID-19 Recovery (Canada): Based on the global ECHO model, the BC ECHO for Post-COVID-19 Recovery is a virtual learning community of specialists and community health-care providers who use instructive and case-based learning to improve care for patients recovering from symptoms post-COVID-19.

Moving forward, we aim to capture relevant activities from these groups.

APPENDIX

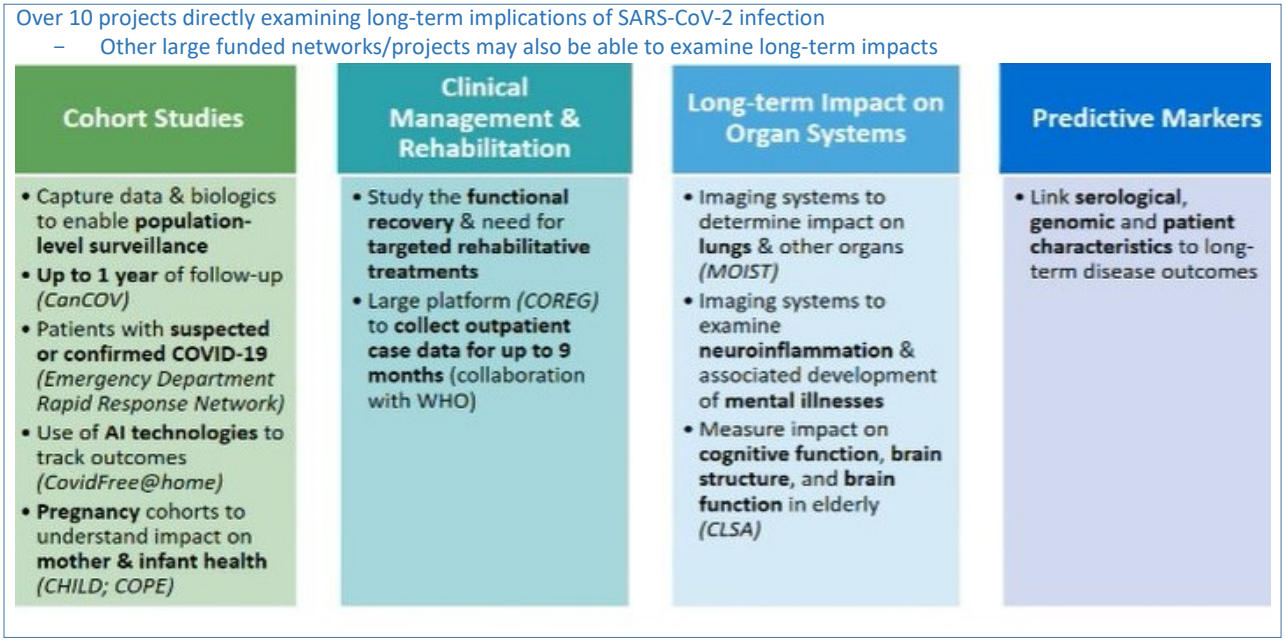
***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

Figure 1. **NICE/SIGN/RCGP 2020 Guidance**



Source: National Health Service (NHS). National guidance for post-COVID syndrome assessment clinics, Version 2, 26 April 2021.

Figure 2. **CIHR COVID-19 Rapid Research Funding Opportunity**



Source: CIHR Knowledge Mobilization Forum. June 10, 2021

From: Davies, Stephanie (PHAC/ASPC) on behalf of CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
To: Deena Hinshaw; Amy Riske; Andrea McKenna; Anna Romano; Auger, Julie A (PHAC/ASPC); Avis Gray; Brent Roussin; Catherine Elliott; Colleen Dudar; Dr. Barb Yaffe; Dr. Bonnie Henry; Dr. Brian Emerson; Muecke, Dr. Cristin (DH/MS); Dr. Evan Adams; Dr. George Giovinazzo; Dr. Heather Morrison; Dr. Howard Njoo; Dr. James Worthington; Dr. Janice Fitzgerald; Russell, Dr. Jennifer (DH/MS); Dr. Kieran Moore; Dr. Michael Patterson; Dr. Robert Strang; Dr. Saqib Shahab; Dr. Supriya Sharma; Dr. Theresa Tam; Dr. Tom Wong; Eilish Cleary; Ernest Ebert; Horacio Arruda; Kami Kandola; Reka Gustafson; Richard Masse; Robinson, Kerry (PHAC/ASPC); Shannon McDonald; Shelley Deeks; SK CMOH Single Window; Suzanne Fedorowich; Tami Denomie; Trish Merrithew-Mercredi; Vincent Beswick-Escanlar; YK Surveillance; Yves Jalbert
Cc: Andre Corriveau; Anne Huang; Ashley Halicki; Barton, Kimby (PHAC/ASPC); Bent, Stephen (PHAC/ASPC); Bettencourt, Sarah (HC/SC); Brayden Pitt; Brittany-Ann Linde; Carol Kurbis; Wilson, Carolle A (HC/SC); Carter, Luke (HC/SC); Catherine McDougald; CCMOH Secretariat; Charos, Gina (PHAC/ASPC); Christine Rathwell; Cindy Rogers; Cristina Bedward; D Sabapathy; Daniel Warshafsky; Davies, Stephanie (PHAC/ASPC); Dawn Osciak; Debbie Panchyshyn; Denis, Joel (PHAC/ASPC); Diane Lu; Donna Milne; Dr. Jesse Kancir; Elmslie, Kim (PHAC/ASPC); Eric Arnold; Evans, Cindy (PHAC/ASPC); Fatema Motiwala; Fiona Cavanagh; Gary Heshmat; Gillian MacDonald; Guenette, Tara-Lynn (PHAC/ASPC); Liston, Heidi (DH/MS); Henry, Erin E (PHAC/ASPC); holly.mcgarr@canada.ca; Hostrawser, Bonnie (PHAC/ASPC); HPOC PHM / COPS MSP (PHAC/ASPC); Ingraham, Erin (HC/SC); J E Sherren; James Holubowich; Jasmine Pawa; Jazz Atwal; Jennifer White; St. Pierre, Jessica (DH/MS); Jocelyn LeBlond; Johnatha Smith; Josee Bergeron; Juanita Follett; Julie Kryzanowski; Karen Scherle; Kathleen Williams; Dean, Kelly (Ext.); Barker, Dr. Kimberley (DH/MS); Langevin, Chantal (PHAC/ASPC); Laura Hillier; Laura Seeds; Laurel Thompson; Laurie Hunter; Lebans, Anne (PHAC/ASPC); Lewis, Darlene (SAC/ISC); Lior, Lee (PHAC/ASPC); Lori Carpenter; Lori Isaac; Lyn Yeo; MacDonald2, Tammy (PHAC/ASPC); Mackenzie, Sara (HC/SC); Marie-Michele Caux; Chalifoux, Mathieu (DH/MS); Maureen Carew; Maurica Maher; McCarney, Jane (PHAC/ASPC); McDonald, Alexa (PHAC/ASPC); McLeod, Robyn (PHAC/ASPC); McNeill, Robin (PHAC/ASPC); Meagan Campbell; Meghan Conly; Michelle Sveinson; Mitra, Debjani (PHAC/ASPC); NB-PT-PHNC-Secretariat (DH/MS); Paddle, Lisa (PHAC/ASPC); Pamela Huber; Macmillan, Pamela (JPS/JSP); Higdon, Penny (DH/MS); Ponic, Pamela (PHAC/ASPC); Rachel Mailhot; Richard Almond; Richard Baydack; Romano, Anna (PHAC/ASPC); Rosann Seviour; Russo, Laura (HC/SC); Rutledge-Taylor, Katie (PHAC/ASPC); Salvadori, Marina (PHAC/ASPC); Samantha Poirier; Sanaz; LeBlanc, Shannon (DH/MS); Smith, Cheryl (HC/SC); Stephanie Taylor; Studnar, Monica (PHAC/ASPC); Sylvie Poirier; TAC Secretariat ; Taylor, Dorcas (PHAC/ASPC); Tracey Aylward; Vanessa Blyan; Leger, Dr. Yves (DH/MS); Yvonne Sturgess; CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
Subject: RE: New Web content on Post-COVID condition (Long COVID)
Date: August 25, 2021 9:16:46 AM

ATTENTION! External email / courriel externe.

Good morning Dr. Hinshaw,
The Secretariat is happy to share the following response on behalf of PHAC's surveillance program responsible for Post-COVID condition in the Centre for Surveillance and Applied Research (CSAR).
If you have any questions, please do not hesitate to reach out.
Kind Regards,
SAC Secretariat
****

Dear Dr. Hinshaw

Thank you for your email. We note our sources and methodology below. Scientific evidence continues to expand on Post COVID-19 condition internationally, and the results provided in the web content reflect scientific evidence to date.

The estimate of 60% of adults experiencing symptoms 12+ weeks after initial COVID diagnosis was based on initial findings from a living systematic review of published literature (spanning January 2020-January 2021) conducted by PHAC for which the results and detailed methodology can be found here: https://www.medrxiv.org/content/10.1101/2021.06.03.21258317v1.article-metrics . This particular estimate was based on a meta-analysis of results from 4 studies (denominator=2412) and included non-hospitalized and hospitalized individuals, however the majority were hospitalized. The result was 56% prevalence, with a 95% CI of 34%-75%.

PHAC has recently updated the systematic review and the updated results from 14 studies indicate a very similar prevalence. Note that rigorous and established systematic review

methodology have been used to produce these results, which will be part of publications in scientific journals in the coming months.

With regards to the estimate used in children, this is based on one study only by Buonsenso et al (https://onlinelibrary.wiley.com/doi/10.1111/apa.15870) . The result was 58% prevalence, with a 95% CI of 50%-67% (denominator=129; included both asymptomatic (~26%) and symptomatic cases; and approximately 5% required hospitalization). This estimate will be updated once additional studies reporting on prevalence of post COVID-19 condition in children are identified through the living systematic review being conducted by PHAC.

We would be happy to provide additional information as needed and answer any other questions you may have.

From: Deena Hinshaw <Deena.Hinshaw@gov.ab.ca>
Sent: 2021-08-23 12:18 PM
Subject: RE: New Web content on Post-COVID condition (Long COVID)

I likely missed the opportunity to comment on this content, but I am very curious about the studies behind the incidence numbers provided in the online information stating that 60% of adults had prolonged symptoms post-12 weeks and 58% of children had symptoms for 4 weeks or more. This is not consistent with the range of data that I have seen, especially in children who had mild initial infection.

Could these incidence numbers be clarified as to the denominator that is being referenced – is this in hospitalized cases or all cases, and what studies are being referenced to land on the incidence numbers? I completely agree that post-COVID condition is critical to respond to and understand better, but I am concerned that these incidence numbers are not sufficiently well defined to understand what they refer to.

Thank you,
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
24th Floor, ATB Place North Tower
10025 Jasper Avenue | Edmonton, Alberta T5J 1S6
Classification: Protected A

From: McDonald, Alexa (PHAC/ASPC) <alexa.mcdonald@phac-aspc.gc.ca> **On Behalf Of** CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
Sent: Sunday, August 22, 2021 8:49 AM
To: Amy Riske <Amy.Riske@yukon.ca>; Andrea McKenna <AndreaMcKenna@gov.nl.ca>; Anna Romano <anna.romano@canada.ca>; Auger, Julie A (PHAC/ASPC) <julie.a.auger@phac-aspc.gc.ca>; Avis Gray <avis.gray@gov.mb.ca>; Brent Roussin <brent.roussin@gov.mb.ca>; Catherine Elliott <catherine.elliott@gov.yk.ca>; Colleen Dudar <Colleen.Dudar@gov.mb.ca>; Dr. Barb Yaffe <barbara.yaffe@ontario.ca>; Dr. Bonnie Henry <bonnie.henry@gov.bc.ca>; Dr. Brian Emerson <brian.emerson@gov.bc.ca>; Dr. Cristin Muecke <dr.cristin.muecke@gnb.ca>; Deena Hinshaw <Deena.Hinshaw@gov.ab.ca>; Dr. Evan Adams <evan.adams@canada.ca>; Dr. George Giovinazzo

<george.giovinazzo@cic.gc.ca>; Dr. Heather Morrison <hgmorrison@gov.pe.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>; Dr. Saqib Shahab <saqib.shahab@health.gov.sk.ca>; Dr. Supriya Sharma <supriya.sharma@canada.ca>; Dr. Theresa Tam <drtheresa.tam@canada.ca>; Dr. Tom Wong <tom.wong@canada.ca>; Eilish Cleary <eilish.cleary@canada.ca>; Ernest Ebert <Ernest.Ebert@forces.gc.ca>; Horacio Arruda <horacio.arruda@msss.gouv.qc.ca>; Kami Kandola <kami_kandola@gov.nt.ca>; Reka Gustafson <reka.gustafson@phsa.ca>; Richard Masse <richard.masse@msss.gouv.qc.ca>; Robinson, Kerry (PHAC/ASPC) <kerry.robinson@phac-aspc.gc.ca>; Shannon McDonald <shannon.mcdonald@fnha.ca>; Shelley Deeks <Shelley.Deeks@novascotia.ca>; SK CMOH Single Window <OCMHO@health.gov.sk.ca>; Suzanne Fedorowich <suzanne.fedorowich@health.gov.sk.ca>; Tami Denomie <tami.denomie@health.gov.sk.ca>; Trish Merrithew-Mercredi <Trish.Merrithew-Mercredi@gov.ab.ca>; Vincent Beswick-Escanlar <VINCENT.BESWICK-ESCANLAR@forces.gc.ca>; YK Surveillance <YCDCsurveillance@gov.yk.ca>; Yves Jalbert <yves.jalbert@msss.gouv.qc.ca>

Cc: Andre Corriveau <andre_corriveau@gov.nt.ca>; Anne Huang <AHuang@gov.nu.ca>; Ashley Halicki <Ashley.Halicki@gov.bc.ca>; Barton, Kimby (PHAC/ASPC) <kimby.barton@phac-aspc.gc.ca>; Bent, Stephen (PHAC/ASPC) <stephen.bent@phac-aspc.gc.ca>; Bettencourt, Sarah (HC/SC) <sarah.bettencourt@hc-sc.gc.ca>; Brayden Pitt <Brayden_Pitt@gov.nt.ca>; Brittany-Ann Linde <Brittany-Ann.Linde@CSC-SCC.GC.CA>; Carol Kurbis <Carol.Kurbis@gov.mb.ca>; Wilson, Carolle A (HC/SC) <carolle.a.wilson@hc-sc.gc.ca>; Carter, Luke (HC/SC) <luke.carter@hc-sc.gc.ca>; Catherine McDougald <catherine.mcdougald@canada.ca>; CCMOH Secretariat <phac.ccmohsecretariat-cmhc.aspc@canada.ca>; Charos, Gina (PHAC/ASPC) <gina.charos@phac-aspc.gc.ca>; Christine Rathwell <christine.rathwell@health.gov.sk.ca>; Cindy Rogers <Cindy.Rogers@health.gov.sk.ca>; Cristina Bedward <cristina.bedward@canada.ca>; D Sabapathy <dsabapathy@gov.pe.ca>; Daniel Warshafsky <Daniel.Warshafsky@ontario.ca>; Davies, Stephanie (PHAC/ASPC) <stephanie.davies@phac-aspc.gc.ca>; Dawn Osciak <dawn.osciak@gov.mb.ca>; Debbie Panchyshyn <Debbie.Panchyshyn@gov.mb.ca>; Denis, Joel (PHAC/ASPC) <joel.denis@phac-aspc.gc.ca>; Diane Lu <Diane.Lu@forces.gc.ca>; Donna Milne <Donna.Milne@gov.yk.ca>; Dr. Jesse Kancir <Jesse.Kancir@yukon.ca>; Elmslie, Kim (PHAC/ASPC) <kim.elmslie@phac-aspc.gc.ca>; Eric Arnold <eric.arnold@canada.ca>; Evans, Cindy (PHAC/ASPC) <cindy.evans@phac-aspc.gc.ca>; Fatema Motiwala <fatema.motiwala@canada.ca>; Fiona Cavanagh <Fiona.Cavanagh@gov.ab.ca>; Gary Heshmat <Gary.Heshmat@gov.bc.ca>; Gillian MacDonald <Gillian.MacDonald2@ontario.ca>; Guenette, Tara-Lynn (PHAC/ASPC) <tara-lynn.guenette@phac-aspc.gc.ca>; Heidi Liston <Heidi.Liston@gnb.ca>; Henry, Erin E (PHAC/ASPC) <erin.e.henry@phac-aspc.gc.ca>; holly.mcgarr@canada.ca; Hostrawser, Bonnie (PHAC/ASPC) <bonnie.hostrawser@phac-aspc.gc.ca>; HPOC PHM / COPS MSP (PHAC/ASPC) <hpoc.phm-msp.cops@phac-aspc.gc.ca>; Ingraham, Erin (HC/SC) <erin.ingraham@hc-sc.gc.ca>; J E Sherren <jesherren@gov.pe.ca>; James Holubowich <james.holubowich@canada.ca>; Jasmine Pawa <jpawa@gov.nu.ca>; Jazz Atwal <Jazz.Atwal@gov.mb.ca>; Jennifer White <jennifer.white2@gov.mb.ca>; Jessica St. Pierre <Jessica.St.Pierre@gnb.ca>; Jocelyn LeBlond <Jocelyn.LeBlond@health.gov.sk.ca>; Johnatha Smith <Jonathan.Smith@CSC-SCC.GC.CA>; Josee Bergeron <Josee.Bergeron@yukon.ca>; Juanita Follett <juanitafollett@gov.nl.ca>; Julie Kryzanowski <Julie.Kryzanowski@health.gov.sk.ca>; Karen Scherle <Karen.Scherle@health.gov.sk.ca>; Kathleen Williams <kathleen.williams@canada.ca>; Dean, Kelly (Ext.) <kelly.dean@gov.ns.ca>; Kimberley Barker <Kimberley.Barker@gnb.ca>; Langevin, Chantal

(PHAC/ASPC) <chantal.langevin@phac-aspc.gc.ca>; Laura Hillier <Laura.Hillier@yukon.ca>; Laura Seeds <Laura.Seeds@ontario.ca>; Laurel Thompson <Laurel.Thompson@gov.bc.ca>; Laurie Hunter <laurie.hunter@canada.ca>; Lebans, Anne (PHAC/ASPC) <anne.lebans@phac-aspc.gc.ca>; Lewis, Darlene (SAC/ISC) <darlene.lewis@canada.ca>; Lior, Lee (PHAC/ASPC) <lee.lior@phac-aspc.gc.ca>; Lori Carpenter <lori.carpenter@fnha.ca>; Lori Isaac <Lori.Isaac@gov.bc.ca>; Lyn Yeo <Lyn.Yeo@health.gov.sk.ca>; MacDonald2, Tammy (PHAC/ASPC) <tammy.macdonald2@canada.ca>; Mackenzie, Sara (HC/SC) <sara.mackenzie@hc-sc.gc.ca>; Marie-Michele Caux <marie-michele.caux@canada.ca>; Mathieu Chalifoux <Mathieu.Chalifoux@gnb.ca>; Maureen Carew <MAUREEN.CAREW@forces.gc.ca>; Maurica Maher <maurica.maher@forces.gc.ca>; McCarney, Jane (PHAC/ASPC) <jane.mccarney@phac-aspc.gc.ca>; McDonald, Alexa (PHAC/ASPC) <alexa.mcdonald@phac-aspc.gc.ca>; McLeod, Robyn (PHAC/ASPC) <robyn.mcleod@phac-aspc.gc.ca>; McNeill, Robin (PHAC/ASPC) <robin.mcneill@phac-aspc.gc.ca>; Meagan Campbell <meagan.campbell@canada.ca>; Meghan Conly <meghan.conly@canada.ca>; Michelle Sveinson <michelle.sveinson@gov.mb.ca>; Mitra, Debjani (PHAC/ASPC) <debjani.mitra@phac-aspc.gc.ca>; NB Secretariat <NB-PT-PHNC-Secretariat@gnb.ca>; Paddle, Lisa (PHAC/ASPC) <lisa.paddle@phac-aspc.gc.ca>; Pamela Huber <pamela.huber@canada.ca>; Pamela MacMillan <Pamela.Macmillan@gnb.ca>; Penny Higdon <penny.higdon@gnb.ca>; Ponic, Pamela (PHAC/ASPC) <pamela.ponic@phac-aspc.gc.ca>; Rachel Mailhot <Rachel.mailhot@cic.gc.ca>; Richard Almond <Richard.almond@gov.bc.ca>; Richard Baydack <Richard.Baydack@gov.mb.ca>; Romano, Anna (PHAC/ASPC) <anna.romano@phac-aspc.gc.ca>; Rosann Seviour <RSeviour@GOV.NU.CA>; Russo, Laura (HC/SC) <laura.russo@hc-sc.gc.ca>; Rutledge-Taylor, Katie (PHAC/ASPC) <katie.rutledge-taylor@phac-aspc.gc.ca>; Salvadori, Marina (PHAC/ASPC) <marina.salvadori@phac-aspc.gc.ca>; Samantha Poirier <Samantha.Poirier@gnb.ca>; Sanaz <Sanaz.Vaseghi@health.gov.sk.ca>; Shannon LeBlanc <Shannon.LeBlanc@gnb.ca>; Smith, Cheryl (HC/SC) <cheryl.smith@hc-sc.gc.ca>; Stephanie Taylor <Stephanie.Taylor@gov.bc.ca>; Studnar, Monica (PHAC/ASPC) <monica.studnar@phac-aspc.gc.ca>; Sylvie Poirier <Sylvie.Poirier@msss.gouv.qc.ca>; TAC Secretariat <phac.cidsc.secretariat.aspc@canada.ca>; Taylor, Dorcas (PHAC/ASPC) <dorcas.taylor@phac-aspc.gc.ca>; Tracey Aylward <TraceyAylward@gov.nl.ca>; Vanessa Blyan <vanessa.blyan@gov.ab.ca>; Yves Leger <Yves.Leger@gnb.ca>; Yvonne Sturgess <Yvonne.Sturgess@gov.mb.ca>

Subject: FYI: New Web content on Post-COVID condition (Long COVID)

Dear SAC members,

This correspondence is to inform you that web content on Post COVID-19 condition (or long COVID) is now live on the Canada.ca website.

The release includes a web page for the general public and a web page for health professionals. This content was developed by PHAC officials in collaboration with key stakeholders such as academic experts, clinicians, and persons with lived/living experience. Although provincial and territorial jurisdictions did not participate directly in the development of the content, many representatives from provinces and territories were part of the Best Brains Exchange on post COVID-19 condition held this past May (SAC and TAC members were invited). The presentations and discussions that took place in that forum were an important basis for the content and the approach to its development.

Links to the live web content are provided below, and we invite you to share this messaging broadly within your jurisdictions.

We look forward to a follow-up post COVID-19 SAC discussion on current knowledge and related initiatives in the coming weeks.

Thank you,
SAC Secretariat
****

Coronavirus disease (COVID-19): Symptoms and treatment
https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/symptoms.html
https://www.canada.ca/fr/sante-publique/services/maladies/2019-nouveau-coronavirus/symptomes.html

Post COVID-19 condition
https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/symptoms/post-covid-19-condition.html
https://www.canada.ca/fr/sante-publique/services/maladies/2019-nouveau-coronavirus/symptomes/syndrome-post-covid-19.html

COVID-19 for health professionals: Post COVID-19 condition
https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/post-covid-19-condition.html
https://www.canada.ca/fr/sante-publique/services/maladies/2019-nouveau-coronavirus/professionnels-sante/syndrome-post-covid-19.html

And we added the new section to the health professionals topic page
https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals.html
https://www.canada.ca/fr/sante-publique/services/maladies/2019-nouveau-coronavirus/professionnels-sante.html

From: 21(1)
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
Subject: Re: covid Long Hauler TripleC-NB registry how to sign up
Date: September 10, 2021 10:34:06 AM

---

no problem, i work for the 21(1) and know the panic that can induce. i will forget the other e-mail exists. thank you so much for your help this means a lot to me!
21(1)

Sent from Yahoo Mail for iPhone

On Friday, September 10, 2021, 10:32 AM, COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca> wrote:

> Hello 21(1)
>
> I have send your information on – hopefully you will hear back soon. Also, I sent my first email to you using an internal email by mistake. For future correspondence, please use this email instead.
>
> All the best!
>
> Lori
>
> Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
>
> For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
>
> www.gnb.ca/coronavirus
>
> ● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
>
> ● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1)
Sent: Friday, September 10, 2021 10:23 AM
To: NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>
Subject: Re: covid Long Hauler TripleC-NB registry how to sign up

Hello,

Yea please forward them my contact information. Thank you so much!

21(1) [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

21(2)(a) [redacted] I was not able to be tested for Covid because at the time the province was only testing international travellers. I had travelled domestically to Newfoundland, with a layover in Toronto. in Toronto, many people were sick including people on my plane. i was only able to get a covid test months after i first got sick, 21(2)(a) [redacted]

21(2)(a) [redacted]

i am dying to speak to someone who specializes in long term covid and can give me some answers. and at the very least, i have tests and blood tests spanning the full time of my illness and maybe that can help the research.

Thank you for your help

21(1) [redacted]

Sent from my iPhone

On Sep 10, 2021, at 9:53 AM, NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca> wrote:

Hello 21(1) [redacted],

Those who qualify for the TripleC study are being contacted directly by Horizon or Vitalité researchers. It is possible you have been missed. For example, if you had been diagnosed in another jurisdiction but now live in NB with symptoms, you wouldn't necessarily have been contacted in the past regarding this study.

I can pass along your contact information to the team if you like. There is currently no public contact for the study.

Sincerely,

Lori

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:

www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●

● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: Wednesday, 2021-09-08 10:48 AM
To: Helpaide (SNB) <Helpaide@gnb.ca>
Subject: covid Long Hauler TripleC-NB registry how to sign up

ATTENTION! External email / courriel externe.

Hello,

I am a Covid Longhauler and I read an article (attached) talking about how there is a study being done on Long Haulers in NB at the TripleC-NB registry, a collaborative effort between the Horizon and Vitalité Networks and how they need participants. How do I get in on this study? I have data and tests going back a year and to be honest I would like some insight into my health issues.

How do I sign up for this study?

It was also mentioned in the "Long Term Effects Study" of this CBC article

https://www.cbc.ca/news/canada/new-brunswick/nb-roundcup-covid-collective-trauma-1.6128919

I have asked my doctor and she didn't know.

Thank you for your help

21(1) [redacted]

[redacted]

From: 21(1)
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
Subject: Re: covid Long Hauler TripleC-NB registry how to sign up
Date: September 10, 2021 11:29:14 AM

---

thank you so much!!!!

this is a big help!

21(1)

Sent from my iPhone

> On Sep 10, 2021, at 11:20 AM, COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca> wrote:
>
> Hi again 21(1)
> I have just been informed that you can now communicate directly with TripleC (see correspondence I received below):
>
> *Please let this individual (and all others with similar inquiries) that they can contact the researchers leading this study at triplec-nbregistry@horizonnb.ca.*
>
> Lori
>
> ---
>
> **From:** 21(1)
> **Sent:** Friday, September 10, 2021 10:34 AM
> **To:** COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
> **Subject:** Re: covid Long Hauler TripleC-NB registry how to sign up
>
> no problem, i work for 21(1) and know the panic that can induce. i will forget the other e-mail exists. thank you so much for your help this means a lot to me!
> 21(1)
>
> Sent from Yahoo Mail for iPhone
>
> On Friday, September 10, 2021, 10:32 AM, COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca> wrote:
>
> > Hello 21(1)
> >
> > I have send your information on – hopefully you will hear back soon. Also,

I sent my first email to you using an internal email by mistake. For future correspondence, please use this email instead.

All the best!

Lori

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:

www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●

● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: Friday, September 10, 2021 10:23 AM
To: NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>
Subject: Re: covid Long Hauler TripleC-NB registry how to sign up

Hello,

Yea please forward them my contact information. Thank you so much!

21(1) [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

21(2)(a) [redacted]. I was not able to be tested for Covid because at the time the province was only testing international travellers. I had travelled domestically to Newfoundland, with a layover in Toronto. in Toronto, many people were sick including people on my plane. i was only able to get a covid test months after i first got sick, 21(2)(a) [redacted]

21(2)(a) [redacted]

i am dying to speak to someone who specializes in long term covid and can give me some answers. and at the very least, i have tests and blood tests spanning the full time of my illness and maybe that can help the research.

Thank you for your help

21(1) [redacted]

Sent from my iPhone

> On Sep 10, 2021, at 9:53 AM, NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca> wrote:

Hello 21(1)

Those who qualify for the TripleC study are being contacted directly by Horizon or Vitalité researchers. It is possible you have been missed. For example, if you had been diagnosed in another jurisdiction but now live in NB with symptoms, you wouldn't necessarily have been contacted in the past regarding this study.

I can pass along your contact information to the team if you like. There is currently no public contact for the study.

Sincerely,

Lori

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:

www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●

● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1)
Sent: Wednesday, 2021-09-08 10:48 AM
To: Helpaide (SNB) <Helpaide@gnb.ca>

Subject: covid Long Hauler TripleC-NB registry how to sign up

ATTENTION! External email / courriel externe.

Hello,

I am a Covid Longhauler and I read an article (attached) talking about how there is a study being done on Long Haulers in NB at the TripleC-NB registry, a collaborative effort between the Horizon and Vitalité Networks and how they need participants. How do I get in on this study? I have data and tests going back a year and to be honest I would like some insight into my health issues.

How do I sign up for this study?

It was also mentioned in the "Long Term Effects Study" of this CBC article

https://www.cbc.ca/news/canada/new-brunswick/nb-roundcup-covid-collective-trauma-1.6128919

I have asked my doctor and she didn't know.

Thank you for your help

21(1) [redacted]

[redacted]

From: 21(1)
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
Subject: Re: question from client
Date: September 10, 2021 12:05:12 PM

My question is why wait until after the fact? Until people have symptoms to address the situation. Would it not be useful for people to know the severity and the seriousness that could lead up to covid Long Haul? I think it would help people to know the potential because for some they seem to think that cold it is nothing more than the common flu.

Get Outlook for Android

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: Thursday, September 9, 2021 8:44:18 AM
To: 21(1)
Subject: FW: question from client

Hello 21(1)
Thank you for your email. We are working on information for the public and primary care providers on COVID long haul.
In addition, all positive COVID-19 cases in New Brunswick who have expressed a willingness to participate in research on COVID long haul are being asked to enroll in the TripleC-NB registry, a collaborative effort between researchers in the Horizon and Vitalité Health Networks. This registry aims to track COVID-19 cases to determine what, if any, ongoing health changes are experienced by these individuals, how long they persist, and what specific changes from their baseline health have been noted. Those enrolled are contacted monthly until two consecutive follow-up calls have no reports of ongoing health changes.

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1)
Sent: Friday, September 3, 2021 2:40 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Subject: Re: question from client

ATTENTION! External email / courriel externe.

I have yet to have an answer regarding my question. Is this something that dr. Russell plans on addressing?

Get Outlook for Android

From: 21(1) [redacted] >
Sent: Wednesday, September 1, 2021 3:50:14 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Subject: Re: question from client

My question is why has doctor Russell not addressed this issue in her news conferences? There is a Facebook group called covid long haulers Canada that has over 14,000 people in the group. I think it would be helpful to those experiencing symptoms to know about this issue and for those who do not take covid seriously.

Get Outlook for Android

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: Wednesday, September 1, 2021 3:33:58 PM
To: 21(1) [redacted]
Subject: RE: question from client

Good afternoon 21(1) [redacted]

We received an email that you have some questions regarding Covid-19 long haulers.

You can send your questions to this email and we will do our best to get an answer for you.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19: www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
To: 21(1) [redacted]
Subject: RE: Medical Exeption
Date: September 20, 2021 10:52:00 AM

Good morning 21(1) [redacted]

Thank you for reaching out on behalf of your patient. It is understood that there are situations that may fall outside of the prescribed medical exemptions that require further review.

After careful consideration by the Medical Officer of Health, it has been determined that your patient is not eligible for a medical exemption to the Proof of Vaccination Policy. This does not invalidate the importance of your patient's concern. Pandemic conditions have taken a toll upon many individuals, and we are not without empathy for their situation.

Please note: some studies suggest that a proportion of long Covid cases will see an improvement in symptoms after vaccination. Given that we don't know the duration of natural immunity she may get reinfected in the absence of boosting immunity.

Please advise your patient that in lieu of proof of vaccination, they have the option to wear a mask at work and provide proof of compliance with regular POCT and PCR testing. Should they ever choose to get vaccinated against COVID-19, these mitigation measures may be discontinued 14-days after getting all vaccinations in the series.

There is a great deal at stake when considering a medical exemption to vaccination. Each individual's situation must be examined through the lens of protecting the individual, as well as the health of all New Brunswickers, given the epidemiologic risks at that time. Currently, as a matter of public health, in the context of ongoing outbreaks and the presence of the Delta variant of concern, it is essential for every eligible New Brunswicker to become fully vaccinated against COVID-19 as quickly as possible.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19: www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: September 9, 2021 7:17 AM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Subject: Medical Exeption

21(2)(a) [redacted]. She was seen by internal medicine to rule out other medical cause of this difficulties. Patient asking for an medical exception ? opinion
Thank you

21(1) [redacted]

Sent from Mail for Windows

From: Shattuck, Kathleen (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To: AHuang@gov.nu.ca; Andy_DelliPizzi@gov.nt.ca; annick.descormiers@msss.gouv.qc.ca; Archibald, Chris (PHAC/ASPC); Arruda, Horacio (Ext.); Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; Cidsc Secretariat (PHAC/ASPC); cindy.rogers@health.gov.sk.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; deidre_falck@gov.nt.ca; Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fitzgerald-Husek, Alanna (PHAC/ASPC); Gaudreau, Marc-Andre (PHAC/ASPC); George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; jesse kancir; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; Morrison, Heather (Ext.); Njoo, Howard (PHAC/ASPC); OCMHO@health.gov.sk.ca; Paule Clément; prahman@mun.ca; RaaFat Gad, Dr. Rita (DH/MS); richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RSeviour@GOV.NU.CA; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; sarah_bembridge@gov.nt.ca; Sciberras, Jill (PHAC/ASPC); LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Teri.Cole@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca
Subject: OCSO Biweekly Post COVID-19 Condition Scan #7 - Sept 11-24
Date: September 27, 2021 2:26:09 PM
Attachments: OCSO Post-COVID Condition Scan7_Sept24_2021.pdf

TAC Members,

Please find attached the **OCSO Biweekly Post COVID-19 Condition Scan #7** covering the period **Sept 11-Sept 24**. Key updates are highlighted by adding 'NEW' in the document.

Some highlights from the scan:

- Update on Post COVID-19 Clinics: 11 public clinics and 39 private clinics across Canada.
- Study from the *Lancet* (COVID Symptom Study) suggesting people who are fully vaccinated are substantially less likely to develop long COVID.
- Science Brief from the *Ontario Science Table* on Post COVID-19 Condition and its expected burden for Ontario.
- Preliminary findings from the world's largest study on long COVID in children (UK).
- Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA).
- US *CDC* Guidance on Caring for People with Post-COVID Conditions.
- *NIH* awards $470 million to create the RECOVER initiative and lead a national study population of volunteers.
- Review examining how common long COVID is in Children and Adolescents.
- Commentary in *BMJ* suggesting long covid must be recognised as an occupational disease in the UK.

TAC Secretariat

-on Behalf of the Office of Chief Science Officer and the PHAC Emerging Science Group Evidence Team

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #7

Sept 11th- Sept 24th 2021

SCOPE

This monthly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. (NEW) There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc.) Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Internationally, multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. (NEW) It is reported that 10% of adults are unable to return to work in the long term.

This month's scan includes a Science Brief from the *Ontario Science Table* on Post COVID-19 Condition and its expected burden for Ontario, as well as preliminary findings from the world's largest study on long COVID in children suggesting up to 1 in 7 children and young people who caught SARS-CoV-2 may have symptoms linked to the virus 15 weeks later.

EMERGING GUIDELINES OR STANDARDS

- The **World Health Organization** proposed the updated terminology 'Post COVID-19 Condition.' The WHO conducted a Delphi survey to come to a consensus on the clinical case definition of Post-COVID 19 condition. A webinar was held on June 15 to present the consensus clinical case definition from the global Delphi exercise, and to understand the mechanisms that may cause post COVID-19 condition, and the care models to manage it. WHO is working with researchers to streamline data collection and reporting on Post COVID-19 condition. The project, Post-COVID Condition Core Outcomes, will survey patients to establish what core patient outcomes need to be measured to understand the condition.

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. (NEW) Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals were published in UK **NICE** in December 2020 (*Figure 1, Appendix*).

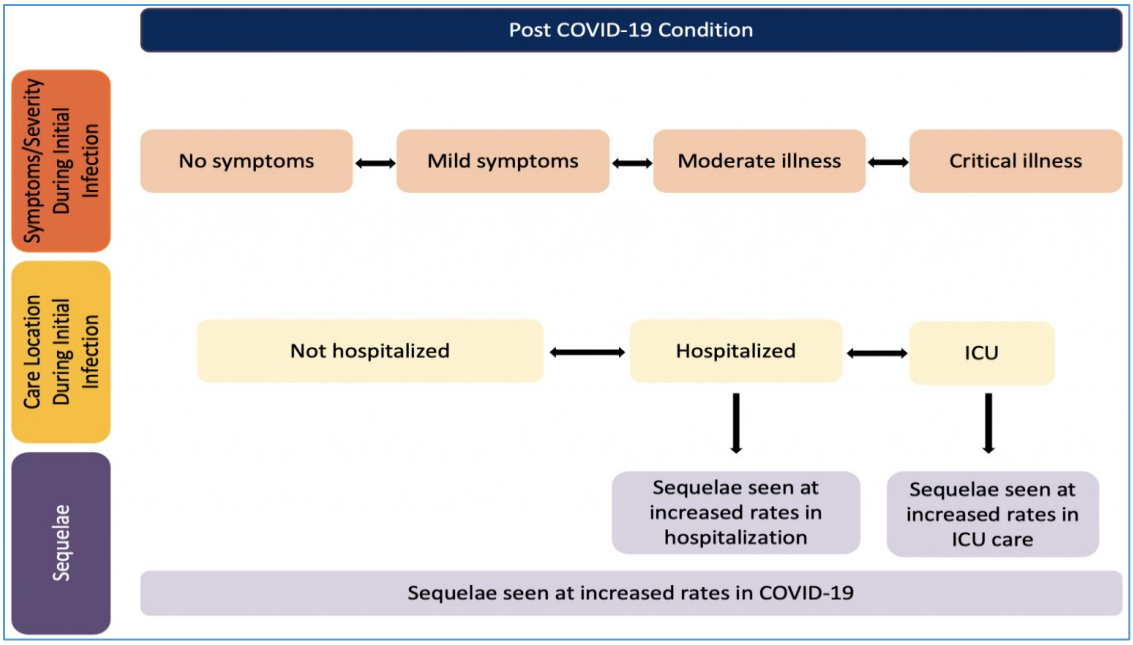
- The Chartered Society of Physiotherapy in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients were published in August 2021 in *British Journal of General Practice*.

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for Canadian Rehabilitation and Exercise Professionals on Post COVID-19 condition and rehabilitation management strategies (August 2021).



Source: Understanding the Post COVID-19 Condition (Long COVID) and the Expected Burden for Ontario. *Ontario Science Table.* Sept 14, 2021.

NATIONAL AND INTERNATIONAL DEVELOPMENTS

CANADA

- In Canada, **11 public clinics** have been identified so far:
  - Alberta: Rockyview General Hospital, Peter Lougheed Centre, Primary Care Network: Edmonton North
  - British Columbia: Abbotsford Regional Hospital, Jim Pattison Outpatient Care and Surgery Centre, Vancouver General Hospital, St. Paul's Hospital
  - Ontario: London Health Sciences Centre, Toronto Rehabilitation Institute (UHN)
  - Quebec: Montreal Clinical Research Institute Post-COVID-19 Clinic, Clinique ambulatoire post-COVID (in French only)
  - (NEW) There are also **39 private clinics across Canada**.
- Lifemark Health Group has a Post COVID-19 Rehabilitation and Recovery Program with locations across 6 provinces.
- Alberta Health Services developed a resource to support rehabilitation and allied health providers across the care continuum working with patients recovering from symptoms of COVID-19.
- Hôtel-Dieu Grace Healthcare launched a COVID Recovery program to help people suffering from effects of COVID-19.
- Nova Scotia launched a website with information on managing or treating the lingering symptoms of COVID-19.
- The Other Pain Clinic Inc COVID Rehab & Survivorship Program in Alberta aims to treat people with post COVID symptoms to allow them to have a better quality of life. The program also has a virtual care option.

PHAC AND PARTNER ACTIVITIES:

- Monitoring latest research and evidence on Post COVID-19 condition and engaging with national and international experts.
  - **PHAC** maintains a living systematic review on the prevalence of Post COVID-19 condition, with also 2 new reviews being undertaken to gain a better understanding of 1) risk factors associated with the condition and 2) possible interventions to prevent the condition.
  - **CPHO** released a statement about Post COVID-19 Condition on July 7th, 2021.
  - Web content on Post COVID-19 Condition is published on the Government of Canada's website.
- PHAC is exploring data sources for **surveillance**
  - Canadian Primary Care Sentinel Surveillance System
  - Initial environmental scan of provincial/territorial initiatives examining impact of COVID-19 on vulnerable populations using administrative health data.
- **CIHR COVID-19 Rapid Research Funding Opportunity** (May 2020)
  - Over 10 projects directly examining long-term implications of COVID-19 (Figure 2, *Appendix*).
  - Canadian COVID-19 Prospective Cohort Study ($**~2.7M**): Evaluating early to 1-year outcomes in 2000 patients across AB, BC, ON, & BC with COVID-19 infection.
- **CIHR Emerging COVID-19 Research Gaps and Priorities Funding Opportunity** (March 2021)
  - Specific research focusing on identifying, defining & addressing Post COVID-19 condition to understand biological & psychological impacts. Select funded projects can be found in *Appendix (Figure 3*).

UK

- NIHR & UKRI:
  - Previous calls: **~£25M** to better understand long-term effects of COVID-19 on physical & mental health
  - Current call: **~£20M** focused on non-hospitalized adults & children with post COVID-19 condition
  - NIHR awarded **£19.6M** to 15 projects across the UK to help diagnose and treat long COVID.
- NHS England and NHS Improvement will provide **£70 million** to expand long COVID services beyond Post-COVID Assessment Clinics to strengthen treatment and rehabilitation.
- Additional funding for ICSs adding to £24 million already provided to **89** specialist Post-COVID Assessment Clinics around England, bringing total investment in 2021/22 to **£94 million**. NHS will also establish specialist long COVID services for children and young people.

- UK Office for National Statistics released experimental statistics on long COVID showing overall UK prevalence estimate of **1.7%**. Research shows **2 million** people in England may have had long COVID, with women and lower-income people particularly susceptible.
- NHS Your COVID Recovery platform is an online, tailored rehabilitation program that enables patients to be monitored by local rehabilitation teams to ensure they are on track with their care.
- The PHOSP COVID study is a national consortium, led by experts in the UK, to investigate long term impacts of COVID-19 on health outcomes for patients who were hospitalised due to COVID-19. Data that is collected during the study will be used globally, collaborating with the European Respiratory Society and Canadian Thoracic Society, to understand the long terms impacts of COVID-19 on health worldwide.
- (NEW) Up to 1 in 7 (14%) children and young people who caught SARS-CoV-2 may have symptoms linked to the virus 15 weeks later, according to preliminary findings from the world's largest study on long COVID in children.

USA

Post-Acute Sequelae of SARS-COV-2 Infection Initiative (NIH PASC): $1.15B/4 years
- Focus: Understand biological basis of PASC & factors contributing to vulnerability
- Current call: Recovery Cohort Studies, Clinical Science, Data Resource & PASC Biorepository Cores

- NIH has invested in longitudinal studies to record the recovery paths of ~40,000 adults and children in a 'meta-cohort', to observe who develops long-term effects and who doesn't.
- Based on media reports, **80 post-COVID-19 clinics** were actively engaging with COVID-19 patients as of March 2021. 64 of these clinics surveyed have seen a combined total of ~**10,000 patients**. A Becker's Hospital Review article (Aug 2021) stated that **44** hospitals and health systems have launched post-COVID-19 clinics. 11.1 million Americans are living with long COVID, according to the American Academy of Physical Medicine & Rehabilitation.
- Virtua Health offers a nationwide "Care After COVID" program to help those experiencing post COVID symptoms.
- A **$40 million** multi-year study from Children's National Hospital and NIAID examining long-term effects of COVID-19 and multisystem inflammatory syndrome in children.
- (NEW) NIH has created the REsearching COVID to Enhance Recovery (RECOVER) Initiative and awarded **$470 million** to create a national study population of volunteers, as well as support studies on long-term effects of COVID-19.

EMERGING SCIENTIFIC EVIDENCE

EVIDENCE PRODUCTS (*SEPT 11- 24, 2021*)

TITLE	EVIDENCE TYPE	SUMMARY
Long-term side effects and lingering symptoms post COVID-19 recovery (Zarei et al)	Review (Available in *Rev Med Virol)*	This review examines the long-term impact of COVID-19 on different organ systems from different clinical studies. Understanding risk factors and signs and symptoms of long-term consequences after recovery from COVID-19 will allow for proper follow-up and management of the disease post recovery.
"LONG COVID": An insight (Ahmad et al)	Systematic Review (Available in *Eur Rev Med Pharmacol Sci)*	This review analyzed available literature on long COVID, its pattern, and the long-term effects on survivors. Databases searched until May 2021. 20 articles analyzed in paper. Most common prevalent long-term symptoms included persistent fatigue and dyspnea in almost all of the studies. Among neurological manifestations headache, peripheral neuropathy symptoms, memory issues, concentration, and sleep disorders also commonly observed. Mental health issues affecting mental abilities, mood fluctuations namely anxiety and depression, and sleep disorders commonly seen. Appropriate clinical evaluation required in long COVID cases.

Long COVID patient symptoms and its evaluation and management (Shrestha et al)	Review (Available in *J Nepal Med Assoc)*	The consequences of COVID-19 infections follow major organ damage, and induction of immunological and hormonal systems dysfunction. This communication proposes evaluation and management of chronic COVID-19 patients with efficient assessment of commonest symptoms, targeted physical examination and organ function testing, and interventions based on specific organ functional status, and experience with similar chronic immune syndromes.
How Common Is Long COVID in Children and Adolescents? (Zimmerman et al)	Review (Available in *Pediatr Infect Dis J)*	In children, the risk of COVID being severe is low. However, the risk of persistent symptoms following infection with SARS-CoV-2 is uncertain in this age group. Reviewed 14 studies to date reporting persistent symptoms following COVID in children and adolescents. Almost all studies have limitations, including lack of clear case definition, variable follow-up times, inclusion of children without confirmed SARS-CoV-2 infection, reliance on self- or parent-reported symptoms without clinical assessment, nonresponse and other biases, and absence of control. Of the 5 studies which included children and adolescents without SARS-CoV-2 infection as controls, 2 didn't find persistent symptoms to be more prevalent in children and adolescents with evidence of SARS-CoV-2 infection. Long-term SARS-CoV-2 infection–associated symptoms are difficult to distinguish from pandemic-associated symptoms.

SELECTED PRIMARY RESEARCH (*SEPT 11- 24, 2021*)

TITLE	SOURCE	SUMMARY
Intriguing New Faces Of Covid-19: Persisting Clinical Symptoms And Cardiac Effects in Children (Erol et al)	*Cardiol Young*	Study evaluated persisting Covid-19-related symptoms and assessed cardiac findings in order to determine impact of Covid-19 on children's cardiovascular health. Clinical symptoms (chest and back pain, dizziness, headache, palpitation, fatigue, shortness of breath, loss of balance, coughing) of 37% of cases persisted at least 1 month after Covid-19 recovery.
Long-Term Symptoms Among Adults Tested for SARS-CoV-2 - United States, January 2020-April 2021 (Wanga et al)	*MMWR Morb Mortal Wkly Rep*	CDC administered a survey to a nationwide sample of U.S. adults aged ≥18 years to compare prevalence of long-term symptoms (those lasting >4 weeks since onset) among persons who self-reported ever receiving a positive SARS-CoV-2 test result with prevalence of similar symptoms among persons who reported always receiving a negative test result. Two thirds of respondents who received a positive test experienced long-term symptoms often associated with SARS-CoV-2 infection. Compared with respondents who received a negative test result, those who received a positive test result reported a significantly higher prevalence of any long-term symptom , fatigue, change in sense of smell or taste, shortness of breath, cough, headache, and persistence (>4 weeks) of at least one initially occurring symptom. Compared with respondents who received a negative test result, a larger proportion of those who received a positive test result reported believing that receiving a COVID-19 vaccine made their long-term symptoms better.

Chemometric analysis of the global pattern of volatile organic compounds in the exhaled breath of patients with COVID-19, post-COVID and healthy subjects. Proof of concept for post-COVID assessment (Zamora-Mendoza et al)	*Talanta*	Objective was to evaluate application of electronic nose and chemometric analysis to discriminate volatile organic compounds between patients with COVID-19, post-COVID syndrome and controls in exhaled breath samples. This technology, due to its simplicity, low cost and portability, can support strategies for identification and follow-up of post-COVID patients.
A multidisciplinary approach to evaluate the presence of hepatic and cardiac abnormalities in patients with post-acute COVID-19 syndrome—a pilot study (Bende et al)	*J Clin Med*	This study aims to evaluate presence of cardiac and liver alterations in patients with post-acute COVID-19 syndrome using transthoracic echocardiography (TTE) and liver elastography (LE). Considering presence of pulmonary injury during COVID-19, patients divided into 2 groups. Although none had altered systolic function, we evidenced pulmonary hypertension, diastolic dysfunction, increased liver stiffness, viscosity, and steatosis in around one-third of the patients, with significantly higher values in subjects with pulmonary injury compared to those without.
Health-Related Quality of Life in Survivors of Severe COVID-19 of a University Hospital in Northern Portugal (Fernandes et al)	*Acta Medica Portuguesa*	Study aimed to characterize COVID-19 survivors of critical illness and to evaluate health-related quality of life and disability following hospital discharge. Retrospective case-series study included COVID-19 survivors admitted to Intensive Care of a University Hospital. Follow-up evaluation performed between 30th and 90th day after discharge. Based on COVID-19 survivors-reported outcomes after critical illness, mobility, pain/discomfort, and anxiety/depression were main problems persisting 1-3 months after hospital discharge.
Persistent intestinal dysbiosis after SARS-CoV-2 infection in Brazilian patients (Ferreira Junior et al)	*Research Square*	Study aimed to evaluate intestinal microbiota of patients infected with SARS-CoV-2 with different clinical manifestations and post-COVID-19 (post-COV) periods, and correlate use of antibiotics during acute disease. Patients who took antibiotics during the COVID-19 course showed decreased richness of gut microbiota, even months after disease resolution. We hypothesized persistent dysbiosis and indiscriminate use of antibiotics during pandemic may be associated with long COVID syndromes, suggesting involvement of gut-lung axis.
A covid-19 rehabilitation prospective surveillance model for use by physiotherapists (Postigo-Martin et al)	*J Clin Med*	Article presents a COVID-19 prospective surveillance model based on sensitive and easily used assessment tools. Model provides guidelines to rehabilitation professionals working with patients who require rehabilitation after suffering from COVID-19. A COVID-19 prospective surveillance model is proposed for use by rehabilitation professionals and includes both face-to-face and telematic monitoring components. This model should facilitate early identification and management of long-term COVID-19 sequelae.
One year after mild covid-19: The majority of patients maintain specific immunity, but one in four still suffer from long-term symptoms (Rank et al)	*J Clin Med*	Persistent complications, including headache, concentration difficulties and loss of smell/taste, were reported by 61% of participants and decreased over time to 28% 1 year after COVID-19.

Clinical Characteristics and the Long-Term Post-recovery Manifestations of the COVID-19 Patients—A Prospective Multicenter Cross-Sectional Study (Mohiuddin Chowdhury et al)	*Front Med*	Clinical information and associated complaints of COVID-19 illness confirmed by reverse transcription-polymerase chain reaction (RT-PCR) were collected directly from patients. Regular follow-ups obtained on phone every 2 weeks following recovery for 20 weeks. Post-COVID-19 persisting symptoms/complaints found among 21.4% of symptomatic patients, which persisted for ≥20 weeks and had a significant relationship with duration of COVID-19 illness and existing comorbidity.
Cross-sectional survey on long term sequelae of pediatric covid-19 among italian pediatricians (Parisi et al)	*Children*	Purpose of work was to present data from a survey addressed to Italian pediatricians concerning the impact of long-COVID among children who recovered from SARS-CoV-2 infection. Persistence of symptoms found in <20% of children. Fatigue most mentioned symptom (75.6%).
Patients' Experiences of "Long COVID" in the Community and Recommendations for Improving Services: A Quality Improvement Survey (Razai et al)	*J Prim Health Care*	Aim of survey was to explore patients' acute and post-acute "long" COVID-19 symptoms, their experiences of community services and recommendations for improving these services. 49% of patients reported at least 1 post-acute COVID-19 symptom. Many patients felt isolated and fearful, with scant information about community resources and little safety netting advice. Patients also expected more from primary care with 56% recommending regular phone calls and follow up from healthcare staff as most important approach in recovery.
Long COVID and Chronic Fatigue Syndrome: A survey of elderly female survivors in Egypt (Aly et al)	*Int J Clin Pract*	Study aimed to investigate post COVID 19 symptoms amongst elderly females and whether they could be a risk factor for developing Chronic Fatigue Syndrome (CFS) later on.
Severe Fatigue in Long COVID: Web-Based Quantitative Follow-up Study in Members of Online Long COVID Support Groups (Van Herck et al)	*J Med Internet Res*	Objectives of study was to assess severity of fatigue over time in members (n=239) of online long COVID peer support groups with confirmed diagnosis approximately 3 and 6 months after onset of infectious symptoms, and assess whether members of these groups experienced mental fatigue, physical fatigue, or both. Vast majority of patients had severe fatigue at 10 weeks and 23 weeks after onset of infectious symptoms. No significant differences found in prevalence of normal, mild, and severe fatigue. Both physical and mental fatigue present.
Post-acute sequelae of COVID-19: Evidence of mood & cognitive impairment (Lamontagne et al)	*BBI - Health*	Depressive symptoms found in post-acute sequelae of COVID-19 (PASC) sample. Reward processing and cognitive functioning impaired in PASC phase. PASC associated with impaired executive function, but not orienting or alerting. Stress did not moderate PASC effects. Protracted inflammatory responses may contribute to post-acute psychiatric sequelae.

COMMENTARIES, LETTERS AND OPINION PIECES (*SEPT 11- 24, 2021*)

- **Breakthrough Infections in Vaccinated People Less Likely to Cause 'Long COVID' (*NIH Blog*):** Dr. Francis Collins highlights how people who are fully vaccinated also are substantially less likely to develop Long COVID Syndrome. Findings in *Lancet Infectious Diseases* are latest from COVID Symptom Study. Researchers in UK found fully vaccinated individuals who developed breakthrough infections were half as likely as unvaccinated people to report symptoms of Long COVID Syndrome lasting at least 4 weeks after infection.

- **Long covid must be recognised as occupational disease, says BMA (*BMJ*):** The UK government must recognise long covid as an occupational disease and invest in its monitoring, research, and treatment, doctors have said. In a motion passed at the BMA annual representative meeting, doctors called on the body to "seek the recognition of occupationally acquired acute covid and long covid in doctors as an occupational disease." They also called for a multidisciplinary approach to the management of long covid that includes primary, specialist, and occupational medicine. A GP called for the UK to follow the lead of the governments of Belgium, Canada, Denmark, France, Germany, and Spain which have recognised covid-19 as an occupational illness and compensated healthcare workers.

- **In for the long-haul? Seropositivity and sequelae 1 year post COVID-19 (*BMC Med*):** COVID-19 leads to long-lasting sequelae, now termed long-COVID. Xiong et al follow a cohort of 333 health care workers with severe COVID-19 and a median age of only 36 years after 5, 8, and 11 months. Almost one third of these showed persistent symptoms of long-COVID 1 year after COVID-19 with a decline in muscular strength, flexibility as well as agility and dynamic balance. Larger, systematic studies quantifying overt and subtle COVID sequelae based on objective criteria as well as assessing the persistence and robustness of immunity are needed. Because "long-COVID" is projected to impact several body systems, test batteries must be comprehensive, quantitative and sensitive enough to detect subtle differences between such groups and to adequately define the disability associated with sequelae of the infection. With projected millions of "long haulers" in the workforce, investigators will need to consider using non-invasive testing, organ damage biomarkers and sample biobanking to elucidate the extent of the post-pandemic impact of COVID-19 and define the burden of long-COVID.

MEDIA HIGHLIGHTS (*SEPT 11- 24, 2021*)

CANADA

- **Much about 'long COVID' remains a mystery, 18 months into the pandemic:** *CBC News* notes that international studies suggest 10-20% of COVID patients have lingering sickness at the 3-month mark. Medical director of the disease's recovery clinic at Vancouver General Hospital, Dr. Schwartz, states "the treatment is truly the vaccination. I hate to say it like that, but if you don't get COVID-19, you won't get the long-haul symptoms."
- **School disruption, 'long COVID,' all factors in choice to vaccinate young kids (Tam):** *Toronto Star* reports that Dr. Teresa Tam said Health Canada will be looking at the data carefully to determine if the vaccine is safe for children, but that's not the only factor parents will have to weigh up. Children's risk of serious illness and death from COVID-19 are low compared to the rest of the population, but Tam warned rare incidents can become more common as the virus spreads. She also points to the impacts of "long COVID," which is still being studied, and the importance of limiting disruptions to school as things to consider.

GLOBAL

- **Study of up to 40,000 people will probe mysteries of Long Covid:** *Science* reports the NIH has awarded a $470 million grant to probe one of the mysteries of COVID-19: the debilitating symptoms that many people experience weeks or months after their infection clears. The study will enroll up to 40,000 adults and children newly and previously infected with SARS-CoV-2 to explore the causes of these post infection effects, dubbed Long Covid, and look for clues to treatments and prevention.
- **What is the proper treatment for long COVID? New clinics seek answers:** *USA Today* highlights how as more people survive COVID-19 infections yet continue to suffer, health care has begun to respond with multidisciplinary clinics that connect patients with a range of experts. Demand exceeds supply at many clinics, an ongoing challenge, said Dr. Peter Staats, who serves on medical advisory board for Survivor Corps. Doctors find themselves engaging in trial and error to figure out what works. Many have long waiting lists. People most disadvantaged by long-term COVID-19, experts say, are those who are generally the most disadvantaged: rural residents, people of color, those without financial resources, those uncomfortable with or not trusting of medical care.
- **Long Covid Has Created an Unexpected Health-Care Burden, says NIH Director:** *BNN Bloomberg* reports how long-term symptoms of Covid-19 affecting millions of Americans are "a deep mystery" that is troubling scientists and straining the health-care system, according to Dr. Francis Collins.

POST COVID-19 CONDITION ADVOCACY AND SUPPORT GROUPS

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. They also have a COVID long-haulers support group. COVID Long Haulers: Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)

- BC ECHO for Post-COVID-19 Recovery (Canada): Based on the global ECHO model, the BC ECHO for Post-COVID-19 Recovery is a virtual learning community of specialists and community health-care providers who use instructive and case-based learning to improve care for patients recovering from symptoms post-COVID-19.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements in the U.S. connecting, supporting, and mobilizing COVID-19 Survivors to support medical, scientific and academic research. They have a list of Post-COVID Care Centers (PCC) on their site and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- CANCOV: Patient resources (Canada)

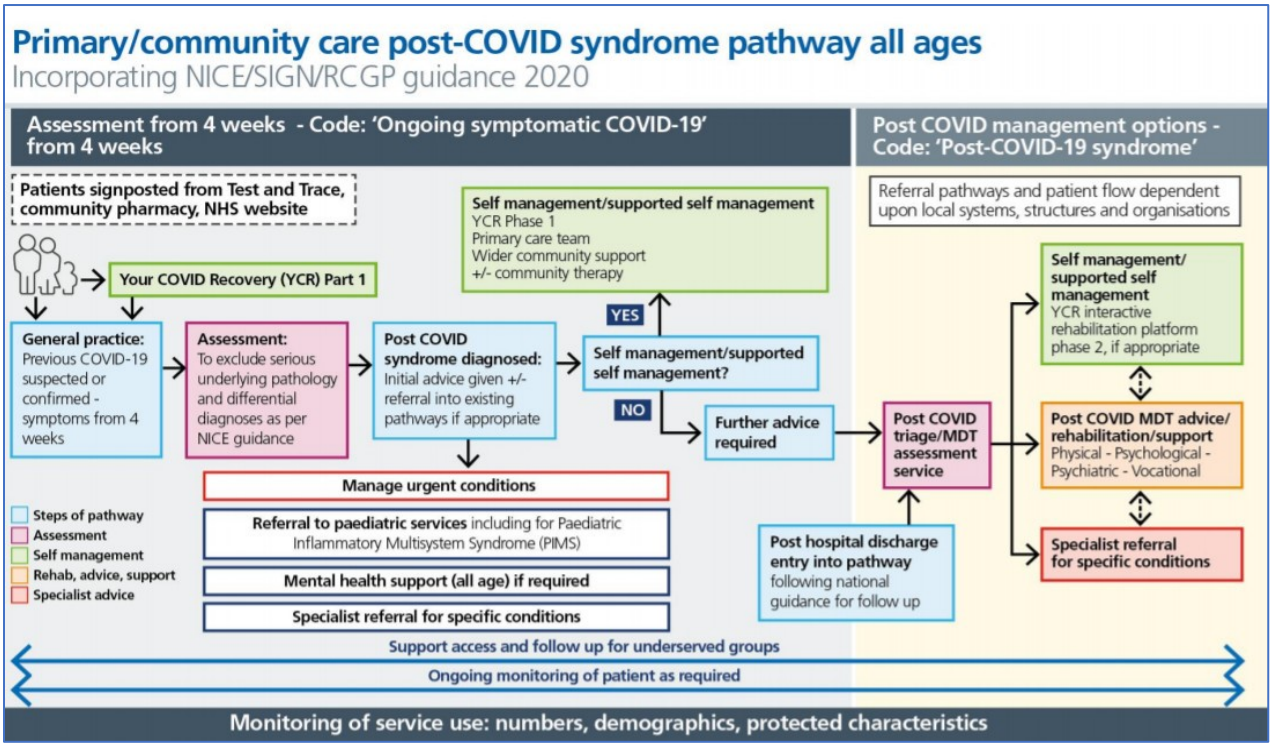
NEWLY ADDED RESOURCES:

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

APPENDIX

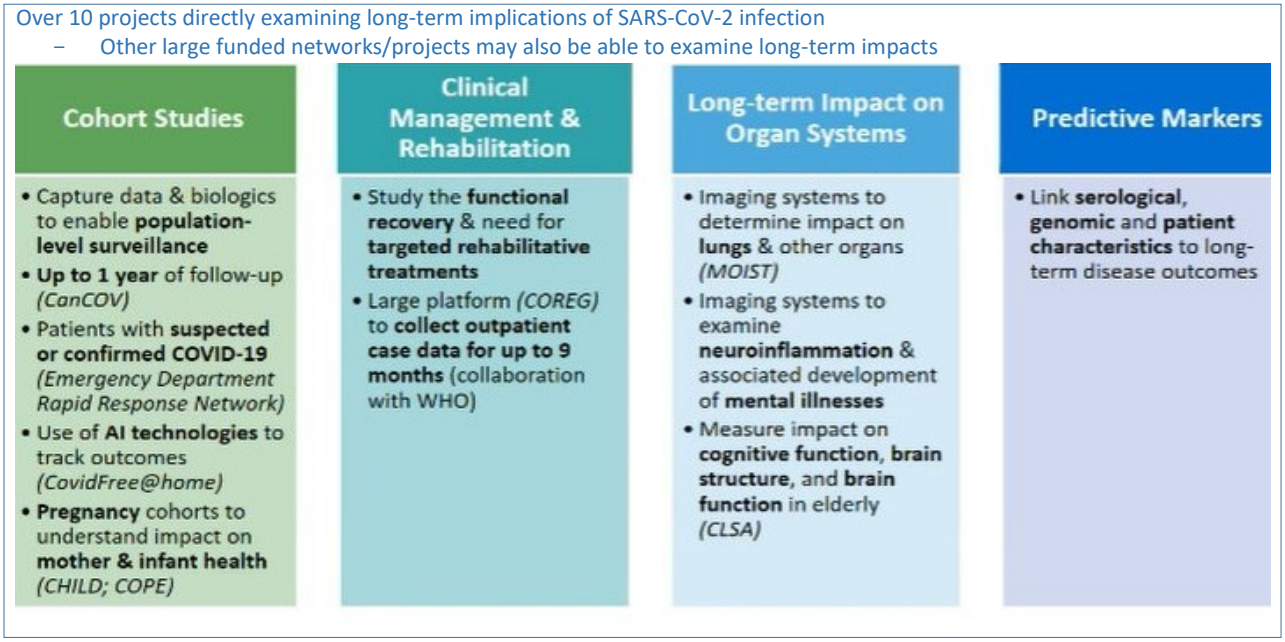
***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

Figure 1. **NICE/SIGN/RCGP 2020 Guidance**



Source: National Health Service (NHS). National guidance for post-COVID syndrome assessment clinics, Version 2, 26 April 2021.

Figure 2. **CIHR COVID-19 Rapid Research Funding Opportunity**



Source: CIHR Knowledge Mobilization Forum. June 10, 2021

Figure 3. **CIHR Funded Operating Grant: Emerging COVID-19 Research Gaps & Priorities - Post COVID-19 condition (Select Studies)**

Name	Institution Paid	Project Title	CIHR Funding Contribution	Funding Term
Gershon, Andrea S; Aaron, Shawn D; Gupta, Samir; Lavoie, Kim; Leung, Janice; Sin, Donald; Stickland, Michael K; To, Teresa	Sunnybrook Research Institute (Toronto, Ontario)	The Canadian Respiratory Research Network Long COVID-19 Study	$500,000	1 year
Raj, Satish R	University of Calgary	Muticentre Assessment of Cardiovascular Hemodynamics and Autonomic Dysfunction with Long COVID	$277,613	1 year
Sander, Beate H; Janjua, Naveed Z; Kwong, Jeffrey C; Mishra, Sharmistha; Sbihi, Hind	University Health Network (Toronto)	Predictors and burden of post-acute COVID-19 syndrome (long-COVID) with a focus on equity	$499,645	1 year
Weatherald, Jason; Granton, John T; Mak, Susanna	University of Calgary	Pulmonary vascular disease in patients with Long COVID	$292,092	1 year
Archambault, Patrick; Berger Pelletier, Elyse; Graves, Donna Lorraine; McGavin, Colleen B; Dainty, Katie N; Hohl, Corinne M; Perry, Jeffrey J; Rosychuk, Rhonda J	Université Laval	Investigating the Post-Acute Sequelae of SARS-CoV-2 Infections: a Patient Oriented Canadian COVID-19 Emergency Department Rapid Response Network (CCEDRRN) Study	$499,945	1 year
Corbeil, Jacques; Lambert, Jean-Philippe	Université Laval	COVID-19 persistent symptomatology: an investigation of the metabolomic and proteomic underpinning	$394,000	1 year
Nacul, Luis; Levin, Adeera; Mckay, Rhonda J; Song, Xiaowei	University of British Columbia	A double blind randomized trial of low-dose naltrexone for post-covid fatigue syndrome	$742,331	1 year
Leong, Darryl	McMaster University	Post-Acute Complications of COVID-19: An International Cohort Study (PACS) Note in a previous iteration, proposal was titled PACMAN as indicated in some Letters of Support	$495,684	1 year
Law, Susan K	Trillium Health Partners (Mississauga, ON)	Living with long-COVID. Patient experience to inform policy makers and care providers	$275,969	1 year
Hatcher, Simon; Orpana, Heather M; Werier, Joel M	Ottawa Hospital Research Institute	In people with Long Covid does adding a digital health platform to usual care improve outcomes at three months compared to usual care alone? The Enhancing Covid Rehabilitation with Technology (ECORT) randomised controlled trial	$922,869	1 year
Mukherjee, Manali; Svenningsen, Sarah; Tselios, Konstantinos	McMaster University	SARS-CoV-2 triggers Autoimmunity: implications for the pathogenesis of Post-Acute COVID-19 Syndrome - (AI-PACS)	$0 CIHR External Partner (PHAC) Contribution-$499,245	1 year
Cheung, Angela M; JÃ¼ni, Peter; Tomlinson, George A	University Health Network (Toronto)	The RECLAIM (REcovering from COVID-19 Lingering symptoms Adaptive Integrative Medicine) trial	$1,000,000	1 year
Ramanathan, Sheela; Piche, Alain	Université de Sherbrooke	Clinicopatholgical correlates of long COVID and potential interventions for improving the quality of life	$490,000	1 year
Ho, Chester; O'Connell, Petra; Zilkie, Tracey A	University of Alberta	Implementing the Provincial Post COVID-19 Rehabilitation Framework for Screening & Transitions in Alberta: A Pragmatic Evaluation	$499,883	1 year
Baker, Andrew J; Dos Santos, Claudia C	Unity Health Toronto	Autoimmunity as a novel mechanism in post-COVID syndrome	$0 CIHR External Partner (PHAC) Contribution-$269,500	1 year
Gross, Douglas P; Lam, Grace Y; Skolnik, Kate; Weatherald, Jason	University of Alberta	Exploring Rehabilitation Needs and Access to Services for Long COVID	$152,778	1 year

Yeung, Rae S; Benseler, Susanne; Haddad, Elie	Hospital for Sick Children (Toronto)	Post COVID hyperinflammation: A syndrome beyond the name	$0 CIHR External Partner (PHAC) Contribution- $499,170	1 year
Pasquier, Jean Charles; Beaulieu, Jean-François; Chaillet, Nils; Laforest-Lapointe, Isabelle; Piche, Alain; Robitaille, Julie	Universite de Sherbrooke	Évaluation de l'efficacité des probiotiques sur les affections post-COVID-19.	$997,273	1 year
Swayne, Leigh A; Tremblay, Marie-Ève	University of Victoria (British Columbia)	Understanding and treating the adverse effects of COVID-19 on the brain	$293,000	1 year
Kendall, Claire; Hawken, Steven; Tanuseputro, Peter	Bruyère Research Institute	Health equity and the post COVID-19 condition	$221,728	1 year
Green, Robin E; Cheung, Angela M	University Health Network (Toronto)	An intervention to teach self-management skills for persisting symptoms of COVID-19: Minimizing impact of symptoms on everyday functioning and on healthcare usage/utilization - A randomized controlled trial	$330,562	1 year
Falcone, Emilia L	Institut de recherches cliniques de Montréal	Identification of microbial factors to modulate immune dysregulation and treat post-COVID-19 syndrome.	$0 CIHR External Partner (PHAC) Contribution- $493,955	1 year
Quinn, Kieran L; Chan, Timothy; Cheung, Angela M; Ghassemi, Marzyeh; Herridge, Margaret S; Mamdani, Muhammad; Razak, Fahad; Rosella, Laura C; Verma, Amol	Sinai Health System (Toronto)	Improving the recognition and care of patients with long-term health complications of COVID-19	$499,998	1 year
O'Brien, Kelly K; Brown, Darren A; Bergin, Colm J; Erlandson, Kristine M; Vera, Jaime	University of Toronto	Long COVID and Episodic Disability: Advancing the Conceptualization, Measurement and Knowledge of Episodic Disability with people living with Long COVID	$204,205	1 year
Roy, Jean-Sébastien; Paquette, Jean-Sébastien; Perreault, Kadija	Université Laval	Better understanding physical and cognitive impairments and functional limitations in people suffering from long COVID to support the development of adapted interventions	$293,100	1 year
Sin, Donald	University of British Columbia	Biomarker Discovery for the Post-COVID Pulmonary Syndrome	$499,500	1 year
Beauchamp, Marla K; Costa, Andrew P; Duong, Mylinh; Ho, Terence; Kruisselbrink, Rebecca; Raina, Parminder S	McMaster University	The McMaster Multi-Regional Hospital Coronavirus Registry (COREG): Extending a Rapid Research Platform to Inform the Clinical Management of COVID-19 'long haulers'	$497,800	1 year
Paterson, Theone; Gicas, Kristina M	University of Victoria (British Columbia)	Investigating Neuropsychological Consequences of COVID-19 on Adults, and Examination of Associated Risk and Resilience Factors	$199,121	1 year
Graff-Guerrero, Ariel; Gerretsen, Philip	Centre for Addiction and Mental Health (Toronto)	Long COVID-19 on the human brain	$932,475	1 year
Graham, Simon J; Chen, Jing J; Gilboa, Asaf; MacIntosh, Bradley J; Schweizer, Tom A; Sekuler, Allison B	Sunnybrook Research Institute (Toronto, Ontario)	Post-Acute Sequelae of COVID-19: An Electroencephalography and Magnetic Resonance Neuroimaging Study of the Elderly in our Communities	$500,000	1 year

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
To: 21(1) [redacted]
Subject: RE: Nervous
Date: October 10, 2021 11:16:00 PM

Hello 21(1) [redacted]

Thank you for your email.

We are gravely concerned about the long term-impact of severe COVID-19 infections, including those impacted with long COVID symptoms; as well as the lethality of this virus among vulnerable populations. The risk of long term negative outcomes are far more likely to arise from a COVID-19 infection than from the vaccine. The principles of vaccination are not new, and have been among us for centuries. COVID-19 vaccines have been used for a year, and have proven to be highly effective against severe illness, hospitalization and death; including against the Delta variant of concern. Within this context, getting vaccinated remains the most protective option for individuals, as well as society.

All individuals in New Brunswick still have the right to choose whether or not to be vaccinated. Please note that this choice creates consequences not only for the individual, but also increases the risk for those around them. Individuals who make an informed decision not be vaccinated can still have access to all essential services; however measures will be implemented to protect the general public and to permit society to function safely. Measures are necessary because it is a basic human right for all individuals to be protected from the harm posed by this virus; particularly those with greater vulnerabilities. While some people are more vulnerable for severe illness; anyone can experience critical illness from COVID-19.

In Canada, the *Common Law Mature Minor Doctrine* asserts that the capacity to make a decision is not tied strictly to age but reflects a person's maturity and ability to understand the nature of the decision to make, and consequences of accepting or declining treatment. New Brunswick's *Medical Consent of Minors Act* (2011) echoes this whereby minors 16 years or older have the right to consent or refuse treatment as if they had reached the age of majority. If younger than 16 years, the patient may provide valid consent if the attending physician, nurse practitioner or nurse can attest to the young patient's capacity to make such a decision. Variations of this legislation have been in use since 1976.

With increasing risk associated with the rising prevalence of cases we have in N.B., this means that as many individuals as possible should be fully vaccinated, as well as employing other appropriate protective public health measures (such as washing hands and cleaning/disinfecting) to offset the risk of exposure and transmission. In so doing, we hope to protect the people, as well as the healthcare system; upon which we all rely.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19: www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: Crain, Krista (DH/MS) <Krista.Crain@gnb.ca> **On Behalf Of** Shephard, Dorothy Hon. (DH/MS)
Sent: September 23, 2021 2:39 PM
To: DH Correspondence / Correspondance MS (DH/MS) <DHMC.CMMS@gnb.ca>
Subject: FW: Nervous

From: 21(1) < >
Sent: Thursday, September 16, 2021 10:30 AM
To: Shephard, Dorothy Hon. (DH/MS) <Dorothy.Shephard@gnb.ca>
Subject: Nervous

ATTENTION! External email / courriel externe.

Good morning Minister Shephard,

I hope that this email finds you well, although I am fairly certain that you are swamped with work. I live in West Saint John and voted for you in the last election. I am thankful for the fairly balanced approach that our provincial government has handled the COVID Pandemic issue. I have been praying for wisdom for each of you and will continue to do so.

As an individual and family, we have sought to follow the guidelines that have been placed on us. To this point, I believe the best interest of New Brunswickers has been at the core of decision making. However, with the announcements yesterday, I am fearful on a number of fronts. I wish to share my concerns and would love some clarification:

- I have significant concerns with the vaccine and they stem mostly from the untested long term impact that it will have. They have not had enough research into the long term affects that they will have.

While I battle with what it the best and right thing to do, our government's stance to vilify anyone who does not agree or "snap to" and follow their wishes is deeply concerning. The science is changing by the week and appears to be all over the map. Why is our government taking a bullying stance to force compliance or squeeze us out of life?

- Our country was founded on freedom to choose and you are taking away that very choice. How can you justify demanding we take something or be left out of society? While this may seem to be a smaller step, the implications of loosing this freedom points us in a dangerous direction.
- I am deeply disturbed that minors can now legally get the vaccine without parental permission. I had no idea that this was happening and cannot express how disturbing this is. This move undercuts the parents authority and moves us towards an ideology where the government makes all of our decisions. How was this decision justified?
    - While I am not afraid of our current governing body, I believe these decisions are moving us in a direction and setting a course for governance where we have little to no freedom at all.

I am sure that your inbox is full. Please forgive me for sharing such an unhappy email. I rarely speak up, but I am fearful of what I currently see. Thank you for your time.

21(1)

From: 21(1)
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
Subject: Re: question from client
Date: October 13, 2021 4:07:40 PM

I am writing to you as I'm very concerned about the numbers I am seeing daily of individuals over 80+ being affected with Covid which leads me to believe that there are outbreaks at nursing homes within our province that Dr. Russell has not mentioned during her press conferences. One that I've just read about is at the Drew Nursing home. Throughout the pandemic our government has told the people of NB about such outbreaks, but to have to read via an alternate news source is **TOTALLY UNACCEPTABLE**!

21(1)

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: September 10, 2021 2:28 PM
To: 21(1)
Subject: RE: question from client

Thank you for the points you raise. It is important for people to realize the potential serious side effects of COVID and the importance of getting vaccinated. We strive to have messaging that reflects the latest evidence and provides the public with important information to help them make informed decisions.
We appreciate your feedback.

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1)
Sent: Friday, September 10, 2021 12:05 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Subject: Re: question from client

My question is why wait until after the fact? Until people have symptoms to address the situation. Would it not be useful for people to know the severity and the seriousness that could lead up to covid Long Haul? I think it would help people to know the potential because for some they seem to think that cold it is nothing more than the common flu.

Get Outlook for Android

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: Thursday, September 9, 2021 8:44:18 AM
To: 21(1) [redacted]
Subject: FW: question from client

Hello 21(1) [redacted]
Thank you for your email. We are working on information for the public and primary care providers on COVID long haul.
In addition, all positive COVID-19 cases in New Brunswick who have expressed a willingness to participate in research on COVID long haul are being asked to enroll in the TripleC-NB registry, a collaborative effort between researchers in the Horizon and Vitalité Health Networks. This registry aims to track COVID-19 cases to determine what, if any, ongoing health changes are experienced by these individuals, how long they persist, and what specific changes from their baseline health have been noted. Those enrolled are contacted monthly until two consecutive follow-up calls have no reports of ongoing health changes.

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: Friday, September 3, 2021 2:40 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Subject: Re: question from client

ATTENTION! External email / courriel externe.

I have yet to have an answer regarding my question. Is this something that dr. Russell plans on addressing?

Get Outlook for Android

From: 21(1) [redacted]
Sent: Wednesday, September 1, 2021 3:50:14 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Subject: Re: question from client

My question is why has doctor Russell not addressed this issue in her news conferences? There is a Facebook group called covid long haulers Canada that has over 14,000 people in the group. I think it would be helpful to those experiencing symptoms to know about this issue and for those who do not take covid seriously.

Get Outlook for Android

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: Wednesday, September 1, 2021 3:33:58 PM
To: 21(1) [redacted]
Subject: RE: question from client

Good afternoon 21(1) [redacted]

We received an email that you have some questions regarding Covid-19 long haulers.

You can send your questions to this email and we will do our best to get an answer for you.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19: www.gnb.ca/coronavirus
● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From:	Chalifoux, Mathieu (DH/MS)
To:	Leger, Dr. Yves (DH/MS); Salmon, Dr. Andrew (DH/MS); Barker, Dr. Kimberley (DH/MS); Rahman, Dr. Arifur (DH/MS); McKelvie, Dr. Mark (DH/MS)
Cc:	Russell, Dr. Jennifer (DH/MS)
Subject:	FW: CITF NR | McMaster on causes of long COVID-19 --- Communiqué du GTIC | l'Université McMaster étudie les causes de la COVID longue
Date:	November 2, 2021 3:25:24 PM

As an FYI.

From: Wilson, Carolle A (HC/SC) <carolle.a.wilson@hc-sc.gc.ca> **On Behalf Of** PHN Comms / RSP (HC/SC)
Sent: Tuesday, November 2, 2021 3:19 PM
To: Amy Crofts <Amy.Crofts@albertahealthservices.ca>; Andrea Ruttan (ISC) <andrea.ruttan@sac-isc.gc.ca>; Battistone, Courtney <Courtney.Battistone6@ontario.ca>; Beryl Cullum <Beryl.Cullum@gov.ab.ca>; Bird, Jeremy <Jeremy_Bird@gov.nt.ca>; Boldt, Perry (HC/SC) <perry.boldt@hc-sc.gc.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Catherine Fraser (ON) <catherine.fraser@ontario.ca>; Caux, Marie-Michele (HC/SC) <marie-michele.caux@hc-sc.gc.ca>; Chris Puglia (NU) <cpuglia@gov.nu.ca>; Colleen Book (SK) <Colleen.Book@health.gov.sk.ca>; Crowder, Cassandra <cassandra.crowder@canada.ca>; Cuthbert, Susan (HC/SC) <susan.cuthbert@hc-sc.gc.ca>; Davis McKenzie (First Nations Health Authority) <davis.mckenzie@fnha.ca>; Demaine, Erika (HC/SC) <erika.demaine@phac-aspc.gc.ca>; Denis Murphy (ON) <Denis.Murphy@ontario.ca>; Dorothy Westerman (NWT) <dorothy_westerman@gov.nt.ca>; Earley, Jaimie (HC/SC) <jaimie.earley@hc-sc.gc.ca>; Erin Turcotte <erin.turcotte@canada.ca>; fannie ouellette <fannie.ouellette@canada.ca>; Genevieve Cyr <genevieve.cyr@msss.gouv.qc.ca>; Gillian MacDonald <Gillian.MacDonald2@ontario.ca>; Gillis, Lisa (HC/SC) <lisa.gillis@hc-sc.gc.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; heather amos <heather.amos@bccdc.ca>; Heather Amos (BCCDC) <Heather.Amos@phsa.ca>; Holly McGarr <holly.mcgarr@canada.ca>; Janet Mezzarobba (AHS) <Janet.mezzarobba@ahs.ca>; Joan Petrie <joan.petrie@health.gov.sk.ca>; Julie Menard (YK) <julie.menard@gov.yk.ca>; Karen Hill (SK) <Karen.Hill@health.gov.sk.ca>; Kocent, Marissa (HC/SC) <marissa.kocent@hc-sc.gc.ca>; Krawchenko, Elaine (HC/SC) <elaine.krawchenko@hc-sc.gc.ca>; Kristin Whitworth (Alberta Health Services) <Kristin.Whitworth@ahs.ca>; Lapierre, Genevieve (HC/SC) <genevieve.lapierre@hc-sc.gc.ca>; Laura Hillier <Laura.Hillier@yukon.ca>; Lenore Kowalchuk <Lenore.Kowalchuk@gov.mb.ca>; Libby Brown <libby.brown@phsa.ca>; Lisa Sutherland <Lisa.Sutherland@albertahealthservices.ca>; Lumbu, Maganga (HC/SC) <maganga.lumbu@hc-sc.gc.ca>; Magee, Heather (HC/SC) <heather.magee@hc-sc.gc.ca>; Margot Geduld <margot.geduld2@canada.ca>; marilyne nahum <marilyne.nahum@canada.ca>; Mcdougald, Catherine (HC/SC) <catherine.mcdougald@hc-sc.gc.ca>; McNaughton, Joleen (HC/SC) <joleen.mcnaughton@hc-sc.gc.ca>; Michael Fenn <Michael.Fenn@ontario.ca>; Michael Francoeur (Alberta) <michael.francoeur@gov.ab.ca>; Michelle Boleen (YK) <Michelle.boleen@gov.yk.ca>; Morgan Martin <mxmartin@gov.pe.ca>; Murphy, Lori (HC/SC) <lori.murphy@hc-sc.gc.ca>; O'Neill, Melony <MelonyOneill@gov.nl.ca>; Paine, Debbie (HC/SC) <debbie.paine@hc-sc.gc.ca>; Patti Fanslau (MB) <Patti.Fanslau@gov.mb.ca>; Proulx, Isabelle (HC/SC) <isabelle.proulx@hc-sc.gc.ca>; Quesada-Echavarria, Marcela (HC/SC) <marcela.quesada-echavarria@hc-sc.gc.ca>; Rebecca

Crittenden <Rebecca.Crittenden@ontario.ca>; Rosie Jobin (QC) <rosie.jobin@msss.gouv.qc.ca>; Russo, Laura (HC/SC) <laura.russo@hc-sc.gc.ca>; Saint-Martin, Estelle <estelle.saint-martin@ontario.ca>; Samantha Hughes (PE) <shughes@gov.pe.ca>; Smith, Cheryl (HC/SC) <cheryl.smith@hc-sc.gc.ca>; Sutendra, Umesh <Umesh_Sutendra@gov.nt.ca>; Tammy Sawatzky (MB) <Tammy.Sawatzky@gov.mb.ca>; Tina Williams (NL) <TinaWilliams@gov.nl.ca>; Tony Kiritsis <Tony.Kiritsis@novascotia.ca>; Trevor Kehoe (First Nations Health Authority) <trevor.kehoe@fnha.ca>; Turcotte, Erin (HC/SC) <erin.turcotte@hc-sc.gc.ca>; Wilson, Carolle A (HC/SC) <carolle.a.wilson@hc-sc.gc.ca>; Wind, Andrew <Andrew_Wind@gov.nt.ca>; Wong, Janet <Janet.Wong@oahpp.ca>
Cc: Caux, Marie-Michele (HC/SC) <marie-michele.caux@hc-sc.gc.ca>; McNaughton, Joleen (HC/SC) <joleen.mcnaughton@hc-sc.gc.ca>; Mcdougald, Catherine (HC/SC) <catherine.mcdougald@hc-sc.gc.ca>; PHN Comms / RSP (HC/SC) <phn.comms-rsp@hc-sc.gc.ca>
Subject: CITF NR | McMaster on causes of long COVID-19 --- Communiqué du GTIC | l'Université McMaster étudie les causes de la COVID longue

ATTENTION! External email / courriel externe.

Hello,

The Government of Canada, through the COVID-19 Immunity Task Force (CITF), is supporting a McMaster University study on the long-term illness suffered by some patients after they've recovered from COVID-19, which may be caused by immune dysfunction.

News release: McMaster researchers investigate causes of long COVID - COVID-19 Immunity Task Force (covid19immunitytaskforce.ca)

Bonjour,

Le gouvernement du Canada, par l'entremise du Groupe de travail sur l'immunité face à la COVID-19, appuie une étude de l'Université McMaster sur la maladie de longue durée dont souffrent certains patients après leur rétablissement de la COVID-19, qui pourrait être causée par un dysfonctionnement immunitaire.

Communiqué : Des chercheurs de l'Université McMaster étudient les causes de la COVID longue - Groupe de travail sur l'immunité face à la COVID-19 (covid19immunitytaskforce.ca)

Carolle Wilson

Communications Officer, Pandemic Communications Response Directorate (FPT Communications)
Health Canada and Public Health Agency of Canada / Government of Canada
Carolle.a.wilson@hc-sc.gc.ca

Agente des communications, Direction de la communication en cas de pandémie (Communications FPT)
Santé Canada et l'Agence de la santé publique du Canada / Gouvernement du Canada

Carolle.a.wilson@hc-sc.gc.ca

From:	Rahman, Dr. Arifur (DH/MS)
To:	Chalifoux, Mathieu (DH/MS); Leger, Dr. Yves (DH/MS); Salmon, Dr. Andrew (DH/MS); Barker, Dr. Kimberley (DH/MS); McKelvie, Dr. Mark (DH/MS)
Cc:	Russell, Dr. Jennifer (DH/MS)
Subject:	RE: CITF NR | McMaster on causes of long COVID-19 --- Communiqué du GTIC | l'Université McMaster étudie les causes de la COVID longue
Date:	November 2, 2021 3:35:50 PM

Thank you, Mathieu, for sharing the information.

Arifur

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: November 2, 2021 3:25 PM
To: Leger, Dr. Yves (DH/MS) <Yves.Leger@gnb.ca>; Salmon, Dr. Andrew (DH/MS) <Dr.Andrew.Salmon@gnb.ca>; Barker, Dr. Kimberley (DH/MS) <Kimberley.Barker@gnb.ca>; Rahman, Dr. Arifur (DH/MS) <Dr.Arifur.Rahman@gnb.ca>; McKelvie, Dr. Mark (DH/MS) <Mark.McKelvie@gnb.ca>
Cc: Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>
Subject: FW: CITF NR | McMaster on causes of long COVID-19 --- Communiqué du GTIC | l'Université McMaster étudie les causes de la COVID longue

As an FYI.

From: Wilson, Carolle A (HC/SC) <carolle.a.wilson@hc-sc.gc.ca> **On Behalf Of** PHN Comms / RSP (HC/SC)
Sent: Tuesday, November 2, 2021 3:19 PM
To: Amy Crofts <Amy.Crofts@albertahealthservices.ca>; Andrea Ruttan (ISC) <andrea.ruttan@sac-isc.gc.ca>; Battistone, Courtney <Courtney.Battistone6@ontario.ca>; Beryl Cullum <Beryl.Cullum@gov.ab.ca>; Bird, Jeremy <Jeremy_Bird@gov.nt.ca>; Boldt, Perry (HC/SC) <perry.boldt@hc-sc.gc.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Catherine Fraser (ON) <catherine.fraser@ontario.ca>; Caux, Marie-Michele (HC/SC) <marie-michele.caux@hc-sc.gc.ca>; Chris Puglia (NU) <cpuglia@gov.nu.ca>; Colleen Book (SK) <Colleen.Book@health.gov.sk.ca>; Crowder, Cassandra <cassandra.crowder@canada.ca>; Cuthbert, Susan (HC/SC) <susan.cuthbert@hc-sc.gc.ca>; Davis McKenzie (First Nations Health Authority) <davis.mckenzie@fnha.ca>; Demaine, Erika (HC/SC) <erika.demaine@phac-aspc.gc.ca>; Denis Murphy (ON) <Denis.Murphy@ontario.ca>; Dorothy Westerman (NWT) <dorothy_westerman@gov.nt.ca>; Earley, Jaimie (HC/SC) <jaimie.earley@hc-sc.gc.ca>; Erin Turcotte <erin.turcotte@canada.ca>; fannie ouellette <fannie.ouellette@canada.ca>; Genevieve Cyr <genevieve.cyr@msss.gouv.qc.ca>; Gillian MacDonald <Gillian.MacDonald2@ontario.ca>; Gillis, Lisa (HC/SC) <lisa.gillis@hc-sc.gc.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; heather amos <heather.amos@bccdc.ca>; Heather Amos (BCCDC) <Heather.Amos@phsa.ca>; Holly McGarr <holly.mcgarr@canada.ca>; Janet Mezzarobba (AHS) <Janet.mezzarobba@ahs.ca>; Joan Petrie <joan.petrie@health.gov.sk.ca>; Julie Menard (YK) <julie.menard@gov.yk.ca>; Karen Hill (SK) <Karen.Hill@health.gov.sk.ca>; Kocent, Marissa (HC/SC) <marissa.kocent@hc-sc.gc.ca>;

Krawchenko, Elaine (HC/SC) <elaine.krawchenko@hc-sc.gc.ca>; Kristin Whitworth (Alberta Health Services) <Kristin.Whitworth@ahs.ca>; Lapierre, Genevieve (HC/SC) <genevieve.lapierre@hc-sc.gc.ca>; Laura Hillier <Laura.Hillier@yukon.ca>; Lenore Kowalchuk <Lenore.Kowalchuk@gov.mb.ca>; Libby Brown <libby.brown@phsa.ca>; Lisa Sutherland <Lisa.Sutherland@albertahealthservices.ca>; Lumbu, Maganga (HC/SC) <maganga.lumbu@hc-sc.gc.ca>; Magee, Heather (HC/SC) <heather.magee@hc-sc.gc.ca>; Margot Geduld <margot.geduld2@canada.ca>; marilyne nahum <marilyne.nahum@canada.ca>; Mcdougald, Catherine (HC/SC) <catherine.mcdougald@hc-sc.gc.ca>; McNaughton, Joleen (HC/SC) <joleen.mcnaughton@hc-sc.gc.ca>; Michael Fenn <Michael.Fenn@ontario.ca>; Michael Francoeur (Alberta) <michael.francoeur@gov.ab.ca>; Michelle Boleen (YK) <Michelle.boleen@gov.yk.ca>; Morgan Martin <mxmartin@gov.pe.ca>; Murphy, Lori (HC/SC) <lori.murphy@hc-sc.gc.ca>; O'Neill, Melony <MelonyOneill@gov.nl.ca>; Paine, Debbie (HC/SC) <debbie.paine@hc-sc.gc.ca>; Patti Fanslau (MB) <Patti.Fanslau@gov.mb.ca>; Proulx, Isabelle (HC/SC) <isabelle.proulx@hc-sc.gc.ca>; Quesada-Echavarria, Marcela (HC/SC) <marcela.quesada-echavarria@hc-sc.gc.ca>; Rebecca Crittenden <Rebecca.Crittenden@ontario.ca>; Rosie Jobin (QC) <rosie.jobin@msss.gouv.qc.ca>; Russo, Laura (HC/SC) <laura.russo@hc-sc.gc.ca>; Saint-Martin, Estelle <estelle.saint-martin@ontario.ca>; Samantha Hughes (PE) <shughes@gov.pe.ca>; Smith, Cheryl (HC/SC) <cheryl.smith@hc-sc.gc.ca>; Sutendra, Umesh <Umesh_Sutendra@gov.nt.ca>; Tammy Sawatzky (MB) <Tammy.Sawatzky@gov.mb.ca>; Tina Williams (NL) <TinaWilliams@gov.nl.ca>; Tony Kiritsis <Tony.Kiritsis@novascotia.ca>; Trevor Kehoe (First Nations Health Authority) <trevor.kehoe@fnha.ca>; Turcotte, Erin (HC/SC) <erin.turcotte@hc-sc.gc.ca>; Wilson, Carolle A (HC/SC) <carolle.a.wilson@hc-sc.gc.ca>; Wind, Andrew <Andrew_Wind@gov.nt.ca>; Wong, Janet <Janet.Wong@oahpp.ca>
Cc: Caux, Marie-Michele (HC/SC) <marie-michele.caux@hc-sc.gc.ca>; McNaughton, Joleen (HC/SC) <joleen.mcnaughton@hc-sc.gc.ca>; Mcdougald, Catherine (HC/SC) <catherine.mcdougald@hc-sc.gc.ca>; PHN Comms / RSP (HC/SC) <phn.comms-rsp@hc-sc.gc.ca>
Subject: CITF NR | McMaster on causes of long COVID-19 --- Communiqué du GTIC | l'Université McMaster étudie les causes de la COVID longue

Hello,

The Government of Canada, through the COVID-19 Immunity Task Force (CITF), is supporting a McMaster University study on the long-term illness suffered by some patients after they've recovered from COVID-19, which may be caused by immune dysfunction.

News release: McMaster researchers investigate causes of long COVID - COVID-19 Immunity Task Force (covid19immunitytaskforce.ca)

Bonjour,

Le gouvernement du Canada, par l'entremise du Groupe de travail sur l'immunité face à la COVID-

19, appuie une étude de l'Université McMaster sur la maladie de longue durée dont souffrent certains patients après leur rétablissement de la COVID-19, qui pourrait être causée par un dysfonctionnement immunitaire.

Communiqué : Des chercheurs de l'Université McMaster étudient les causes de la COVID longue - Groupe de travail sur l'immunité face à la COVID-19 (covid19immunitytaskforce.ca)

Carolle Wilson

Communications Officer, Pandemic Communications Response Directorate (FPT Communications)
Health Canada and Public Health Agency of Canada / Government of Canada
Carolle.a.wilson@hc-sc.gc.ca

Agente des communications, Direction de la communication en cas de pandémie (Communications FPT)
Santé Canada et l'Agence de la santé publique du Canada / Gouvernement du Canada
Carolle.a.wilson@hc-sc.gc.ca

From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	Andy_DelliPizzi@gov.nt.ca; annick.descormiers@msss.gouv.qc.ca; Archibald, Chris (PHAC/ASPC); Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; caroline_newberry@gov.nt.ca;; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; Cidsc Secretariat (PHAC/ASPC); cindy.rogers@health.gov.sk.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; deidre_falck@gov.nt.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fitzgerald-Husek, Alanna (PHAC/ASPC); Gaudreau, Marc-Andre (PHAC/ASPC); George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Horacio Arruda; Jayne Boutilier; jesse kancir; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; Njoo, Howard (PHAC/ASPC); OCMHO@health.gov.sk.ca; prahman@mun.ca; RaaFat Gad, Dr. Rita (DH/MS); richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; Sciberras, Jill (PHAC/ASPC); LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca; Vladimir Gilca
Subject:	OCSO Biweekly Post COVID-19 Condition Scan #10 - Oct 23-Nov 5
Date:	November 5, 2021 6:39:40 PM
Attachments:	OCSO Post-COVID Condition Scan 10_Nov 5_2021.pdf

---

TAC Members,

Please find attached the latest OCSO COVID-19 environmental scan. The biweekly products present an overview of the current state of knowledge, and emerging evidence on **Post-COVID-19 Condition** (Oct 23 to Nov 5). Of interest, this issue includes an update of the PHAC living systematic review on the prevalence of long-term effects in individuals diagnosed with COVID-19.

Thanks,

TAC Secretariat

on Behalf of the Office of Chief Science Officer and the PHAC Emerging Science Group Evidence Team

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #10

Oct 23 - Nov 5th, 2021

SCOPE

This monthly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc.) Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Internationally, multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term.

This month's scan includes an updated living systematic review by PHAC on the prevalence of long-term effects in individuals diagnosed with COVID-19, as well as a systematic review on recommendations for returning athletes who have experienced long term COVID-19 symptoms.

EMERGING GUIDELINES OR STANDARDS

- The **World Health Organization** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve. A separate definition may be applicable for children.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals were published in UK **NICE** in December 2020 (*Figure 1, Appendix*).

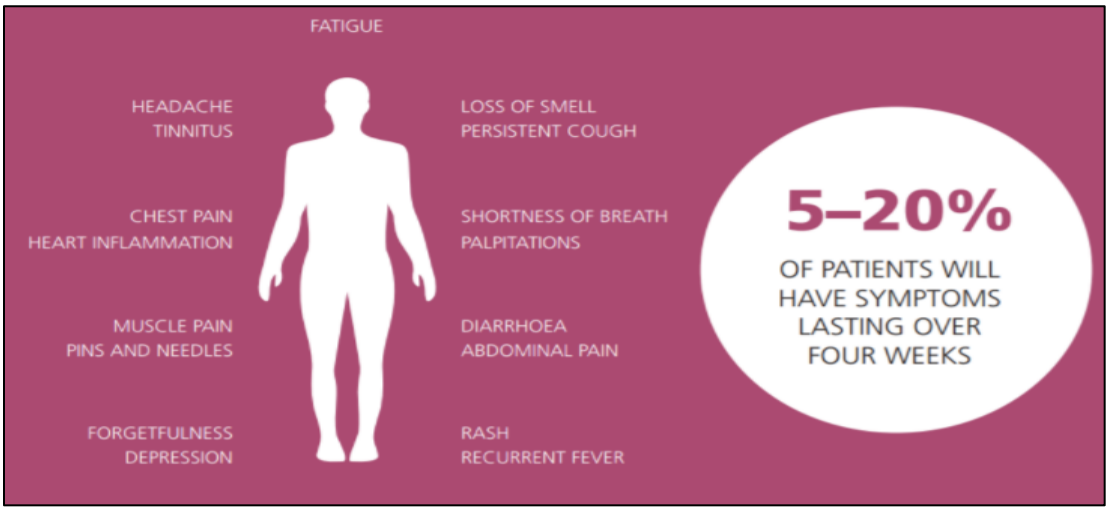
- The Chartered Society of Physiotherapy in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients were published in August 2021 in *British Journal of General Practice*.

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for Canadian Rehabilitation and Exercise Professionals on Post COVID-19 condition and rehabilitation management strategies (August 2021).



Source: European Observatory on Health Systems and Policies: In the wake of the pandemic: preparing for Long COVID (2021)

NATIONAL AND INTERNATIONAL DEVELOPMENTS

CANADA

- In Canada, **11 public clinics** have been identified so far:
  - Alberta: Rockyview General Hospital, Peter Lougheed Centre, Primary Care Network: Edmonton North
  - British Columbia: Abbotsford Regional Hospital, Jim Pattison Outpatient Care and Surgery Centre, Vancouver General Hospital, St. Paul's Hospital
  - Ontario: London Health Sciences Centre, Toronto Rehabilitation Institute (UHN)
  - Quebec: Montreal Clinical Research Institute Post-COVID-19 Clinic, Clinique ambulatoire post-COVID (in French only)
  - There are also **39 private clinics across Canada**.
- Lifemark Health Group has a Post COVID-19 Rehabilitation and Recovery Program with locations across 6 provinces.
- Alberta Health Services developed a resource to support rehabilitation and allied health providers across the care continuum working with patients recovering from symptoms of COVID-19.
- Hôtel-Dieu Grace Healthcare launched a COVID Recovery program to help people suffering from effects of COVID-19.
- Nova Scotia launched a website with information on managing or treating the lingering symptoms of COVID-19.
- The Other Pain Clinic Inc COVID Rehab & Survivorship Program in Alberta aims to treat people with post COVID symptoms to allow them to have a better quality of life. The program also has a virtual care option.

PHAC AND PARTNER ACTIVITIES:

- Monitoring latest research and evidence on Post COVID-19 condition and engaging with national and international experts.
  - (NEW) **PHAC** published an *updated* living systematic review on the prevalence of Post COVID-19 condition. 2 new reviews are also being undertaken to gain a better understanding of 1) risk factors associated with the condition and 2) possible interventions to prevent the condition.
  - **CPHO** released a statement about Post COVID-19 Condition on July 7th, 2021.
  - Web content on Post COVID-19 Condition is published on the Government of Canada's website.
- PHAC is exploring data sources for **surveillance**
  - Canadian Primary Care Sentinel Surveillance System
  - Initial environmental scan of provincial/territorial initiatives examining impact of COVID-19 on vulnerable populations using administrative health data.
- **CIHR COVID-19 Rapid Research Funding Opportunity** (May 2020)
  - Over 10 projects directly examining long-term implications of COVID-19 (Figure 2, *Appendix*).
  - Canadian COVID-19 Prospective Cohort Study ($**~2.7M**): Evaluating early to 1-year outcomes in 2000 patients across AB, BC, ON, & BC with COVID-19 infection.
- **CIHR Emerging COVID-19 Research Gaps and Priorities Funding Opportunity** (March 2021)
  - Specific research focusing on identifying, defining & addressing Post COVID-19 condition to understand biological & psychological impacts. Select funded projects can be found in *Appendix (Figure 3*).

UK

- NIHR & UKRI:
  - Previous calls: **~£25M** to better understand long-term effects of COVID-19 on physical & mental health
  - Current call: **~£20M** focused on non-hospitalized adults & children with post COVID-19 condition
  - NIHR awarded **£19.6M** to 15 projects across the UK to help diagnose and treat long COVID.
- NHS England and NHS Improvement will provide **£70 million** to expand long COVID services beyond Post-COVID Assessment Clinics to strengthen treatment and rehabilitation.
- Additional funding for ICSs adding to £24 million already provided to **89** specialist Post-COVID Assessment Clinics around England, bringing total investment in 2021/22 to **£94 million**. NHS will also establish specialist long COVID services for children and young people.

- UK Office for National Statistics released statistics on long COVID showing overall UK prevalence estimate of **1.5%**. Research shows **2 million** people in England may have had long COVID, with women and lower-income people particularly susceptible.
- NHS Your COVID Recovery platform is an online, tailored rehabilitation program that enables patients to be monitored by local rehabilitation teams to ensure they are on track with their care.
- The PHOSP COVID study is a national consortium, led by experts in the UK, to investigate long term impacts of COVID-19 on health outcomes for patients who were hospitalised due to COVID-19. Data that is collected during the study will be used globally, collaborating with the European Respiratory Society and Canadian Thoracic Society, to understand the long terms impacts of COVID-19 on health worldwide.
- Up to 1 in 7 (14%) children and young people who caught SARS-CoV-2 may have symptoms linked to the virus 15 weeks later, according to preliminary findings from the world's largest study on long COVID in children.
- UK Collaborative on Development Research highlighted there's over **121** long COVID projects, involving **$205 million** funding investment, with the top funder being UKRI (as of July 2021).
- Guidance for people suffering from long COVID has been launched by the NHS 24 (Scotland).

USA

Post-Acute Sequelae of SARS-COV-2 Infection Initiative (NIH PASC): $1.15B/4 years

- Focus: Understand biological basis of PASC & factors contributing to vulnerability
- Current call: Recovery Cohort Studies, Clinical Science, Data Resource & PASC Biorepository Cores

- NIH has invested in longitudinal studies to record the recovery paths of ~40,000 adults and children in a 'meta-cohort', to observe who develops long-term effects and who doesn't.
- Based on media reports, **80 post-COVID-19 clinics** were actively engaging with COVID-19 patients as of March 2021. 64 of these clinics surveyed have seen a combined total of **~10,000 patients**. A Becker's Hospital Review article (Aug 2021) stated that **44** hospitals and health systems have launched post-COVID-19 clinics. 11.1 million Americans are living with long COVID, according to the American Academy of Physical Medicine & Rehabilitation.
- Virtua Health offers a nationwide "Care After COVID" program to help those experiencing post COVID symptoms.
- A **$40 million** multi-year study from Children's National Hospital and NIAID examining long-term effects of COVID-19 and multisystem inflammatory syndrome in children.
- NIH has created the REsearching COVID to Enhance Recovery (RECOVER) Initiative and awarded **$470 million** to create a national study population of volunteers, as well as support studies on long-term effects of COVID-19.
- Brown School of Public Health launched the long COVID initiative to examine the social and economic impacts of long COVID — including on the workplace — through an equity lens, with the goal of developing policy recommendations.
- (NEW) NIH to study long-term effects of COVID-19 in pregnancy by following up to 1,500 pregnant patients with COVID-19 and their offspring for 4 years, as part of NIH's RECOVER Initiative.

EMERGING SCIENTIFIC EVIDENCE

EVIDENCE PRODUCTS (*OCT 23-NOV 5, 2021*)

TITLE	EVIDENCE TYPE	SUMMARY
Multisystemic long-term sequelae of covid-19: A review based on the current literature over a year of pandemic experience (Sahin et al)	Review (Available in *Eurasian J Med Oncol*)	This review aims to examine current literature regarding COVID-19, identify post-illness sequelae, detect patients at risk for sequelae, and provide guidance to management strategies. Long-term pulmonary sequels and systemic problems of COVID-19 are discussed in accordance with recent scientific publications.
Long COVID and Post-infective Fatigue Syndrome: A Review (Sandler et al)	Review (Available in *Open Forum Infect Dis*)	Fatigue is a dominant feature of both acute and convalescent COVID-19, with up to 46% of patients reporting fatigue that lasts from weeks to months. Investigators of the international Collaborative on Fatigue Following Infection (COFFI) conducted a systematic review of post-COVID fatigue and a narrative

		review on fatigue after other infections, and made recommendations for clinical and research approaches to assessing fatigue after COVID-19. To better characterize post-COVID fatigue, the COFFI investigators recommend: application of validated screening questionnaires for case detection; standardized interviews encompassing fatigue, mood, and other symptoms; and investigative approaches to identify end-organ damage and mental health conditions.
What are the recommendations for returning athletes who have experienced long term COVID-19 symptoms (Lindsay et al)	Systematic Review (Available in *Ann Med*)	Aim of systematic review is to synthesise recommendations for returning athletes who experienced long COVID symptoms. Further research, including longitudinal research of athletes who tested positive for COVID-19, is required to develop evidenced-based guidelines for athletes with ongoing COVID-19 symptoms. Prior to returning to play after COVID-19, a medical history, physical and psychological examination should be conducted by medical professional. Athletes should continue to monitor and record physical and psychological markers of health.
Prevalence of long-term effects in individuals diagnosed with COVID-19: an updated living systematic review (Reyes Domingo et al)	Systematic Review (Available in *medRxiv*)	Objective of living systematic review is to summarize prevalence of symptoms and sequelae reported by people ≥4 weeks after COVID-19 diagnosis. Over 100 post COVID-19 symptoms and sequelae were reported. 61% and 53% of laboratory-confirmed individuals reported persistence or presence of one or more symptoms in the short- and long-term periods, respectively. Most prevalent symptoms in both periods included: fatigue, general pain or discomfort, shortness of breath, cognitive impairment and mental health symptoms. A substantial proportion of individuals reported a variety of symptoms ≥4 weeks after COVID-19 diagnosis. Due to gaps in research base, and low certainty of evidence available, further research needed to determine true burden of post COVID-19 condition in general population and in specific subgroups.

SELECT PRIMARY RESEARCH (*OCT 23-NOV 5, 2021*)

TITLE	SOURCE	SUMMARY
Long COVID syndrome-associated brain fog (Asadi-Pooya et al)	*J Med Virol*	Study investigated frequency of brain fog in large cohort of patients with COVID-19 who have survived the illness. They scrutinized potential risk factors associated with development of brain fog. 2696 patients had the inclusion criteria; 62.3% people reported long COVID syndrome (LCS). LCS-associated brain fog was reported by 7.2% patients.
Retrospective diagnosis of SARS-CoV-2 infection in patients with Long COVID by measuring specific T cell mediated IL-2 release (Krishna et al)	*Research Square Prepub*	Study designed a SARS-CoV-2 specific T cell assay to follow up a cohort of undifferentiated, mostly non-hospitalized patients with long COVID for up to 13 months. IL-2 release from SARS-CoV-2-specific memory T cells shows >75% sensitivity and >88% specificity in identifying individuals with confirmed SARS-CoV-2 infection > six months after a positive PCR test.
Post COVID-19 sequelae: A prospective observational study from Northern India (Naik et al)	*Drug Discov Ther*	Aim of study was to describe clinical features and risk factors of post COVID-19 sequelae in North Indian population. Long COVID symptoms were common (22%), and 9.9% had post COVID-19 syndrome. Myalgias, fatigue and dyspnoea were common symptoms. Patients with hypothyroidism and hypoxia during acute illness were at higher risk of long COVID.
Persistence of sleep disturbance among post-COVID patients: Findings from a 2-month follow-up study in a Bangladeshi cohort (Islam et al)	*J Med Virol*	Aim was to evaluate persistence and factors associated with sleep disturbances among COVID-19 patients with history of sleep disturbances 2 months after discharge from hospital. 35% of study participants were still experiencing symptoms of sleep disturbances. Age and diabetes mellitus were independently associated with sleep disturbances among participants.
Post COVID-19 in children, adolescents, and adults: results of a matched cohort study including more than 150,000 individuals with COVID-19 (Roessler et al)	*medRxiv*	Utilizing comprehensive healthcare data on over 45% of the German population, researchers investigated post COVID-19 in children/adolescents and adults. COVID-19 and control cohorts were followed for incident morbidity outcomes documented at least 3 months after date of COVID-19 diagnosis. Results showed specific outcomes with highest IRR and an incidence rate of at least 1/100 person-years in COVID-19 cohort in children and adolescents were malaise/ fatigue/ exhaustion, cough, and throat/chest pain.

Symptoms compatible with long-COVID in healthcare workers with and without SARS-CoV-2 infection – results of a prospective multicenter cohort (Strahm et al)	*medRxiv*	Study assessed frequency and risk factors for symptoms compatible with long-COVID in cohort of healthcare workers (HCW). Of 3'334 HCW, 17% had a positive NPS and 7% were seropositive. HCW with positive NPS more frequently reported ≥1 symptom compared to controls. Acute viral symptoms in weekly questionnaires best predicted long-COVID symptoms. Physical activity at baseline was negatively associated with neurocognitive impairment and fatigue scores.
Long-Term Effects of COVID-19 on Health Care Workers 1-Year Post-Discharge in Wuhan (Liao et al)	*Infect Dis Ther*	Study assessed long-term consequences of COVID-19 among health care workers (HCWs) in China. Most surviving HCWs, especially female HCWs, still had abnormal diffusion capacity at 1 year. Physical and psychiatric functions of surviving HCWs were significantly worse than those of the healthy population.
COVCOG 1: Factors predicting Cognitive Symptoms in Long COVID. A First Publication from the COVID and Cognition Study (Guo et al)	*medRxiv*	The COVID and Cognition Study is a part cross–sectional, part longitudinal, study aiming to understand cognitive problems in long COVID. In this paper, we document characteristics of sample of 181 individuals who had COVID–19 infection, and 185 who had not. Severity of initial illness is significant predictor of presence and severity of ongoing symptoms. Some symptoms during acute illness, particularly limb weakness, may be more common in those with more severe ongoing symptoms. We found neurological and fatigue symptoms during initial illness, and neurological and cardiopulmonary symptoms during ongoing illness, predicted experience of cognitive symptoms.
COVCOG 2: Cognitive and Memory Deficits in Long COVID: A Second Publication from the COVID and Cognition Study (Guo et al)	*medRxiv*	This paper explored characteristics of a sample of individuals who suffered COVID-19 infection to assess tests of memory, language and executive function. We found consistent pattern of memory deficits in those that had COVID-19 infection, with deficit increasing with severity of self-reported ongoing symptoms. Fatigue/systemic symptoms during initial illness and ongoing neurological symptoms were predictive of cognitive performance.
Patient symptoms and experience following COVID-19: results from a UK-wide survey (Buttery et al)	*BMJ Open Respir Res*	Mixed-methods analysis aims to investigate experience of people who continue to be unwell after acute COVID-19 ('long COVID'), both in terms of symptoms and interactions with healthcare in UK. Symptoms did not appear to be related to severity of acute illness or to presence of pre-existing medical conditions. Analysis of responses revealed 3 themes: (1) experience of living with COVID-19: physical and psychological symptoms that fluctuate unpredictably; (2) interactions with healthcare that were unsatisfactory; (3) implications for future: their own condition, society and healthcare system, and need for research
Systemic corticosteroids for management of 'long-COVID': an evaluation after 3 months of treatment (Goel et al)	*Monaldi Arch Chest Dis*	During the study duration, out of the 4,542 patients managed in outpatient department of unit, there were 49 patients of Long-COVID. We retrospectively analysed clinical and radiological findings of patients at first presentation and at about 3 months of follow up visit. Occurrence of breathlessness decreased from 91.83% to 44.89% and cough from 77.55% to 8.16%. 24 patients were prescribed systemic steroids. Majority of patients who were tachypnoeic and hypoxic at rest showed improvement post-treatment with corticosteroids.

COMMENTARIES, LETTERS AND OPINION PIECES

- **Long COVID risk - a signal to address sex hormones and women's health (*Lancet*):** Vulnerability to and mortality from acute COVID-19 infection is higher in men, whereas, long COVID disproportionately affects women. Many symptoms of long COVID have a significant overlap with the perimenopause and menopause, both which can affect women of all ages. There is urgent need for robust research to help understand the epidemiological basis, as well as the underlying biological mechanisms for sex-differences in Long COVID.

- **Recommendations for the recognition, diagnosis, and management of long COVID - a Delphi study (*Br J Gen Pract*):** A Delphi study was conducted with a panel of primary and secondary care doctors. Recommendations were generated relating to the investigation and management of long COVID. GPs should consider long COVID in the presence of a wide range of presenting features and exclude differential diagnoses where appropriate. Long COVID clinics should operate as part of an integrated care system, with GPs playing a key role in the multidisciplinary team. Holistic care pathways, investigation of specific complications, management of potential symptom clusters, and tailored rehabilitation are needed.

MEDIA HIGHLIGHTS

CANADA

- **'Is this my life forever?' The unexpected — and frightening — impact of Long COVID on young Canadians**: *Toronto Star* reports on the stories of long haulers and notes symptoms such as sensitivity to light and sound, a distorted sense of taste and unexplained allergic reactions. It's believed about 10% of people infected with COVID-19 will have persistent effects 12 months later.
- **McMaster researchers study the causes of 'Long COVID'**: *CHCH* reports scientists at McMaster University are conducting research on the long-term effects patients suffered from after they recovered from COVID-19. The Government of Canada is investing $500,000 in this study. The funding will allow scientists to understand if COVID-19 triggers immune responses that cause chronic symptoms and potentially increase the risk of future diseases like lupus. The team will track 120 patients with long-haul symptoms.
- **COVID-19: Some patients still suffering 18 months after first diagnosis**: *Vancouver Sun* highlighted that as soon as the Post-COVID-19 Recovery Clinic in Surrey was up and running, patients in their 30s and 40s were complaining of draining effects from the disease. The clinic has gone from being open part-time and seeing about 8 patients a week when it launched in January, to being open 5 days a week, being pre-booked up, seeing new patients, following up for 18 months. Between the 4 clinics, more than 2,500 patients with ongoing long-COVID symptoms have been seen. Some of the information and treatment strategies around long-COVID symptoms is gleaned from experiences with other viruses including SARS and MERS.

GLOBAL

- **How Covid attacks the brain may explain long-lasting symptoms**: *NBC News* reports on some new research that may shed light on why some people experience ongoing neurological symptoms, such as brain fog.
- **UK launches trial of drug to tackle fatigue in long Covid patients**: *The Guardian* reported the first trial of a drug to target the fatigue and muscle weakness experienced by more than half of people with long Covid has been launched in the UK. It is also the first drug trial in long Covid patients who were not hospitalised during their initial infection.
- **Long Covid: what are you entitled to if you can't work in the UK?**: *The Guardian* notes 1m Britons report symptoms and many are unable to work – but there are benefits and arrangements in place. Those with long-term health conditions as a result of long Covid can also apply for Pip if they have had daily living or mobility needs for three months and are expected to have needs for at least a further 9 months.

POST COVID-19 CONDITION ADVOCACY AND SUPPORT GROUPS

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. They also have a COVID long-haulers support group and Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)

- BC ECHO for Post-COVID-19 Recovery (Canada): Based on the global ECHO model, the BC ECHO for Post-COVID-19 Recovery is a virtual learning community of specialists and community health-care providers who use instructive and case-based learning to improve care for patients recovering from symptoms post-COVID-19.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (USA): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their interim report outlines recommendations for federal policymakers to help promote recovery.

NEWLY ADDED RESOURCES:

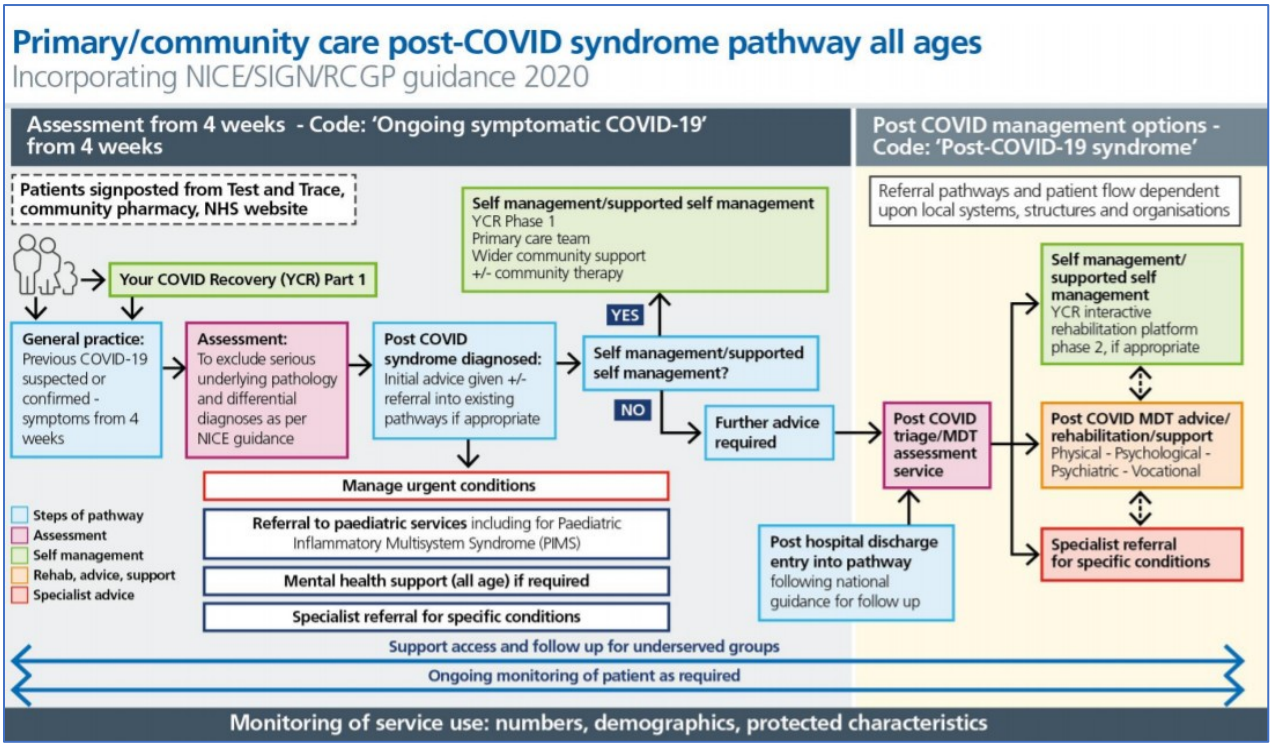
- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Webinar - Implications of Long COVID (Canada): October 2021 CADTH webinar with expert panel discussing what is known know about long COVID, long COVID clinics, and what needs to be done to ensure quality of care.

APPENDIX

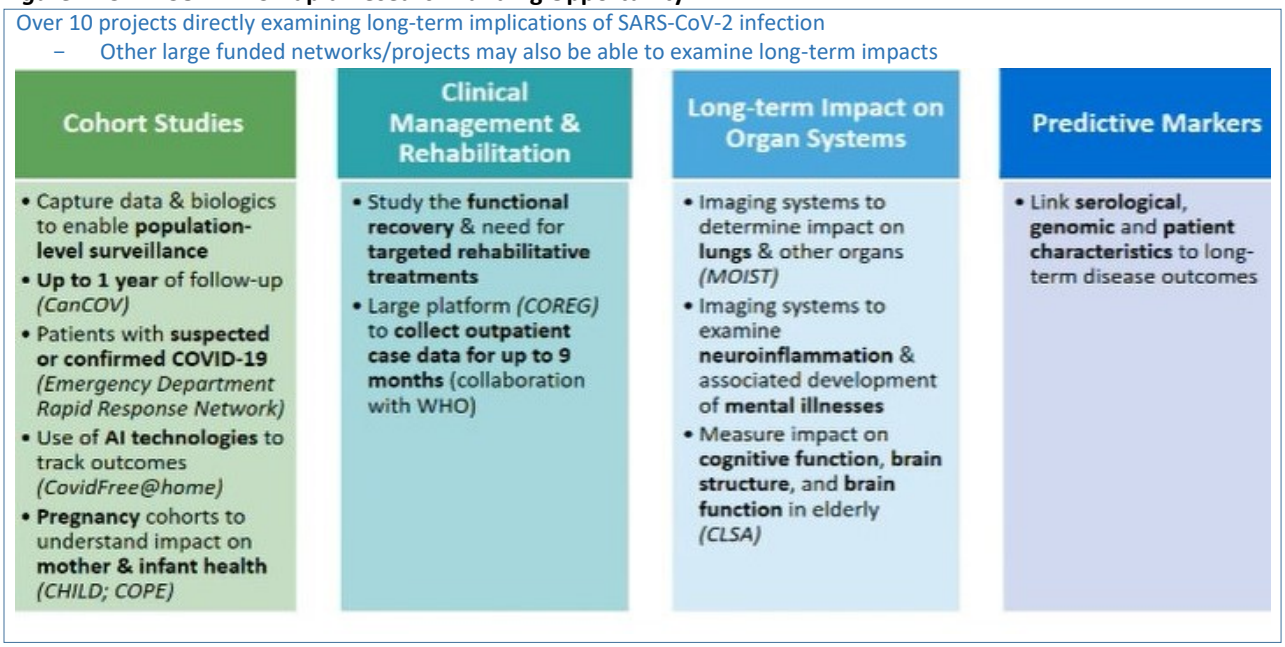
***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

Figure 1. **NICE/SIGN/RCGP 2020 Guidance**



Source: National Health Service (NHS). National guidance for post-COVID syndrome assessment clinics, Version 2, 26 April 2021.

Figure 2. **CIHR COVID-19 Rapid Research Funding Opportunity**



Source: CIHR Knowledge Mobilization Forum. June 10, 2021

Figure 3. **CIHR Funded Operating Grant: Emerging COVID-19 Research Gaps & Priorities - Post COVID-19 condition (Select Studies)**

Name	Institution Paid	Project Title	CIHR Funding Contribution	Funding Term
Gershon, Andrea S; Aaron, Shawn D; Gupta, Samir; Lavoie, Kim; Leung, Janice; Sin, Donald; Stickland, Michael K; To, Teresa	Sunnybrook Research Institute (Toronto, Ontario)	The Canadian Respiratory Research Network Long COVID-19 Study	$500,000	1 year
Raj, Satish R	University of Calgary	Muticentre Assessment of Cardiovascular Hemodynamics and Autonomic Dysfunction with Long COVID	$277,613	1 year
Sander, Beate H; Janjua, Naveed Z; Kwong, Jeffrey C; Mishra, Sharmistha; Sbihi, Hind	University Health Network (Toronto)	Predictors and burden of post-acute COVID-19 syndrome (long-COVID) with a focus on equity	$499,645	1 year
Weatherald, Jason; Granton, John T; Mak, Susanna	University of Calgary	Pulmonary vascular disease in patients with Long COVID	$292,092	1 year
Archambault, Patrick; Berger Pelletier, Elyse; Graves, Donna Lorraine; McGavin, Colleen B; Dainty, Katie N; Hohl, Corinne M; Perry, Jeffrey J; Rosychuk, Rhonda J	Université Laval	Investigating the Post-Acute Sequelae of SARS-CoV-2 Infections: a Patient Oriented Canadian COVID-19 Emergency Department Rapid Response Network (CCEDRRN) Study	$499,945	1 year
Corbeil, Jacques; Lambert, Jean-Philippe	Université Laval	COVID-19 persistent symptomatology: an investigation of the metabolomic and proteomic underpinning	$394,000	1 year
Nacul, Luis; Levin, Adeera; Mckay, Rhonda J; Song, Xiaowei	University of British Columbia	A double blind randomized trial of low-dose naltrexone for post-covid fatigue syndrome	$742,331	1 year
Leong, Darryl	McMaster University	Post-Acute Complications of COVID-19: An International Cohort Study (PACS) Note in a previous iteration, proposal was titled PACMAN as indicated in some Letters of Support	$495,684	1 year
Law, Susan K	Trillium Health Partners (Mississauga, ON)	Living with long-COVID. Patient experience to inform policy makers and care providers	$275,969	1 year
Hatcher, Simon; Orpana, Heather M; Werier, Joel M	Ottawa Hospital Research Institute	In people with Long Covid does adding a digital health platform to usual care improve outcomes at three months compared to usual care alone? The Enhancing Covid Rehabilitation with Technology (ECORT) randomised controlled trial	$922,869	1 year
Mukherjee, Manali; Svenningsen, Sarah; Tselios, Konstantinos	McMaster University	SARS-CoV-2 triggers Autoimmunity: implications for the pathogenesis of Post-Acute COVID-19 Syndrome - (AI-PACS)	$0 CIHR External Partner (PHAC) Contribution-$499,245	1 year
Cheung, Angela M; JÃ¼ni, Peter; Tomlinson, George A	University Health Network (Toronto)	The RECLAIM (REcovering from COVID-19 Lingering symptoms Adaptive Integrative Medicine) trial	$1,000,000	1 year
Ramanathan, Sheela; Piche, Alain	Université de Sherbrooke	Clinicopatholgical correlates of long COVID and potential interventions for improving the quality of life	$490,000	1 year
Ho, Chester; O'Connell, Petra; Zilkie, Tracey A	University of Alberta	Implementing the Provincial Post COVID-19 Rehabilitation Framework for Screening & Transitions in Alberta: A Pragmatic Evaluation	$499,883	1 year
Baker, Andrew J; Dos Santos, Claudia C	Unity Health Toronto	Autoimmunity as a novel mechanism in post-COVID syndrome	$0 CIHR External Partner (PHAC) Contribution-$269,500	1 year
Gross, Douglas P; Lam, Grace Y; Skolnik, Kate; Weatherald, Jason	University of Alberta	Exploring Rehabilitation Needs and Access to Services for Long COVID	$152,778	1 year

Yeung, Rae S; Benseler, Susanne; Haddad, Elie	Hospital for Sick Children (Toronto)	Post COVID hyperinflammation: A syndrome beyond the name	$0 CIHR External Partner (PHAC) Contribution- $499,170	1 year
Pasquier, Jean Charles; Beaulieu, Jean-François; Chaillet, Nils; Laforest-Lapointe, Isabelle; Piche, Alain; Robitaille, Julie	Universite de Sherbrooke	Évaluation de l'efficacité des probiotiques sur les affections post-COVID-19.	$997,273	1 year
Swayne, Leigh A; Tremblay, Marie-Ève	University of Victoria (British Columbia)	Understanding and treating the adverse effects of COVID-19 on the brain	$293,000	1 year
Kendall, Claire; Hawken, Steven; Tanuseputro, Peter	Bruyère Research Institute	Health equity and the post COVID-19 condition	$221,728	1 year
Green, Robin E; Cheung, Angela M	University Health Network (Toronto)	An intervention to teach self-management skills for persisting symptoms of COVID-19: Minimizing impact of symptoms on everyday functioning and on healthcare usage/utilization - A randomized controlled trial	$330,562	1 year
Falcone, Emilia L	Institut de recherches cliniques de Montréal	Identification of microbial factors to modulate immune dysregulation and treat post-COVID-19 syndrome.	$0 CIHR External Partner (PHAC) Contribution- $493,955	1 year
Quinn, Kieran L; Chan, Timothy; Cheung, Angela M; Ghassemi, Marzyeh; Herridge, Margaret S; Mamdani, Muhammad; Razak, Fahad; Rosella, Laura C; Verma, Amol	Sinai Health System (Toronto)	Improving the recognition and care of patients with long-term health complications of COVID-19	$499,998	1 year
O'Brien, Kelly K; Brown, Darren A; Bergin, Colm J; Erlandson, Kristine M; Vera, Jaime	University of Toronto	Long COVID and Episodic Disability: Advancing the Conceptualization, Measurement and Knowledge of Episodic Disability with people living with Long COVID	$204,205	1 year
Roy, Jean-Sébastien; Paquette, Jean-Sébastien; Perreault, Kadija	Université Laval	Better understanding physical and cognitive impairments and functional limitations in people suffering from long COVID to support the development of adapted interventions	$293,100	1 year
Sin, Donald	University of British Columbia	Biomarker Discovery for the Post-COVID Pulmonary Syndrome	$499,500	1 year
Beauchamp, Marla K; Costa, Andrew P; Duong, Mylinh; Ho, Terence; Kruisselbrink, Rebecca; Raina, Parminder S	McMaster University	The McMaster Multi-Regional Hospital Coronavirus Registry (COREG): Extending a Rapid Research Platform to Inform the Clinical Management of COVID-19 'long haulers'	$497,800	1 year
Paterson, Theone; Gicas, Kristina M	University of Victoria (British Columbia)	Investigating Neuropsychological Consequences of COVID-19 on Adults, and Examination of Associated Risk and Resilience Factors	$199,121	1 year
Graff-Guerrero, Ariel; Gerretsen, Philip	Centre for Addiction and Mental Health (Toronto)	Long COVID-19 on the human brain	$932,475	1 year
Graham, Simon J; Chen, Jing J; Gilboa, Asaf; MacIntosh, Bradley J; Schweizer, Tom A; Sekuler, Allison B	Sunnybrook Research Institute (Toronto, Ontario)	Post-Acute Sequelae of COVID-19: An Electroencephalography and Magnetic Resonance Neuroimaging Study of the Elderly in our Communities	$500,000	1 year

From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; deidre_falck@gov.nt.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Horacio Arruda; Jayne Boutilier; jesse kancir; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca; Vladimir Gilca
Cc:	Cidsc Secretariat (PHAC/ASPC); Fitzgerald-Husek, Alanna (PHAC/ASPC); Archibald, Chris (PHAC/ASPC)
Subject:	Post COVID-19 Condition Scan
Date:	November 19, 2021 4:58:23 PM
Attachments:	OCSO Post-COVID Condition Scan 11_Nov 19_2021.pdf

---

TAC Members,

Please find attached the latest COVID-19 environmental scan.

This biweekly product presents an overview of the current state of knowledge and emerging evidence on **Post COVID-19 Condition** (Nov 6th to Nov 19th).

TAC Secretariat

on Behalf of the Office of Chief Science Officer and the PHAC Emerging Science Group Evidence Team

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #11

Nov 6-19th, 2021

SCOPE

This monthly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc.) Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Internationally, multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term.

This month's scan includes a study investigating a third dose Pfizer vaccine and its response on long COVID after breakthrough infections, as well as a systematic review examining the global prevalence of long COVID.

EMERGING GUIDELINES OR STANDARDS

- The **World Health Organization** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve. A separate definition may be applicable for children.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- (NEW) Rapid guidelines for healthcare professionals by UK **NICE** were updated in November 2021.

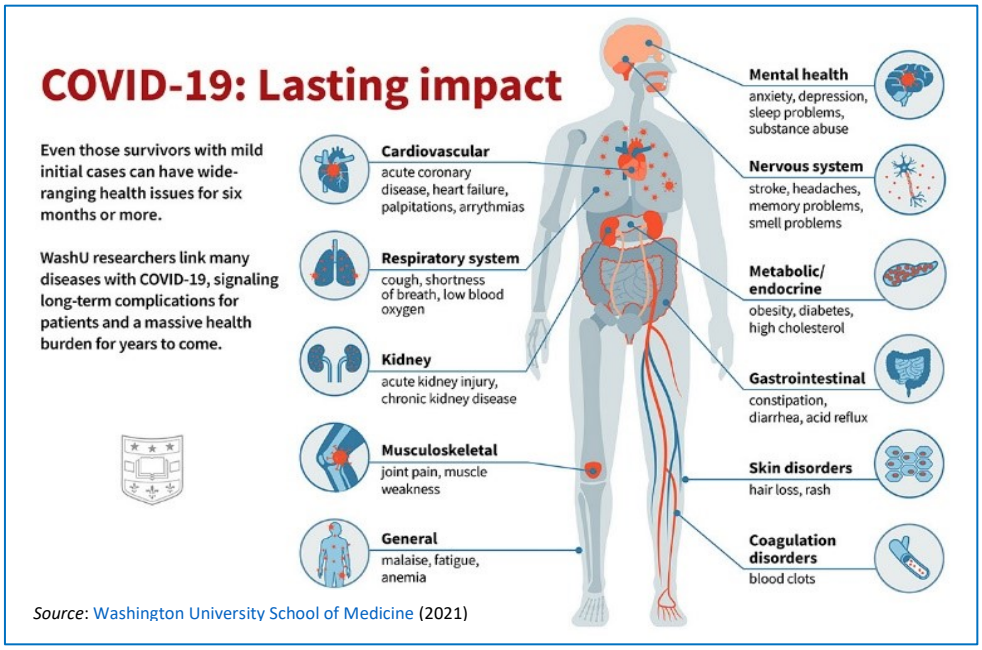
- The Chartered Society of Physiotherapy in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients were published in August 2021 in *British Journal of General Practice*.

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for Canadian Rehabilitation and Exercise Professionals on Post COVID-19 condition and rehabilitation management strategies (August 2021).



Source: Washington University School of Medicine (2021)

NATIONAL AND INTERNATIONAL DEVELOPMENTS

CANADA

- In Canada, **11 public clinics** have been identified so far:
  - Alberta: Rockyview General Hospital, Peter Lougheed Centre, Primary Care Network: Edmonton North
  - British Columbia: Abbotsford Regional Hospital, Jim Pattison Outpatient Care and Surgery Centre, Vancouver General Hospital, St. Paul's Hospital
  - Ontario: (NEW) Halton Healthcare Post COVID-19 Syndrome Clinic, London Health Sciences Centre, Toronto Rehabilitation Institute (UHN)
  - Quebec: Montreal Clinical Research Institute Post-COVID-19 Clinic, Clinique ambulatoire post-COVID (in French only)
  - There are also **39 private clinics across Canada**.
- Lifemark Health Group has a Post COVID-19 Rehabilitation and Recovery Program with locations across 6 provinces.
- Alberta Health Services developed a resource to support rehabilitation and allied health providers across the care continuum working with patients recovering from symptoms of COVID-19.
- Hôtel-Dieu Grace Healthcare launched a COVID Recovery program to help people suffering from effects of COVID-19.
- Nova Scotia launched a website with information on managing or treating the lingering symptoms of COVID-19.
- The Other Pain Clinic Inc COVID Rehab & Survivorship Program in Alberta aims to treat people with post COVID symptoms to allow them to have a better quality of life. The program also has a virtual care option.

PHAC AND PARTNER ACTIVITIES:

- Monitoring latest research and evidence on Post COVID-19 condition and engaging with national and international experts.
  - **PHAC** published an *updated* living systematic review on the prevalence of Post COVID-19 condition. 2 new reviews are also being undertaken to gain a better understanding of 1) risk factors associated with the condition and 2) possible interventions to prevent the condition.
  - **CPHO** released a statement about Post COVID-19 Condition on July 7th, 2021.
  - Web content on Post COVID-19 Condition is published on the Government of Canada's website.
- PHAC is exploring data sources for **surveillance**
  - Canadian Primary Care Sentinel Surveillance System
  - Initial environmental scan of provincial/territorial initiatives examining impact of COVID-19 on vulnerable populations using administrative health data.
- **CIHR COVID-19 Rapid Research Funding Opportunity** (May 2020)
  - Over 10 projects directly examining long-term implications of COVID-19 (Figure 2, *Appendix*).
  - Canadian COVID-19 Prospective Cohort Study (**$~2.7M**): Evaluating early to 1-year outcomes in 2000 patients across AB, BC, ON, & BC with COVID-19 infection.
- **CIHR Emerging COVID-19 Research Gaps and Priorities Funding Opportunity** (March 2021)
  - Specific research focusing on identifying, defining & addressing Post COVID-19 condition to understand biological & psychological impacts. Select funded projects can be found in *Appendix (Figure 3*).

UK

- NIHR & UKRI:
  - Previous calls: **~£25M** to better understand long-term effects of COVID-19 on physical & mental health
  - Current call: **~£20M** focused on non-hospitalized adults & children with post COVID-19 condition
  - NIHR awarded **£19.6M** to 15 projects across the UK to help diagnose and treat long COVID.
- NHS England and NHS Improvement will provide **£70 million** to expand long COVID services beyond Post-COVID Assessment Clinics to strengthen treatment and rehabilitation.
- Additional funding for ICSs adding to £24 million already provided to **89** specialist Post-COVID Assessment Clinics around England, bringing total investment in 2021/22 to **£94 million**. NHS will also establish specialist long COVID services for children and young people.

- UK Office for National Statistics released statistics on long COVID showing overall UK prevalence estimate of **1.5%**. Research shows **2 million** people in England may have had long COVID, with women and lower-income people particularly susceptible.
- NHS Your COVID Recovery platform is an online, tailored rehabilitation program that enables patients to be monitored by local rehabilitation teams to ensure they are on track with their care.
- The PHOSP COVID study is a national consortium, led by experts in the UK, to investigate long term impacts of COVID-19 on health outcomes for patients who were hospitalised due to COVID-19. Data that is collected during the study will be used globally, collaborating with the European Respiratory Society and Canadian Thoracic Society, to understand the long terms impacts of COVID-19 on health worldwide.
- Up to 1 in 7 (14%) children and young people who caught SARS-CoV-2 may have symptoms linked to the virus 15 weeks later, according to preliminary findings from the world's largest study on long COVID in children.
- UK Collaborative on Development Research highlighted there's over **121** long COVID projects, involving **$205 million** funding investment, with the top funder being UKRI (as of July 2021).
- Guidance for people suffering from long COVID has been launched by the NHS 24 (Scotland).

US

Post-Acute Sequelae of SARS-COV-2 Infection Initiative (NIH PASC): $1.15B/4 years

- Focus: Understand biological basis of PASC & factors contributing to vulnerability
- Current call: Recovery Cohort Studies, Clinical Science, Data Resource & PASC Biorepository Cores

- NIH has invested in longitudinal studies to record the recovery paths of ~40,000 adults and children in a 'meta-cohort', to observe who develops long-term effects and who doesn't.
- Based on media reports, **80 post-COVID-19 clinics** were actively engaging with COVID-19 patients as of March 2021. 64 of these clinics surveyed have seen a combined total of ~**10,000 patients**. A Becker's Hospital Review article (Aug 2021) stated that **44** hospitals and health systems have launched post-COVID-19 clinics. 11.1 million Americans are living with long COVID, according to the American Academy of Physical Medicine & Rehabilitation.
- Virtua Health offers a nationwide "Care After COVID" program to help those experiencing post COVID symptoms.
- A **$40 million** multi-year study from Children's National Hospital and NIAID examining long-term effects of COVID-19 and multisystem inflammatory syndrome in children.
- NIH has created the REsearching COVID to Enhance Recovery (RECOVER) Initiative and awarded **$470 million** to create a national study population of volunteers, as well as support studies on long-term effects of COVID-19.
- Brown School of Public Health launched the long COVID initiative to examine the social and economic impacts of long COVID — including on the workplace — through an equity lens, with the goal of developing policy recommendations.
- NIH to study long-term effects of COVID-19 in pregnancy by following up to 1,500 pregnant patients with COVID-19 and their offspring for 4 years, as part of NIH's RECOVER initiative.
- (NEW) NIH to study effects of COVID-19 infection on 1000 children over 3 years as part of RECOVER initiative.

EMERGING SCIENTIFIC EVIDENCE

EVIDENCE PRODUCTS (*NOV 6-NOV 19, 2021*)

TITLE	EVIDENCE TYPE	SUMMARY
Long COVID and oral health care considerations (France et al)	Review (Available in *J Am Dent Assoc*)	Oral health care professionals must be aware of long COVID, an increasingly prevalent condition with a widely variable presentation and impact. Oral health care professionals should be prepared to treat patients safely in an outpatient oral health setting. Recommendations for the treatment of affected people in an oral health care setting are presented, including a thorough evaluation of the patient history and current status, understanding of how related symptoms may affect oral health care interventions, and which modifications to treatment are needed to provide safe and appropriate care.

Recommendations for outpatient respiratory rehabilitation of long COVID patients (García-Saugar et al)	Review (Available in *An Sist Sanit Navar*)	The sequelae of COVID-19 have highlighted importance of rehabilitation in persistent COVID patients, involving different professionals in process. This literature review offers ten key aspects of respiratory physiotherapy, including assessment, parameters to monitor, and warning signs,
Global Prevalence of Post-Acute Sequelae of COVID-19 (PASC) or Long COVID: A Meta-Analysis and Systematic Review (Chen et al)	Systematic Review (Available in *medRxiv*)	Aim of this study is to examine prevalence of post-acute sequelae of COVID-19 (PASC) across the world and to assess geographic heterogeneities through a systematic review and meta-analysis. A second aim is to provide prevalence estimates for individual symptoms that have been commonly reported as PASC, based on existing literature.
The microvascular hypothesis underlying neurologic manifestations of long COVID-19 and possible therapeutic strategies (Research Accessibility Team)	Review *(Available in medRxiv)*	Low-cost therapies and repurposing of readily available anti-inflammatory medications may prove vital in the management of long COVID symptoms. These findings provide a potential therapeutic option to alleviate the neurological sequelae in patients with long COVID. Clinical trials should be tailored to confirm the effect of such medications on improving long COVID syndrome.

SELECT PRIMARY RESEARCH (*NOV 6-NOV 19, 2021*)

TITLE	SOURCE	SUMMARY
Natural therapeutic factors in medical rehabilitation of patients with post-covid-19 at outpatient treatment stage (Kaisinovaet al)	*Georgian Med News*	Aim was to study therapeutic efficiency of medical rehabilitation of patients with Post-COVID-19 syndrome at outpatient treatment stage including natural therapeutic factors and phyto products in rehabilitation programme. Patients of main group had reduction of apnea, increase in adaptation capacity, improvement of physical activity, and normalization of hemodynamic parameters.
Post-covid-19 syndrome: The new pandemic affecting healthcare workers and how the frontline warriors are battling it (Rao et al)	*Indian J Palliat Care*	Study explored health, social and psychological impact on healthcare workers who recovered from active COVID-19 illness and highlighted their needs post-recovery. In post-recovery period, 66% experienced health issues and fatigue on mild exertion was most common symptom (42%). 82% HCW felt need for a post-COVID-19 recovery health care unit. 35% of HCW experienced fear of developing post-COVID-19 complications.
Recovery from Covid-19 critical illness: A secondary analysis of the ISARIC4C CCP-UK cohort study and the RECOVER trial (Pauley et al)	*J Intensive Care Soc*	Aimed to compare prevalence and severity of fatigue in survivors of Covid-19 versus non-Covid-19 critical illness, and to explore potential associations between baseline characteristics and worse recovery. At 6-months, prevalence and severity fatigue were less in Covid-19 cohort.
Long-Term Coronavirus Disease 2019 Complications in Inpatients and Outpatients: A One-Year Follow-up Cohort Study (Liao et al)	*Open Forum Infect Dis*	Patients healed from COVID-19 from February 2020 to May 2020 were considered for this study, regardless of severity of disease during acute phase. Most prevalent symptoms were fatigue (52%), pain (48%), and sleep disorders (47%). Sensory alterations were present in 28% of surveyed patients. 12 months after acute infection, COVID-19 survivors were still suffering from symptoms identified at shorter follow-up.
Postacute Sequelae of SARS-CoV-2 Infection and Impact on Quality of Life 1-6 Months after Illness and Association with Initial Symptom Severity (O'Keefeet al)	*Open Forum Infect Dis*	Participants discharged from outpatient telemedicine program for COVID-19 were emailed survey about ongoing symptoms, acute illness severity, and quality of life. 290 patients completed the survey, 39% reported persistent symptoms including fatigue, dyspnea on exertion, and mental fog. Predictors of persistent symptoms included provider-assessed moderate-severe illness, female sex, and middle age.
The impact of COVID-19 critical illness on new disability, functional outcomes and return to work at 6 months: a prospective cohort study (Hodgson et al)	*Crit Care*	Study aimed to describe incidence of death or new disability, functional impairment and changes in health-related quality of life of patients after COVID-19 critical illness at 6 months. At six months after COVID-19 critical illness, death and new disability was substantial. Over a third of survivors had new disability, which was widespread across all areas of functioning.

Third dose vaccine With BNT162b2 and its response on Long COVID after Breakthrough infections (Hoque et al)	*medRxiv*	Study investigates third dose vaccine with BNT162b2 and its response on Long COVID after breakthrough infections. All 20 participants in the study received both dosages of ChAdOx1-nCoV-19 between February 2021 to April 2021 and had breakthrough infections in same or following month which led to long COVID syndrome. They all received third dose of BNT162b2. A Wilcoxon matched paired signed-rank test revealed a significant reduction of inflammatory marker after receiving the 3rd vaccine dose. Pre and post 3rd dose quantitative anti-S1-RBD IgG response was measured and compared that revealed a significant boosting effect that clearly correlates with the CRP response.
Female gender is associated with "long COVID" syndrome: a prospective cohort study (Bai et al)	*Clin Microbiol Infect*	Study explored association between female gender and "long COVID" syndrome, defined as persistence of physical and/or psychological symptoms for more than 4 weeks after recovery from acute COVID-19 disease. Female gender was independently associated with "long COVID" syndrome at multivariable analysis. Advanced age and active smoking also associated with higher risk of long COVID.
Evidence for impaired chronotropic responses to and recovery from 6-minute walk test in women with post-acute COVID-19 syndrome (Baranauskas et al)	*Exp Physiol*	Study characterized heart rate responses to and recovery from a 6-minute walk test (6MWT) in women 3 months following mild-to-moderate COVID-19 compared to non-infected controls. Findings provide evidence for marked differences in chronotropic responses to and recovery from a 6MWT in women several months following acute COVID-19.
Long-term evolution of malnutrition and loss of muscle strength after covid-19: A major and neglected component of long covid-19 (Gérard et al)	*Nutrients*	Objective was to analyze persistent symptoms, nutritional status, evolution of muscle strength and performance status at 6 months post-discharge in cohort of COVID-19 survivors. 47% presented persistent malnutrition and significant decrease in muscle strength. Obese subjects as well as patients who have stayed in intensive care have a higher risk of functional loss or undernutrition.
Identifying Long-Term Effects of SARS-CoV-2 and Their Association with Social Determinants of Health in a Cohort of Over One Million COVID-19 Survivors (Mukherjee et al)	*Research Square prepub*	Observational study analyzed large medical claims database of US based individuals to identify common long-term effects of COVID-19, as well as their associations with various social and medical risk factors. Among over 1.37 million COVID patients, the study found 36/1,724 3-digit ICD-10 codes to be statistically significantly increased in the post-COVID period. It also found one combination of ICD-10 codes, corresponding to 'other anemias' and 'hypertension' that was statistically significantly increased in post-COVID period. Age and gender significantly associated with multiple long-term effects. Race only associated with 'other sepsis', income only associated with 'Alopecia areata', while education level only associated with 'Maternal infectious and parasitic diseases'.
Association of post-COVID-19 fatigue with mental health problems and sociodemographic risk factors (Uygur et al)	*Fatigue: Biomed Health Behav*	Objective was to obtain initial prevalence estimate of post-COVID-19 fatigue in Turkey and identify psychological and sociodemographic risk factors associated with post-COVID-19 fatigue. Significant fatigue was detected in 56% of participants. Female gender, history of psychiatric illness, history of psychiatric drug use, and current psychiatric drug use significantly higher in fatigued group than in non-fatigued group.
Post-Acute COVID-19 Outcomes In Children Requiring Hospitalisation (Bossley et al)	*Research Square prepub*	Assessed for symptoms of post-acute COVID-19 syndrome after 4 weeks or more in cohort of children and young people admitted with COVID-19. Small number had symptoms which lasted more than 4 weeks, most of which resolved at 3 months. Symptoms included dry cough, fatigue and headache.
Long Covid after Breakthrough COVID-19: the post-acute sequelae of breakthrough COVID-19 (Al-Aly et al)	*Research Square prepub*	People with breakthrough COVID-19 exhibit lower risks of death and post-acute sequelae than people with COVID-19 who were not previously vaccinated for it; and in analyses among individuals who were hospitalized during acute phase of the disease, people with breakthrough COVID-19 exhibit higher risks of death and post-acute sequelae than people with seasonal influenza.
Burdens of post-acute sequelae of COVID-19 by severity of acute infection, demographics and health status (Al-Aly et al)	*Nat Commun*	Study used healthcare databases of US Department of Veterans Affairs to build a cohort of 181,384 people with COVID-19 and 4 milliom non-infected controls and estimated burden of Post-Acute Sequelae of SARS-CoV-2 infection. Burden of PASC is substantial; PASC is non-monolithic with sequelae that are differentially expressed in various population groups.

Six-month sequelae of post-vaccination SARS-CoV-2 infection: a retrospective cohort study of 10,024 breakthrough infections (Taquet et al)	*medRxiv*	COVID-19 vaccination is associated with lower risk of several, but not all, COVID-19 sequelae in those with breakthrough SARS-CoV-2 infection. Study found receiving at least one COVID-19 vaccine dose was associated with significantly lower risk of respiratory failure, ICU admission, intubation/ventilation, hypoxaemia, oxygen requirement, hypercoagulopathy/venous thromboembolism, seizures, psychotic disorder, and hair loss, but not other outcomes, including long-COVID features, renal disease, mood, anxiety, and sleep disorders. Receiving 2 vaccine doses was associated with lower risks for most outcomes. These benefits of vaccination were clear in younger people but not in over-60s. This may inform service planning and need for additional interventions for COVID-19 sequelae.

COMMENTARIES, LETTERS AND OPINION PIECES

- **Post-COVID syndrome: the aftershock of SARS-CoV-2 (*Int J Infect Dis*):** Focus of medical and research communities may need to start shifting focus from acute phase of COVID-19 to chronic manifestations of SARS-CoV-2 infection, "post-COVID syndrome". As current studies suggest an involvement of immune-related dysfunction in development of post-COVID syndrome, immunosuppressive therapeutic options could be beneficial in parallel to heist SARS-CoV-2 vaccination of population.

- **Long COVID-19: A tangled web of lungs, heart, mind, and gender (*Trends Cardiovasc Med*)**: Several of long COVID symptoms share similar characteristics with those of patients with mental illness including depression, fatigue, or generalized weakness, and depression by itself has long been associated with cardiovascular disease. Along with mental health related symptoms, long COVID-19 may ultimately represent a key substrate for increased risk of cardiovascular (CV) disease. Cardiac rehabilitation programs should be encouraged to mitigate mental health consequences of COVID-19 and to prevent deleterious effects on CV system. There is a need for proactive approach to follow-up affected patients with systematic assessment to include symptoms of mental and physical health and to promote healthcare programs to support healthier lifestyle and trained physical activity after COVID-19 infection.

- **Prise en charge des patients avec Covid long - illustration par des cas cliniques (Rev Med Suisse):** Les études actuelles, malgré leurs limites, leur hétérogénéité et leurs biais, montrent que la compréhension des facteurs favorisants, les explications physiopathologiques possibles ainsi que les recommandations internationales peuvent aider dans la prise en charge de ces patients en milieu ambulatoire. Une approche biopsychosociale et pluridisciplinaire en médecine générale est importante pour l'individu. Des études de qualité sont nécessaires avec l'objectif d'améliorer la prise en charge de patients avec Covid long.

MEDIA HIGHLIGHTS

CANADA

- **University of Manitoba team receives $202,000 grant to study 'long COVID':** *Global News* reported that through CIHR researchers at the University of Manitoba have received a $202,000 grant to study "long-haul COVID." The team wants to understand what proportion of people who had COVID-19 end up with "long COVID," who is most likely to be affected, and what symptoms people are experiencing. Manitoba is in a unique position to be able to study these research questions due to an anonymized database (Manitoba Population Research Database) which includes information on every single Manitoban who has contact with the health-care system.
- **Let my long haul COVID symptoms be a reason for others to get vaccinated:** *CBC News* highlighted some provinces have specialized post-COVID clinics to treat patients but Saskatchewan has not set up a clinic yet to solely address long-term symptoms of COVID-19.
- **For COVID-19 'long-haulers,' the new normal will be wildly different:** *CBC News* highlighted long COVID advice from a physiotherapist and social worker. A physiotherapist who specializes in recovery for those with long-term respiratory and cardiac conditions, advises people with long-term COVID symptoms to write everything down to understand their symptoms. A social worker noted that public health officials and medical professionals are more focused on immediate responses like vaccinations and hospitalizations, so few services or resources are currently out there for long-haulers. There needs to be more medical and counselling supports targeted to this group.

GLOBAL

- **50 percent of people who survive covid-19 face lingering symptoms, study finds:** *Washington Post* highlighted at least 50% of people who survive covid-19 experience a variety of physical and psychological health issues for six months or more after their initial recovery, according to research on the long-term effects of the disease.
- **Public health leaders hope stories about long Covid will motivate more young people to get vaccinated:** *CNN* reported younger people are among some of the least-vaccinated people in the US. Telling people about the potential long-term consequences of Covid-19 may be the exact motivation they need to get protected.
- **Long COVID may affect response to and recovery from exercise in women:** *Medical News Today* noted that women presenting with specific long COVID symptoms, namely shortness of breath or joint or muscle aches, were also more limited in their ability to do a walking test than people who had had a SARS-CoV-2 infection but experienced no lingering symptoms.

POST COVID-19 CONDITION ADVOCACY AND SUPPORT GROUPS

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. They also have a COVID long-haulers support group and Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)

- BC ECHO for Post-COVID-19 Recovery (Canada): Based on the global ECHO model, the BC ECHO for Post-COVID-19 Recovery is a virtual learning community of specialists and community health-care providers who use instructive and case-based learning to improve care for patients recovering from symptoms post-COVID-19.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their interim report outlines recommendations for federal policymakers to help promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Webinar - Implications of Long COVID (Canada): October 2021 CADTH webinar with expert panel discussing what is known know about long COVID, long COVID clinics, and what needs to be done to ensure quality of care.

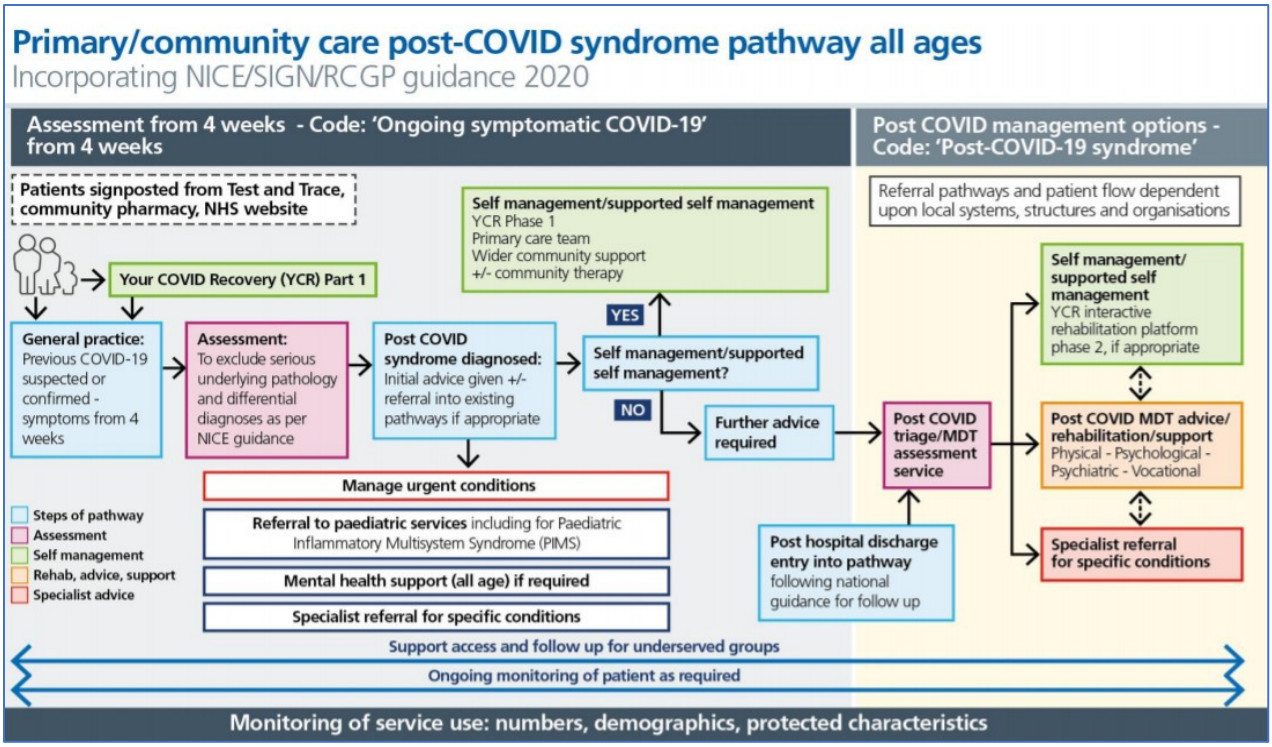
NEWLY ADDED RESOURCES:

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

APPENDIX

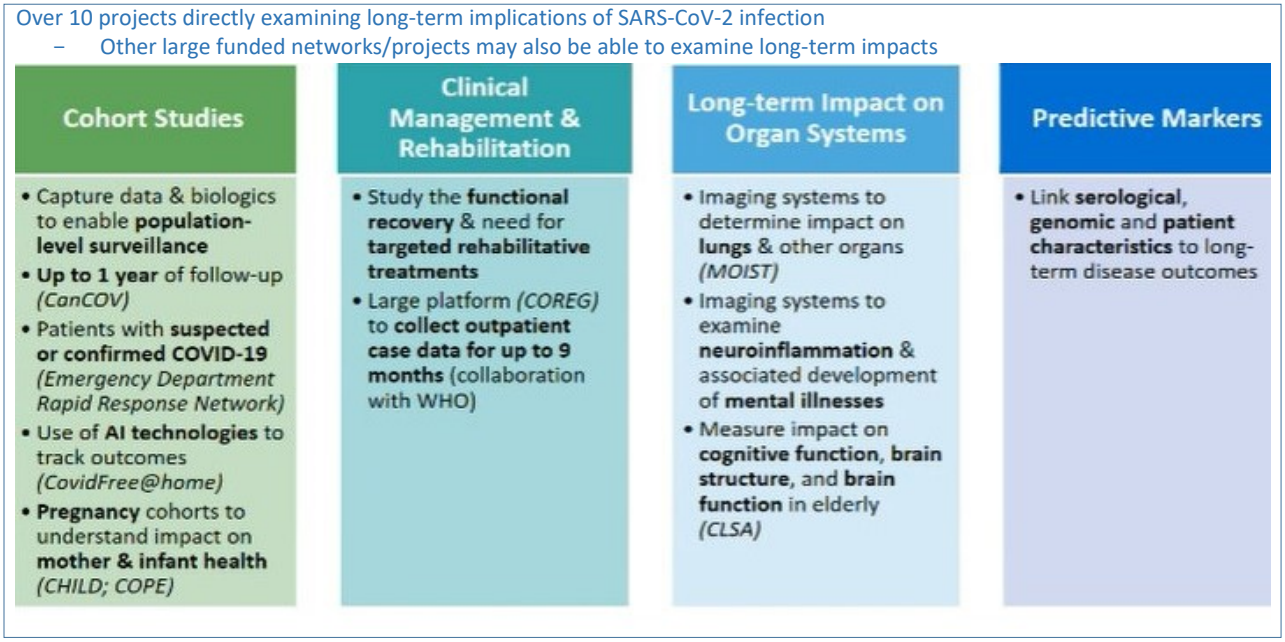
***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

Figure 1. **NICE/SIGN/RCGP 2020 Guidance**



Source: National Health Service (NHS). National guidance for post-COVID syndrome assessment clinics, Version 2, 26 April 2021.

Figure 2. **CIHR COVID-19 Rapid Research Funding Opportunity**



Source: CIHR Knowledge Mobilization Forum. June 10, 2021

Figure 3. **CIHR Funded Operating Grant: Emerging COVID-19 Research Gaps & Priorities - Post COVID-19 condition (Select Studies)**

Name	Institution Paid	Project Title	CIHR Funding Contribution	Funding Term
Gershon, Andrea S; Aaron, Shawn D; Gupta, Samir; Lavoie, Kim; Leung, Janice; Sin, Donald; Stickland, Michael K; To, Teresa	Sunnybrook Research Institute (Toronto, Ontario)	The Canadian Respiratory Research Network Long COVID-19 Study	$500,000	1 year
Raj, Satish R	University of Calgary	Muticentre Assessment of Cardiovascular Hemodynamics and Autonomic Dysfunction with Long COVID	$277,613	1 year
Sander, Beate H; Janjua, Naveed Z; Kwong, Jeffrey C; Mishra, Sharmistha; Sbihi, Hind	University Health Network (Toronto)	Predictors and burden of post-acute COVID-19 syndrome (long-COVID) with a focus on equity	$499,645	1 year
Weatherald, Jason; Granton, John T; Mak, Susanna	University of Calgary	Pulmonary vascular disease in patients with Long COVID	$292,092	1 year
Archambault, Patrick; Berger Pelletier, Elyse; Graves, Donna Lorraine; McGavin, Colleen B; Dainty, Katie N; Hohl, Corinne M; Perry, Jeffrey J; Rosychuk, Rhonda J	Université Laval	Investigating the Post-Acute Sequelae of SARS-CoV-2 Infections: a Patient Oriented Canadian COVID-19 Emergency Department Rapid Response Network (CCEDRRN) Study	$499,945	1 year
Corbeil, Jacques; Lambert, Jean-Philippe	Université Laval	COVID-19 persistent symptomatology: an investigation of the metabolomic and proteomic underpinning	$394,000	1 year
Nacul, Luis; Levin, Adeera; Mckay, Rhonda J; Song, Xiaowei	University of British Columbia	A double blind randomized trial of low-dose naltrexone for post-covid fatigue syndrome	$742,331	1 year
Leong, Darryl	McMaster University	Post-Acute Complications of COVID-19: An International Cohort Study (PACS) Note in a previous iteration, proposal was titled PACMAN as indicated in some Letters of Support	$495,684	1 year
Law, Susan K	Trillium Health Partners (Mississauga, ON)	Living with long-COVID. Patient experience to inform policy makers and care providers	$275,969	1 year
Hatcher, Simon; Orpana, Heather M; Werier, Joel M	Ottawa Hospital Research Institute	In people with Long Covid does adding a digital health platform to usual care improve outcomes at three months compared to usual care alone? The Enhancing Covid Rehabilitation with Technology (ECORT) randomised controlled trial	$922,869	1 year
Mukherjee, Manali; Svenningsen, Sarah; Tselios, Konstantinos	McMaster University	SARS-CoV-2 triggers Autoimmunity: implications for the pathogenesis of Post-Acute COVID-19 Syndrome - (AI-PACS)	$0 CIHR External Partner (PHAC) Contribution-$499,245	1 year
Cheung, Angela M; JÃ¼ni, Peter; Tomlinson, George A	University Health Network (Toronto)	The RECLAIM (REcovering from COVID-19 Lingering symptoms Adaptive Integrative Medicine) trial	$1,000,000	1 year
Ramanathan, Sheela; Piche, Alain	Université de Sherbrooke	Clinicopatholgical correlates of long COVID and potential interventions for improving the quality of life	$490,000	1 year
Ho, Chester; O'Connell, Petra; Zilkie, Tracey A	University of Alberta	Implementing the Provincial Post COVID-19 Rehabilitation Framework for Screening & Transitions in Alberta: A Pragmatic Evaluation	$499,883	1 year
Baker, Andrew J; Dos Santos, Claudia C	Unity Health Toronto	Autoimmunity as a novel mechanism in post-COVID syndrome	$0 CIHR External Partner (PHAC) Contribution-$269,500	1 year
Gross, Douglas P; Lam, Grace Y; Skolnik, Kate; Weatherald, Jason	University of Alberta	Exploring Rehabilitation Needs and Access to Services for Long COVID	$152,778	1 year

Yeung, Rae S; Benseler, Susanne; Haddad, Elie	Hospital for Sick Children (Toronto)	Post COVID hyperinflammation: A syndrome beyond the name	$0 CIHR External Partner (PHAC) Contribution- $499,170	1 year
Pasquier, Jean Charles; Beaulieu, Jean-François; Chaillet, Nils; Laforest-Lapointe, Isabelle; Piche, Alain; Robitaille, Julie	Universite de Sherbrooke	Évaluation de l'efficacité des probiotiques sur les affections post-COVID-19.	$997,273	1 year
Swayne, Leigh A; Tremblay, Marie-Ève	University of Victoria (British Columbia)	Understanding and treating the adverse effects of COVID-19 on the brain	$293,000	1 year
Kendall, Claire; Hawken, Steven; Tanuseputro, Peter	Bruyère Research Institute	Health equity and the post COVID-19 condition	$221,728	1 year
Green, Robin E; Cheung, Angela M	University Health Network (Toronto)	An intervention to teach self-management skills for persisting symptoms of COVID-19: Minimizing impact of symptoms on everyday functioning and on healthcare usage/utilization - A randomized controlled trial	$330,562	1 year
Falcone, Emilia L	Institut de recherches cliniques de Montréal	Identification of microbial factors to modulate immune dysregulation and treat post-COVID-19 syndrome.	$0 CIHR External Partner (PHAC) Contribution- $493,955	1 year
Quinn, Kieran L; Chan, Timothy; Cheung, Angela M; Ghassemi, Marzyeh; Herridge, Margaret S; Mamdani, Muhammad; Razak, Fahad; Rosella, Laura C; Verma, Amol	Sinai Health System (Toronto)	Improving the recognition and care of patients with long-term health complications of COVID-19	$499,998	1 year
O'Brien, Kelly K; Brown, Darren A; Bergin, Colm J; Erlandson, Kristine M; Vera, Jaime	University of Toronto	Long COVID and Episodic Disability: Advancing the Conceptualization, Measurement and Knowledge of Episodic Disability with people living with Long COVID	$204,205	1 year
Roy, Jean-Sébastien; Paquette, Jean-Sébastien; Perreault, Kadija	Université Laval	Better understanding physical and cognitive impairments and functional limitations in people suffering from long COVID to support the development of adapted interventions	$293,100	1 year
Sin, Donald	University of British Columbia	Biomarker Discovery for the Post-COVID Pulmonary Syndrome	$499,500	1 year
Beauchamp, Marla K; Costa, Andrew P; Duong, Mylinh; Ho, Terence; Kruisselbrink, Rebecca; Raina, Parminder S	McMaster University	The McMaster Multi-Regional Hospital Coronavirus Registry (COREG): Extending a Rapid Research Platform to Inform the Clinical Management of COVID-19 'long haulers'	$497,800	1 year
Paterson, Theone; Gicas, Kristina M	University of Victoria (British Columbia)	Investigating Neuropsychological Consequences of COVID-19 on Adults, and Examination of Associated Risk and Resilience Factors	$199,121	1 year
Graff-Guerrero, Ariel; Gerretsen, Philip	Centre for Addiction and Mental Health (Toronto)	Long COVID-19 on the human brain	$932,475	1 year
Graham, Simon J; Chen, Jing J; Gilboa, Asaf; MacIntosh, Bradley J; Schweizer, Tom A; Sekuler, Allison B	Sunnybrook Research Institute (Toronto, Ontario)	Post-Acute Sequelae of COVID-19: An Electroencephalography and Magnetic Resonance Neuroimaging Study of the Elderly in our Communities	$500,000	1 year

From:	Lachapelle, Stephane (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; deidre_falck@gov.nt.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Horacio Arruda; Jayne Boutilier; jesse kancir; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca; Vladimir Gilca; Wajid.ahmed@ontario.ca
Cc:	Cidsc Secretariat (PHAC/ASPC)
Subject:	FW: OCSO Post COVID-19 Condition Scan (Dec 15)
Date:	December 15, 2021 4:31:30 PM
Attachments:	OCSO Post-COVID Condition Scan 13_Dec15_2021.pdf

---

Dear TAC members,

On behalf of the Office of the Chief Science Officer, please find attached the latest COVID-19 environmental scan.

This product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Dec 4th to Dec 15th).

Please let us know if you have any questions.

Regards,

TAC Sec't.

POST COVID-19 CONDITION

OCSO SCAN OF EVIDENCE #13

Dec 4-Dec 15, 2021

SCOPE

This update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc.) Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Internationally, multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a guide for primary care physicians on management of post-COVID symptoms, a model framework for projecting the prevalence and impact of long COVID in the UK, as well as a article published in *Nature* on the promotion of non-evidence-based therapeutics within patient-led long COVID support groups.

EMERGING GUIDELINES OR STANDARDS

- The **World Health Organization** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve. A separate definition may be applicable for children.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals by UK **NICE** (Updated November 2021).

- Chartered Society of Physiotherapy in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for Canadian Rehabilitation and Exercise Professionals on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- Government of Canada: COVID-19 for health professionals - Post COVID-19 condition

- Center for Effective Practice – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- (NEW) American Academy of Physical Medicine and Rehabilitation (AAPM&R): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

NATIONAL AND INTERNATIONAL DEVELOPMENTS

CANADA

- In Canada, **11 public clinics** identified so far:
  - Alberta: Rockyview General Hospital, Peter Lougheed Centre, Primary Care Network: Edmonton North
  - British Columbia: Abbotsford Regional Hospital, Jim Pattison Outpatient Care and Surgery Centre, Vancouver General Hospital, St. Paul's Hospital
  - Ontario: Halton Healthcare Post COVID-19 Syndrome Clinic, London Health Sciences Centre, Toronto Rehabilitation Institute (UHN)
  - Quebec: Montreal Clinical Research Institute Post-COVID-19 Clinic, Clinique ambulatoire post-COVID
  - There are also **39 private clinics across Canada**.
- Lifemark Health Group: Post COVID-19 Rehabilitation and Recovery Program.
- Alberta Health Services: Resource for rehabilitation and allied health providers working with Post-COVID-19 patients.
- Hôtel-Dieu Grace Healthcare: COVID Recovery program.
- Nova Scotia Health: My COVID Recovery – your source of health information after having COVID-19.
- The Other Pain Clinic Inc COVID Rehab & Survivorship Program (Alberta).
- Saskatchewan Health Authority: Long-COVID information repository.
- (NEW) Clinician Resource: Post-COVID-19 Recovery Care Pathway (accessible through Pathways).
- (NEW) Mental Health in "Long-COVID" – A Resource for GPs.

PHAC AND PARTNER ACTIVITIES:

- Monitoring latest research and evidence on Post COVID-19 condition and engaging with national and international experts.
  - **PHAC** published a living systematic review on the prevalence of Post COVID-19 condition. 2 new reviews are also being undertaken to gain a better understanding of 1) risk factors associated with the condition and 2) possible interventions to prevent the condition.
- PHAC is exploring data sources for **surveillance**
  - Canadian Primary Care Sentinel Surveillance System
  - Initial environmental scan of provincial/territorial initiatives examining impact of COVID-19 on vulnerable populations using administrative health data.
- **CIHR COVID-19 Rapid Research Funding Opportunity** (May 2020)
  - Over 10 projects directly examining long-term implications of COVID-19 (Figure 2, *Appendix*).
  - Canadian COVID-19 Prospective Cohort Study ($**~2.7M**): Evaluating early to 1-year outcomes in 2000 patients across AB, BC, ON, & BC with COVID-19 infection.
- **CIHR Op Grant: Emerging COVID-19 Research Gaps & Priorities - Post COVID-19 condition** (March 2021)
  - Select funded projects can be found in *Appendix (Figure 3*).

UK

- NIHR awarded **£19.6M** to 15 projects across the UK to help diagnose and treat long COVID.
- NHS England and NHS Improvement provided **£70 million** to expand long COVID services beyond Post-COVID Assessment Clinics to strengthen treatment and rehabilitation.
- Additional funding for ICSs adding to £24 million already provided to **89** specialist Post-COVID Assessment Clinics around England, bringing total investment in 2021/22 to **£94 million**. NHS will also establish specialist long COVID services for children and young people.
- NHS: Your COVID Recovery tailored rehabilitation program enabling patients to be monitored by local rehabilitation teams.
- PHOSP COVID study is a national consortium investigating long term impacts of COVID-19 on health outcomes for patients hospitalised due to COVID-19.
- Up to 1 in 7 (14%) children and young people who caught SARS-CoV-2 may have symptoms linked to the virus
. 15 weeks later, according to preliminary findings from the world's largest study on long COVID in children.
- UK Collaborative on Development Research highlighted there's over **121** long COVID projects, involving **$205 million** funding investment, with the top funder being UKRI (as of July 2021).
- Guidance for people suffering from long COVID has been launched by the NHS 24 (Scotland).
- UK Office for National Statistics reported first dose of a COVID-19 vaccine was associated with 13% decrease in self-reported long-COVID symptoms among those who already had the condition. Second dose yielded a further 9% drop relative to the first.
- (NEW) 3.26%, of healthcare workers in the UK are estimated to have long Covid, according to the Office for National Statistics.
- (NEW) Around 1 in 50 people in the UK self-reported experiencing long COVID.

US

- **Post-Acute Sequelae of SARS-COV-2 Infection Initiative (NIH PASC): $1.15B/4 years**
- NIH has invested in longitudinal studies to record recovery paths of ~40,000 adults and children in a 'meta-cohort', to observe who develops long-term effects and who doesn't.
- Based on media reports, there are **80 post-COVID-19 clinics in the U.S.**. A Becker's Hospital Review article (Aug 2021) stated that **44** hospitals and health systems have launched post-COVID-19 clinics. 11.1 million Americans are living with long COVID, according to the American Academy of Physical Medicine & Rehabilitation.
- Virtua Health: "Care After COVID" program.
- **$40 million** multi-year study from Children's National Hospital and NIAID examining long-term effects of COVID-19 and multisystem inflammatory syndrome in children.
- NIH created REsearching COVID to Enhance Recovery (RECOVER) Initiative and awarded **$470 million** to create a national study population of volunteers, as well as support studies on long-term effects of COVID-19.
- Brown School of Public Health launched long COVID initiative to examine social and economic impacts of long COVID.
- NIH to study long-term effects of COVID-19 in pregnancy by following up to 1,500 pregnant patients with COVID-19 and their offspring for 4 years, as part of NIH's RECOVER initiative.
- NIH to study effects of COVID-19 infection on 1000 children over 3 years as part of RECOVER initiative.
- (NEW) John Hopkins Medicine: Long-Term Effects of COVID-19.

EMERGING SCIENTIFIC EVIDENCE

EVIDENCE PRODUCTS (*DEC 4-DEC 15, 2021*)

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
Addressing post-COVID symptoms: A guide for primary care physicians (Vance et al)	Review (Available in *J Am Board Fam Med*)	A reference guide for management of post-COVID symptoms was created for PCPs. Educational materials were created for clinicians to share with patients. This article reviews several common complaints including respiratory, cognitive, and neurological symptoms, chronic fatigue, dysautonomia, and anosmia and presents recommendations for management. Conclusions: Data on long-term effects of COVID-19 are still emerging, and rapid dissemination of this data to front-line PCPs is crucial.
Proposed subtypes of post-COVID-19 syndrome (or long-COVID) and their respective potential therapies (Yong et al)	Review (Available in *Rev Med Virol*)	Effects of COVID-19 do not always end in the acute phase. Depending on study referred, about 10%–30% (or more) of COVID-19 survivors may develop post-COVID-19 syndrome (PCS), characterised by persistent symptoms lasting for 3 months or more after acute COVID-19. While pathophysiological mechanisms of PCS have been extensively described elsewhere, subtypes of PCS have not. This review proposes and characterises six subtypes of PCS based on the existing literature. The subtypes are non-severe COVID-19 multi-organ sequelae (NSC-MOS), pulmonary fibrosis sequelae (PFS), myalgic encephalomyelitis or chronic fatigue syndrome (ME/CFS), postural orthostatic tachycardia syndrome (POTS), post-intensive care syndrome (PICS) and medical or clinical sequelae (MCS). The subtyping proposed herein aims to provide better clarity on the current understanding of PCS.

SELECT PRIMARY RESEARCH (*DEC 4-DEC 15, 2021*)

TITLE AND AUTHOR	SOURCE	SUMMARY
A model framework for projecting the prevalence and impact of Long-COVID in the UK (Martin et al)	*PLoS One*	Objective of paper is to model lost Quality Adjusted Life Years (QALYs) from symptoms arising from COVID-19 disease in UK population, including symptoms of 'long-COVID'. Scope includes QALYs lost to symptoms, but not deaths, due to acute COVID-19 and long-COVID. Assuming a 60% final attack rate for SARS-CoV-2 infection in the population, we modelled 299,730 QALYs lost within 1 year of infection (90% due to symptomatic COVID-19 and 10% permanent injury) and

		557,764 QALYs lost within 10 years of infection (49% due to symptomatic COVID-19 and 51% due to permanent injury). The UK Government willingness-to-pay to avoid these QALY losses would be £17.9 billion and £32.2 billion, respectively. Additionally, 90,143 people were subject to permanent injury from COVID-19 (0.14% of the population).
Long-Term Outcomes after Severe COVID-19 Infection: A Multicenter Cohort Study of Family Member Outcomes (McPeake et al)	*Ann Am Thorac Soc*	Study aimed to evaluate the long-term outcomes of family members of patients who had survived severe COVID-19 infection. We undertook a multicenter, prospective observational cohort study across seven critical care units in five hospitals in Scotland. Nineteen (40.4%) family members described symptoms of anxiety; 12 (63.2%) had symptoms of moderate or severe anxiety. Symptoms of depression were noted in 10 (21.3%) family members. Problems with sleeping were reported in 20 (42.6%) family members via the Insomnia Severity Index. Family members of critical care survivors in this cohort experienced high levels of anxiety and depression in the post hospital discharge phase.
Risk factors associated with long covid syndrome: A retrospective study (Asadi-Pooya et al)	*Iran J Med Sci*	Investigated long COVID syndrome, and risk factors associated with it. 4,681 patients were studied, 2915 of whom (62.3%) reported symptoms. The most common symptoms of long COVID syndrome were fatigue, exercise intolerance, walking intolerance, muscle pain, and shortness of breath. Women were more likely to experience long-term COVID syndrome than men, which was significant.
Persistent symptoms and decreased health-related quality of life after symptomatic pediatric COVID-19: A prospective study in a Latin American tertiary hospital (Fink et al)	*Clinics*	Aim was to prospectively evaluate demographic, anthropometric and health-related quality of life (HRQoL) in pediatric patients with laboratory-confirmed coronavirus disease 2019 (COVID-19). Pediatric patients with COVID-19 showed a longitudinal impact on HRQoL parameters, particularly in physical/school domains, reinforcing the need for a prospective multidisciplinary approach for these patients.
Skeletal muscle mass, sarcopenia and rehabilitation outcomes in post-acute COVID-19 patients (Gobbi et al)	*J Clin Med*	Study investigated impact of existence of sarcopenia upon admission to a post-acute COVID-19 patient rehabilitation unit on body composition and functional and respiratory capacity at discharge. Thirty-four post-acute COVID-19 patients were referred to our Rehabilitation Unit from different COVID Hospitals in northern Italy. Upon admission, the prevalence of sarcopenia among our patients was 58%. In all of the 34 patients, we observed a trend of improvement in all of the respiratory, body composition, muscle strength and functional parameters considered.
Is central sensitisation the missing link of persisting symptoms after COVID-19 infection? (Goudman et al)	*J Clin Med*	Study explored the presence of symptoms of central sensitisation, and the association with functional status and health-related quality of life, in patients post COVID-19 infection. This survey indicated the presence of symptoms of central sensitisation in more than 70% of patients post COVID-19 infection, suggesting towards the need for patient education and multimodal rehabilitation, to target nociplastic pain.
Perceived and Real Work Capacity of Patients with Post-COVID Symptoms after Mild Acute Course: A Analysis of the Rehabilitation Needs Questionnaire (RehabNeQ) (Lemhöfer et al)	*Phys Med Rehab Kuror*	Aim of analysis was to show real and perceived work ability of patients with Post-COVID syndrome. 58.7 % were able to work at the time of the interview. Perceived ability to work was reported as an average of 5.1 points out of a possible 10. Women showed an average of 6.2 points and men 4.7 points. 59.1 % of respondents in this group indicated difficulty in obtaining necessary therapies. 41.3% individuals were unable to work at the time of the survey, due to sequelae following COVID-19 disease. The mean age of the group was 46.6 years. 51.6% of the 31 subjects reported being continuously unable to work since infection. In this group, 64.5 % had difficulties in obtaining therapies that they considered necessary.
Post-COVID-19 Long Hauler Clinical Program: Change in Health-Related Quality-of-Life (Brodsky et al)	*Glob Adv Health Med*	An Integrative Medicine Center created a post–COVID-19 myalgiac encephalomyelitis (ME) program in response to a July 2020 Centers for Disease Control and Prevention document that described fatigue and other functional symptoms. 12 participants (31%) completed a baseline and follow-up survey. Mean SF-12 physical component summary scores improved 5 (SD 9) and mental component summary scores improved 4 (SD 9) in patients who completed baseline and follow-up surveys. Case studies of two patients who completed the

		SF-12 at baseline and after 4 weekly treatments illustrate the program's standardized treatment approach
Long COVID in inflammatory bowel diseases (Salvatori et al)	*J Clin Med*	We evaluated the frequency of long COVID in patients with inflammatory bowel diseases (IBD). IBD patients afferent for scheduled visits to our tertiary referral center at the Tor Vergata University Hospital, Rome, were recruited from 7 September to 22 October 2021. Fifty-three out of 528 IBD patients (10%) have had a SARS-CoV-2 infection. Of these, 21 patients (40%) developed long COVID, and asthenia was the more frequent symptom as it occurred in nearly two-thirds of patients. Patients with long COVID were more frequently females, while other clinical and demographic characteristics did not differ between patients with Long COVID and those without long COVID. Long COVID appears to be common in IBD patients even though it does not influence the IBD course.
Characteristics of Patients Referred to a Cardiovascular Disease Clinic for Post-Acute Sequelae of SARS-CoV-2 Infection (Wang et al)	*medRxiv*	Study describes the characteristics, diagnostic evaluations, and cardiac diagnoses in patients referred to a cardiovascular disease clinic designed for patients with post-acute sequelae of SARS-CoV-2 infection (PASC) from May 2020 to September 2021. Of 126 patients, average age was 46 years, 43 were male. Patients presented on average five months after COVID-19 diagnosis. 30 (24%) patients were hospitalized for acute COVID-19. Severity of acute COVID-19 was mild in 37%, moderate in 41%, severe in 11%, and critical in 9%. Patients were also followed for PASC by pulmonology (53%), neurology (33%), otolaryngology (11%), and rheumatology (7%). Forty-three patients (34%) did not have significant comorbidities. The most common symptoms were dyspnea (52%), chest pain/pressure (48%), palpitations (44%), and fatigue (42%), commonly associated with exertion or exercise intolerance. A number of cardiovascular diagnoses were identified.
Persistent Symptoms Among Frontline Health Workers Post-acute COVID-19 Infection (Wose Kinge et al)	*medRxiv*	Sought to identify persistent symptoms of COVID19 in frontline workers at Right to Care (RTC) South Africa who have past the acute phase of illness with a view to establishing rehabilitation programs for its employees and the community at large. Headache, body ache, fatigue, loss of smell, dry cough, fever, and loss of appetite were the most common reported symptoms at time of diagnosis. Persistent symptoms were characterized by fatigue, anxiety, difficulty sleeping, chest pain, muscle pain and brain fog, being the six most reported.
Long Covid: Online patient narratives, public health communication and vaccine hesitancy (Miyake et al)	*Digit Health*	Adopted a mixed methods approach involving quantitative and qualitative analyses of 1.38 million posts mentioning long-term symptoms of Covid-19, gathered across social media and news platforms between 1 January 2020 and 1 January 2021, on Twitter, Facebook, Blogs, and Forums. Results indicate that the negative impacts arise mostly from conflicting definitions of Covid-19 and fears around the Covid-19 vaccine for long Covid sufferers. Key areas of concern are: time/duration; symptoms/testing; emotional impact; lack of support and resources.
Long-term Health Ailments among COVID-19 recovered patients in South Asian Countries: A Descriptive Cross-sectional Study (Mythili et al)	*Research Square prepub*	Objective of study is to find prevalence of various health ailments among COVID recovered population from South Asian countries. Descriptive cross-section study was conducted among 384 COVID-19 recovered population in South Asian Countries through randomized survey. Among 384 samples, 68% of patients had post COVID-19 long term extreme tiredness and 64% of patients reported with sleeplessness. 73% of patients had fever and smell loss during COVID-19. 64% had reported body pain and cough when they had infection. 42% of patients were healthy ones without any comorbidity prior to COVID.
Post-COVID-19 conditions in Ecuadorian patients: an observational study (González-Andrade et al)	*Lancet Reg Health Am*	Paper compares post-COVID symptoms in 3 patient groups with mild, moderate, and severe infections in Ecuadorian outpatients. 64.3% of patients had symptoms between 4 to 6 weeks after infection, 21.1% showed ongoing symptoms between 6 to 12 weeks, and 14.6% had symptoms for more than 12 weeks. Most common symptom was fatigue in 67.3% of patients, followed by headache in 45.2%, body pain in 42.3%, and sleep disorders in 36.5%.

COVID-19: Post-recovery long-term symptoms among patients in Saudi Arabia (Khodeir et al)	*PLoS One*	Aim of present study was to identify these symptoms, their severity, and their duration as a first step in building a system to classify post-recovery long-term symptoms of coronavirus disease 2019 (COVID-19). Most common symptoms included general fatigue and weakness (73% each), with moderate severity of neurological symptoms including mood changes (41%) and insomnia (39%). Among the special senses, loss of smell and taste of marked severity were reported by 64% and 55% among respiratory symptoms, cough of mild severity (47%), and dyspnea of moderate severity (43%). Loss of appetite of moderate severity was reported in 42%, and diarrhea, abdominal pain, and nausea of mild severity were reported by 53%, 50%, and 44% of respondents, respectively.
Changes in the trajectory of Long Covid symptoms following COVID-19 vaccination: community-based cohort study (Ayoubkhani et al)	*medRxiv*	Aimed to estimate associations between COVID-19 vaccination and Long Covid symptoms in adults who were infected with SARS-CoV-2 prior to vaccination. The likelihood of long Covid symptoms reduced after COVID-19 vaccination, and the improvement was sustained over follow-up period after second dose.
Population-Based Estimates of Post-acute Sequelae of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection (PASC) Prevalence and Characteristics (Hirschtick et al)	*Clin Infect Dis*	Objective was to estimate prevalence and correlates of post-acute sequelae of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection (PASC). The analytic sample (n = 593) was predominantly female (56.1%), aged ≥45 years (68.2%), and non-Hispanic White (46.3%) or Black (34.8%). Thirty- and 60-day COVID-19 were highly prevalent (52.5% and 35.0%), even among non-hospitalized respondents (43.7% and 26.9%) and respondents reporting mild symptoms (29.2% and 24.5%). Respondents reporting very severe (vs mild) symptoms had 2.25 times higher prevalence of 30-day COVID-19 and 1.71 times higher prevalence of 60-day COVID-19.Hospitalized (vs non-hospitalized) respondents had ~40% higher prevalence of both 30-day COVID-19.
Post-sequelae one year after hospital discharge among older COVID-19 patients: a multi-center prospective cohort study (Fang et al)	*J Infect*	Objective was to systematically evaluate prevalence of post-sequelae and chronic obstructive pulmonary disease assessment test (CAT) scoring one year after hospital discharge among older COVID-19 patients, as well as potential risk factors. Of the 1233 eligible cases, 630 (51.1%) reported at least one sequelae. Top six post-sequelae included fatigue (32.4%), sweating (20.0%), chest tightness (15.8%), anxiety (11.4%), myalgia (9.0%), and cough (5.8%).Disease severity during hospitalization and follow-up time were independently associated with risk of post-sequelae, while disease severity during hospitalization was significantly associated with increased risk of emerging sequelae.

COMMENTARIES, LETTERS AND OPINION PIECES (DEC 4-DEC 15, 2021)

- **Long COVID-The New "Invisible" Illness: How School Nurses Can Support the Nursing and Educational Teams for Student Success *(NASN Sch Nurse):*** School-age children are not immune to COVID-19 or the pronounced and persistent symptoms associated with a long-COVID diagnosis. Students may present with a variety of symptoms affecting their physical, cognitive, and mental health. The school community should be educated on the school-based interventions and recommendations for creating an individualized safe and successful return to school plan. As we await approval for vaccinations in school-age children younger than 12 years and continue to reposition ourselves to the waves of this pandemic and new variants of the virus, understanding the medical and educational long-term effects on our students may be a long-term need.

- **Promotion of non-evidence-based therapeutics within patient-led Long COVID support groups *(Nature):*** Given the current lack of understanding of the disease etiology of long COVID and lack of any proven treatment options, patients are desperate for any offered hope. Long COVID support groups provide important and essential services, supporting patients and advocating for recognition and care. Through the establishment of an administrator-moderated code of conduct, it would be possible to eliminate dangerous misinformation and the promotion of non-evidence-based therapeutics, ensuring the safety and integrity of patient-led long Covid support groups, as well as patient-led support groups for other medical conditions.

MEDIA HIGHLIGHTS

CANADA

- **Why are they still sick? The latest clues in the mystery of COVID-19 long haulers (Global News):** "We know that COVID 19 can cause, or can lead to increased risk of new-onset diabetes and new-onset kidney disease. And what we know about these diseases that are really chronic diseases that don't go away," said Al-Aly, who is also chief of research and development service at the VA Saint Louis Health Care System.

- **Females more likely than males to experience long-term COVID-19 symptoms, small study suggests (CTV News):** A new report suggests females experience significantly different symptoms than males in the weeks and months following a COVID-19 infection. The new research, published last month as a pre-proof in the journal Mayo Clinic Proceedings, found that among the first 108 patients to the Mayo Clinic's Post-COVID-19 Care Clinic in Minnesota, 75 per cent of them were females.

GLOBAL

- **What We've Learned About Identifying And Treating Long-Haul COVID (NPR):** It's estimated that over half of the 270 million people diagnosed with COVID-19 worldwide since December 2019 will experience post-COVID symptoms. Long covid is testing not just the medical system, but also government safety nets that are not well suited to identifying and supporting people with a newly emerging chronic disease that has no established diagnostic or treatment plan. Insurers are denying coverage for some tests, the public disability system is hesitant to approve many claims, and even people with long-term disability insurance say they are struggling to get benefits.

- **'Scary and confusing': When kids suffer from long COVID-19 (Association of American Medical Colleges):** Even months after COVID-19 infection, children can suffer an array of symptoms from difficulty concentrating to trouble breathing. Some are finding hope at new long COVID-19 clinics created just for kids. Older children seem to fare worse, but that may be partly because of their ability to articulate concerns, says Yonts, who has seen kids as young as 3 in her clinic. Research further suggests that symptoms may recede — and then come back.

- **Long Covid among staff adding to healthcare pressures, say NHS leaders (Independent):** NHS bosses have warned the high prevalence of long Covid among staff is adding to rising healthcare pressures, amid growing concern that the new omicron variant could further drive infections and absences in the workforce. Some 40,000 of healthcare workers in the UK are estimated to have long Covid, according to the Office for National Statistics. This figure has risen by 5,000 since July.

POST-COVID-19 RESOURCES

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)

- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Webinar - Implications of Long COVID (Canada): October 2021 CADTH webinar with expert panel discussing what is known know about long COVID, long COVID clinics, and what needs to be done to ensure quality of care.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)

NEWLY ADDED RESOURCES:

- ECDC: Webinar on post-COVID-19 condition in children (December 7).

APPENDIX

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

Figure 1. **CIHR Funded Operating Grant: Emerging COVID-19 Research Gaps & Priorities - Post COVID-19 condition (Select Studies)**

Name	Institution Paid	Project Title	CIHR Funding Contribution	Funding Term
Gershon, Andrea S; Aaron, Shawn D; Gupta, Samir; Lavoie, Kim; Leung, Janice; Sin, Donald; Stickland, Michael K; To, Teresa	Sunnybrook Research Institute (Toronto, Ontario)	The Canadian Respiratory Research Network Long COVID-19 Study	$500,000	1 year
Raj, Satish R	University of Calgary	Muticentre Assessment of Cardiovascular Hemodynamics and Autonomic Dysfunction with Long COVID	$277,613	1 year
Sander, Beate H; Janjua, Naveed Z; Kwong, Jeffrey C; Mishra, Sharmistha; Sbihi, Hind	University Health Network (Toronto)	Predictors and burden of post-acute COVID-19 syndrome (long-COVID) with a focus on equity	$499,645	1 year
Weatherald, Jason; Granton, John T; Mak, Susanna	University of Calgary	Pulmonary vascular disease in patients with Long COVID	$292,092	1 year
Archambault, Patrick; Berger Pelletier, Elyse; Graves, Donna Lorraine; McGavin, Colleen B; Dainty, Katie N; Hohl, Corinne M; Perry, Jeffrey J; Rosychuk, Rhonda J	Université Laval	Investigating the Post-Acute Sequelae of SARS-CoV-2 Infections: a Patient Oriented Canadian COVID-19 Emergency Department Rapid Response Network (CCEDRRN) Study	$499,945	1 year
Corbeil, Jacques; Lambert, Jean-Philippe	Université Laval	COVID-19 persistent symptomatology: an investigation of the metabolomic and proteomic underpinning	$394,000	1 year
Nacul, Luis; Levin, Adeera; Mckay, Rhonda J; Song, Xiaowei	University of British Columbia	A double blind randomized trial of low-dose naltrexone for post-covid fatigue syndrome	$742,331	1 year
Leong, Darryl	McMaster University	Post-Acute Complications of COVID-19: An International Cohort Study (PACS) Note in a previous iteration, proposal was titled PACMAN as indicated in some Letters of Support	$495,684	1 year
Law, Susan K	Trillium Health Partners (Mississauga, ON)	Living with long-COVID. Patient experience to inform policy makers and care providers	$275,969	1 year
Hatcher, Simon; Orpana, Heather M; Werier, Joel M	Ottawa Hospital Research Institute	In people with Long Covid does adding a digital health platform to usual care improve outcomes at three months compared to usual care alone? The Enhancing Covid Rehabilitation with Technology (ECORT) randomised controlled trial	$922,869	1 year
Mukherjee, Manali; Svenningsen, Sarah; Tselios, Konstantinos	McMaster University	SARS-CoV-2 triggers Autoimmunity: implications for the pathogenesis of Post-Acute COVID-19 Syndrome - (AI-PACS)	$0 CIHR External Partner (PHAC) Contribution-$499,245	1 year
Cheung, Angela M; JÃ¼ni, Peter; Tomlinson, George A	University Health Network (Toronto)	The RECLAIM (REcovering from COVID-19 Lingering symptoms Adaptive Integrative Medicine) trial	$1,000,000	1 year
Ramanathan, Sheela; Piche, Alain	Université de Sherbrooke	Clinicopatholgical correlates of long COVID and potential interventions for improving the quality of life	$490,000	1 year
Ho, Chester; O'Connell, Petra; Zilkie, Tracey A	University of Alberta	Implementing the Provincial Post COVID-19 Rehabilitation Framework for Screening & Transitions in Alberta: A Pragmatic Evaluation	$499,883	1 year
Baker, Andrew J; Dos Santos, Claudia C	Unity Health Toronto	Autoimmunity as a novel mechanism in post-COVID syndrome	$0 CIHR External Partner (PHAC) Contribution-$269,500	1 year

Gross, Douglas P; Lam, Grace Y; Skolnik, Kate; Weatherald, Jason	University of Alberta	Exploring Rehabilitation Needs and Access to Services for Long COVID	$152,778	1 year
Yeung, Rae S; Benseler, Susanne; Haddad, Elie	Hospital for Sick Children (Toronto)	Post COVID hyperinflammation: A syndrome beyond the name	$0 CIHR External Partner (PHAC) Contribution- $499,170	1 year
Pasquier, Jean Charles; Beaulieu, Jean-François; Chaillet, Nils; Laforest-Lapointe, Isabelle; Piche, Alain; Robitaille, Julie	Universite de Sherbrooke	Évaluation de l'efficacité des probiotiques sur les affections post-COVID-19.	$997,273	1 year
Swayne, Leigh A; Tremblay, Marie-Ève	University of Victoria (British Columbia)	Understanding and treating the adverse effects of COVID-19 on the brain	$293,000	1 year
Kendall, Claire; Hawken, Steven; Tanuseputro, Peter	Bruyère Research Institute	Health equity and the post COVID-19 condition	$221,728	1 year
Green, Robin E; Cheung, Angela M	University Health Network (Toronto)	An intervention to teach self-management skills for persisting symptoms of COVID-19: Minimizing impact of symptoms on everyday functioning and on healthcare usage/utilization - A randomized controlled trial	$330,562	1 year
Falcone, Emilia L	Institut de recherches cliniques de Montréal	Identification of microbial factors to modulate immune dysregulation and treat post-COVID-19 syndrome.	$0 CIHR External Partner (PHAC) Contribution- $493,955	1 year
Quinn, Kieran L; Chan, Timothy; Cheung, Angela M; Ghassemi, Marzyeh; Herridge, Margaret S; Mamdani, Muhammad; Razak, Fahad; Rosella, Laura C; Verma, Amol	Sinai Health System (Toronto)	Improving the recognition and care of patients with long-term health complications of COVID-19	$499,998	1 year
O'Brien, Kelly K; Brown, Darren A; Bergin, Colm J; Erlandson, Kristine M; Vera, Jaime	University of Toronto	Long COVID and Episodic Disability: Advancing the Conceptualization, Measurement and Knowledge of Episodic Disability with people living with Long COVID	$204,205	1 year
Roy, Jean-Sébastien; Paquette, Jean-Sébastien; Perreault, Kadija	Université Laval	Better understanding physical and cognitive impairments and functional limitations in people suffering from long COVID to support the development of adapted interventions	$293,100	1 year
Sin, Donald	University of British Columbia	Biomarker Discovery for the Post-COVID Pulmonary Syndrome	$499,500	1 year
Beauchamp, Marla K; Costa, Andrew P; Duong, Mylinh; Ho, Terence; Kruisselbrink, Rebecca; Raina, Parminder S	McMaster University	The McMaster Multi-Regional Hospital Coronavirus Registry (COREG): Extending a Rapid Research Platform to Inform the Clinical Management of COVID-19 'long haulers'	$497,800	1 year
Paterson, Theone; Gicas, Kristina M	University of Victoria (British Columbia)	Investigating Neuropsychological Consequences of COVID-19 on Adults, and Examination of Associated Risk and Resilience Factors	$199,121	1 year
Graff-Guerrero, Ariel; Gerretsen, Philip	Centre for Addiction and Mental Health (Toronto)	Long COVID-19 on the human brain	$932,475	1 year
Graham, Simon J; Chen, Jing J; Gilboa, Asaf; MacIntosh, Bradley J; Schweizer, Tom A; Sekuler, Allison B	Sunnybrook Research Institute (Toronto, Ontario)	Post-Acute Sequelae of COVID-19: An Electroencephalography and Magnetic Resonance Neuroimaging Study of the Elderly in our Communities	$500,000	1 year

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
To: 21(1) [redacted]
Subject: RE: Logic taking a backseat again?
Date: December 20, 2021 1:05:00 PM

Dear 21(1) [redacted]

Thank you for sharing your concerns.

At this time, New Brunswick's Covid-19 Winter Plan is in effect. The plan indicates that retail businesses can be open with either physical distancing of two meters between patrons or businesses can require proof of vaccination of all patrons that are 12 and older. We expect that most retail stores, including those that sell essential goods and services, will choose to ensure 2-metres-distancing within their stores rather than expect proof of vaccination. Grocery stores will continue to be able to serve all New Brunswickers.

Public Health expects that New Brunswickers will continue to cooperate by physically distancing, wearing masks, and sanitizing to minimize the spread the spread of Covid-19. Please be aware, the situation is fluid and the information changes daily. We strongly encourage you to visit our dedicated COVID-19 website for the most current information: www.gnb.ca/coronavirus.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé
For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

Get Outlook for iOS

From: 21(1) [redacted]
Sent: Sunday, December 19, 2021 11:32:01 PM
To: Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>; Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>; Shephard, Dorothy Hon. (DH/MS) <Dorothy.Shephard@gnb.ca>; Fitch, Bruce Hon. (SD/DS) <Bruce.Fitch@gnb.ca>; Mitton, Megan (LEG) <Megan.Mitton@gnb.ca>
Subject: Logic taking a backseat again?

ATTENTION! External email / courriel externe.

Hello Everyone,

I see that the idea of keeping essential workers safe by asking customers to show a vaccine passport is seen as preventing people from getting their groceries. Perhaps those of you who believe this, would all like to take the place of grocery store workers. I'm sure you'd be fine when the customer with their mask under their nose comes through your cash desk or crowds you in an aisle asking where to find peppercorns. You'll think, "I might not be entirely safe, I might bring home Delta or Omicron to my family member who is undergoing chemotherapy or my daughter who was born with CP but thank goodness this person who has chosen not to get a vaccine doesn't have to show a passport to get their groceries!". Or perhaps you might think, if they have chosen to not get a vaccine and booster, then their choice comes with consequences. Those consequences are that they have to get their groceries delivered or they can pick them up curbside. The option of having to show a passport does not mean that they will starve or that we are living in a fascist state. Anyone who is unable to have a vaccine due to not being able to produce antibodies or because they are immunocompromised are more than likely not going shopping because well, they really are vulnerable or immunocompromised. They didn't make a choice to be either.

Putting other's health at risk for the false equivalent of the freedom to shop means that Covid and especially Omicron is going to race through the province. Most of us who have been vaxxed and boosted will probably not experience a trip to the ICU but can we say the same about everyone in our family or immediate contacts who are at risk?

What about long Covid? How is our already broken healthcare system going to cope with the rising costs of long Covid? You can have a very mild case of Covid but end up with long Covid - racing heart, breathing difficulty, damage to major organs, acquired brain injury, etc. Is it really worth the risk when there is an easy and cost-effective solution of showing a vaccine passport. If you're not vaccinated, then you are denied the opportunity to risk the health of others.

Please revisit your decision to not require vaccine passports for entry to grocery stores. Choices that risk the lives and long term health of others should come with negative consequences. We talk about essential workers and then decide that their health and safety isn't really our concern? That's not right. We know who is essential. Let's show the essential workers that we mean it when we say that we value them; let's put their health and safety first.

21(1) [redacted]
[redacted]

From: Power, Michaela (ECO/BCE)
To: Day, Barbara (DH/MS); Chalifoux, Mathieu (DH/MS); LeBlanc, Shannon (DH/MS); Muecke, Dr. Cristin (DH/MS)
Cc: Macfarlane, Bruce (DH/MS); Harding, Gail (ECO/BCE); Guenard, Michelle (ECO/BCE)
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM
Date: December 22, 2021 3:26:57 PM

Hi everyone,
I am checking on the status of this request.
Thank you,
Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: December 22, 2021 12:01 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Muecke, Dr. Cristin (DH/MS) <Dr.Cristin.Muecke@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: MEDIA REQUEST:21(1) [redacted] – AN – Long COVID - December 22 5PM
Thanks Michaela! Hi all, please see the suggested response below for an accuracy check. Thanks!
NAME: 21(1) [redacted]
OUTLET: Acadie Nouvelle
CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted]@acadienouvelle.com>
DEADLINE TO SEND RESPONSE TO REPORTER: 5 PM
ROUTINE (Yes or No):
REQUEST:
J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID". Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?

I would like to know what Public Health knows about the risks presented by the "long COVID."

Even if the vaccination of young people is progressing, it is still a good part of the population

that is at risk of developing symptoms. long term.

-Is the risk to the population of developing long-term symptoms one of the factors taken into

account by public health when it comes time to make decisions on what action to take?

-Public health uses the number of hospitalizations as the main trigger to impose new measures, rather than the number of cases. Is this wise, given the fact that people are still at risk of developing long-term symptoms?

PROPOSED RESPONSE:

26(1)(a) [redacted]

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: December 22, 2021 11:00 AM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM

I found this answer from August 31, but I'm not sure if they updated anything since then

26(1)(a) [redacted]

From: Power, Michaela (ECO/BCE)
Sent: December 22, 2021 10:49 AM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM
Importance: High

I think we had an old response on Long COVID, I'll see if I can find it

NAME: 21(1) [redacted]
OUTLET: Acadie Nouvelle
CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted] @acadienouvelle.com>
DEADLINE TO SEND RESPONSE TO REPORTER: 5 PM
ROUTINE (Yes or No):
REQUEST:
J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID". Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?

I would like to know what Public Health knows about the risks presented by the "long COVID."

Even if the vaccination of young people is progressing, it is still a good part of the population

that is at risk of developing symptoms. long term.

-Is the risk to the population of developing long-term symptoms one of the factors taken into

account by public health when it comes time to make decisions on what action to take?

-Public health uses the number of hospitalizations as the main trigger to impose new

measures, rather than the number of cases. Is this wise, given the fact that people are still at

risk of developing long-term symptoms?

PROPOSED RESPONSE:

26(1)(a) [redacted]

From: 21(1) [redacted] @acadienouvelle.com>
Sent: Wednesday, December 22, 2021 10:38 AM
To: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: Covid long (DL 5h)
Salut Bruce,

J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID". Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?

Ma deadline est aujourd'hui à 5h. Merci!

--

[redacted]

Merci d’appuyer l’information de qualité

From:	Day, Barbara (DH/MS)
To:	Power, Michaela (ECO/BCE); Elliott, Jennifer (DH/MS); Chalifoux, Mathieu (DH/MS); LeBlanc, Shannon (DH/MS); Muecke, Dr. Cristin (DH/MS)
Cc:	Macfarlane, Bruce (DH/MS); Harding, Gail (ECO/BCE); Guenard, Michelle (ECO/BCE)
Subject:	FOR APPROVAL: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM
Date:	December 22, 2021 3:35:12 PM

Adding in Jennifer for review / approval.
NAME: 21(1) [redacted]
OUTLET: Acadie Nouvelle
CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted] @acadienouvelle.com>
DEADLINE TO SEND RESPONSE TO REPORTER: 5 PM
ROUTINE (Yes or No):
REQUEST:
J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID". Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?

I would like to know what Public Health knows about the risks presented by the "long COVID."

Even if the vaccination of young people is progressing, it is still a good part of the population that is at risk of developing symptoms. long term.

-Is the risk to the population of developing long-term symptoms one of the factors taken into account by public health when it comes time to make decisions on what action to take?

-Public health uses the number of hospitalizations as the main trigger to impose new measures, rather than the number of cases. Is this wise, given the fact that people are still at risk of developing long-term symptoms?

PROPOSED RESPONSE:
26(1)(a) [redacted]

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>

Sent: December 22, 2021 3:27 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Muecke, Dr. Cristin (DH/MS) <Dr.Cristin.Muecke@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM
Hi everyone,
I am checking on the status of this request.
Thank you,
Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: December 22, 2021 12:01 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Muecke, Dr. Cristin (DH/MS) <Dr.Cristin.Muecke@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM
Thanks Michaela! Hi all, please see the suggested response below for an accuracy check. Thanks!
NAME: 21(1) [redacted]
OUTLET: Acadie Nouvelle
CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted] @acadienouvelle.com>
DEADLINE TO SEND RESPONSE TO REPORTER: 5 PM
ROUTINE (Yes or No):
REQUEST:
J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID". Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?

I would like to know what Public Health knows about the risks presented by the "long COVID."

Even if the vaccination of young people is progressing, it is still a good part of the population

that is at risk of developing symptoms. long term.

-Is the risk to the population of developing long-term symptoms one of the factors taken into

account by public health when it comes time to make decisions on what action to take?

-Public health uses the number of hospitalizations as the main trigger to impose new measures, rather than the number of cases. Is this wise, given the fact that people are still at risk of developing long-term symptoms?

PROPOSED RESPONSE:

26(1)(a) [redacted]

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: December 22, 2021 11:00 AM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM

I found this answer from August 31, but I'm not sure if they updated anything since then

26(1)(a) [redacted]

From: Power, Michaela (ECO/BCE)
Sent: December 22, 2021 10:49 AM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>; Guenard, Michelle (ECO/BCE) <Michelle.Guenard@gnb.ca>
Subject: MEDIA REQUEST: 21(1) [redacted] – AN – Long COVID - December 22 5PM
Importance: High

I think we had an old response on Long COVID, I'll see if I can find it

NAME: 21(1) [redacted]
OUTLET: Acadie Nouvelle
CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted] @acadienouvelle.com>
DEADLINE TO SEND RESPONSE TO REPORTER: 5 PM
ROUTINE (Yes or No):
REQUEST:
J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID".

Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?

I would like to know what Public Health knows about the risks presented by the "long COVID."

Even if the vaccination of young people is progressing, it is still a good part of the population that is at risk of developing symptoms. long term.

-Is the risk to the population of developing long-term symptoms one of the factors taken into account by public health when it comes time to make decisions on what action to take?

-Public health uses the number of hospitalizations as the main trigger to impose new measures, rather than the number of cases. Is this wise, given the fact that people are still at risk of developing long-term symptoms?

PROPOSED RESPONSE:

26(1)(a) [redacted].

From: 21(1) [redacted]@acadienouvelle.com>
Sent: Wednesday, December 22, 2021 10:38 AM
To: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: Covid long (DL 5h)
Salut Bruce,

J'aimerais savoir ce que la Santé publique sait au sujet des risques présentés par le "long COVID". Même si la vaccination des jeunes avance, c'est quand même une bonne partie de la population qui court le risque de développer des symptômes à long terme.

-Est-ce que le risque encouru par la population de développer des symptômes à long terme est l'un des facteurs pris en compte par la santé publique lorsque vient le temps de prendre des décisions sur les mesures à imposer?

-La Santé publique utilise le nombre d'hospitalisations comme déclencheur principal pour imposer

de nouvelles mesures, plutôt que le nombre de cas. Est-ce que cela est sage, compte tenu du fait que la population court tout de même le risque de développer des symptômes à long terme?
Ma deadline est aujourd'hui à 5h. Merci!

--

[redacted]

Merci d’appuyer l’information de qualité

From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	Fitzgerald-Husek, Alanna (PHAC/ASPC); Archibald, Chris (PHAC/ASPC); annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jayne Boutilier; jesse kancir; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP; MPS; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Valerie.Mann@health.gov.sk.ca; Wajid.ahmed@ontario.ca
Cc:	Cidsc Secretariat (PHAC/ASPC)
Subject:	OCSO Post COVID-19 Condition Scan (Jan 14)
Date:	January 17, 2022 2:45:51 PM
Attachments:	OCSO Post-COVID Condition Scan 14_Jan 14_2021.pdf

---

TAC Members,

On behalf of the Office of the Chief Science Officer, please find attached the latest COVID-19 environmental scan to be shared with TAC.

This product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Dec 16th to Jan 14th).

Thanks,

TAC Sec't

POST COVID-19 CONDITION

OCSO SCAN OF EVIDENCE #14

Dec 16, 2021- Jan 14, 2022

SCOPE

This update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc.) Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Internationally, multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This month's scan includes a report by Brookings Institution examining the impact of long COVID on the labour shortage, a scoping review on the symptoms and management of long COVID, as well as new guidance on long COVID from the Royal Australian College of General Practitioners.

GUIDELINES OR STANDARDS

- The **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve. A separate definition may be applicable for children.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - (NEW) WHO Q&A page on Post-COVID-19 Condition (December 2021).

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals by UK **NICE** (Updated November 2021).

- Chartered Society of Physiotherapy in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for Canadian Rehabilitation and Exercise Professionals on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- Government of Canada: COVID-19 for health professionals - Post COVID-19 condition

- Center for Effective Practice – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (AAPM&R): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- (NEW) Royal Australian College of General Practitioners (RACGP) guidance for GPs caring for 'long COVID' patients.

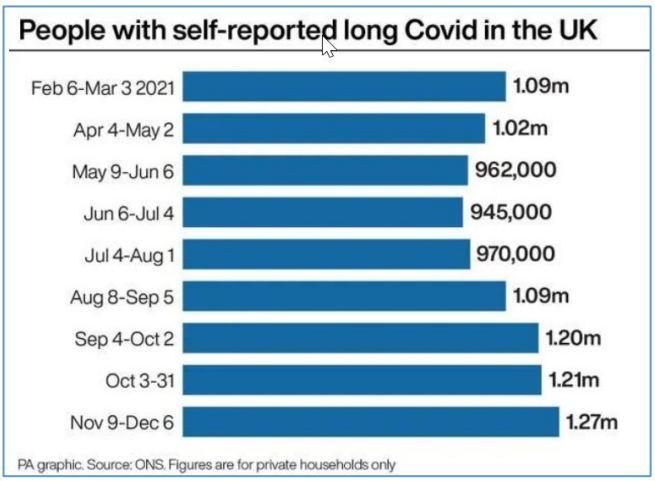
NATIONAL AND INTERNATIONAL DEVELOPMENTS (*DEC 16, 2021-JAN 14, 2022*)

CANADA

- (NEW) Due to changes in B.C.'s COVID-19 testing guidelines, the Post-COVID-19 Interdisciplinary Clinical Care Network (PC-ICCN) will be reviewing eligibility requirements for Post-COVID Clinics to ensure continued equitable access to care for patients who continue to experience symptoms longer than 3 months.
- (NEW) Alberta Health Services estimates 68,200 have or will develop long-COVID.

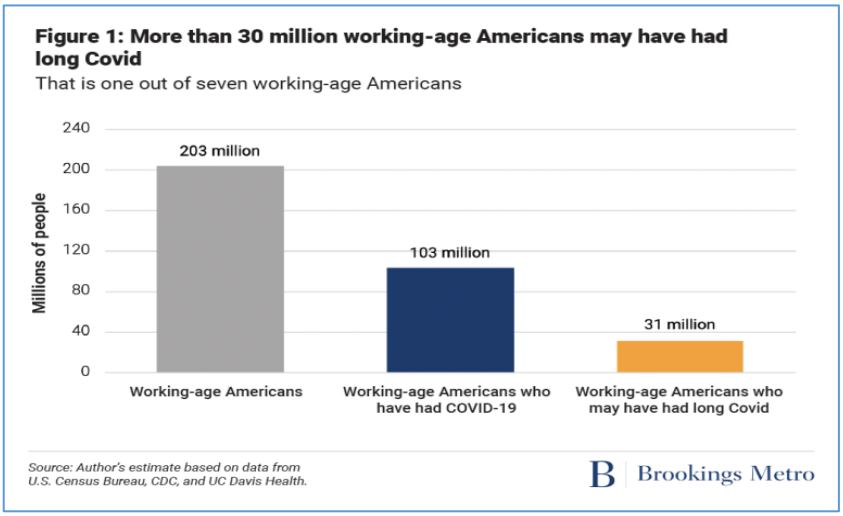
UK

- (NEW) UK Parliament: Rapid Response article on long COVID.
- (NEW) One in 50 people in UK experiencing long Covid, survey suggests. Fatigue is the most common symptom affecting people with the condition, followed by loss of smell. The figures, from the Office for National Statistics (ONS), are based on self-reported long Covid from a representative sample of people in private households. Responses were collected in the four weeks to December 6 – before the recent surge in coronavirus infections driven by Omicron.
- (NEW) Support resources on long COVID posted by the UK Department of Health and Social Care.



US

- (NEW) Long-haul symptoms from COVID-19 infection are still possible even for people who contract a milder case of the omicron variant, Dr. Anthony Fauci said in an interview with Spectrum News on Wednesday.
- (NEW) Funding Opportunity by the Department of Health and Human Services (Centers for Disease Control – NCIRD): Tracking the burden, distribution, and impact of Post COVID-19 conditions in diverse populations for children, adolescents, and adults (Track PCC) – **45 million.**
- (NEW) Report by U.S. based Brookings Institution examining whether long COVID is worsening the labour shortage.



EMERGING SCIENTIFIC EVIDENCE (*DEC 16, 2021-JAN 14, 2022*)

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
A clinical case definition of post-COVID-19 condition by a Delphi consensus (Soriano et al)	Review (Available in *Lancet Infect Dis*)	The absence of a globally standardised and agreed-upon definition hampers progress in characterisation of its epidemiology and the development of candidate treatments. In a WHO-led Delphi process, we engaged with an international panel of 265 patients, clinicians, researchers, and WHO staff to develop a consensus definition for this condition. 14 domains and 45 items were evaluated in two rounds of the Delphi process to create a final consensus definition for adults: post-COVID-19 condition occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset, with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis. Although the consensus definition is likely to change as knowledge increases, this common framework provides a foundation for ongoing and future studies of epidemiology, risk factors, clinical characteristics, and therapy.
Symptoms and management of long COVID: A scoping review (Cha et al)	Scoping Review (Available in *J Clin Nurs*)	Conducted a literature search to retrieve articles published from May 2020 to March 2021. Among 1880 articles retrieved, 34 articles met or criteria for review: 21 related to symptom presentation and 13 to management of long COVID. Long COVID symptoms were described in 21 articles. Following COVID-19 treatment, hospitalised patients most frequently reported dyspnoea, followed by anosmia/ageusia, fatigue and cough, while non-hospitalised patients commonly reported cough, followed by fever and myalgia/arthralgia. 13 studies described management for long COVID: Focused on a multidisciplinary approach in 7 articles, pulmonary rehabilitation in 3 articles, fatigue management in 2 articles and psychological therapy in 1 study.
Analysis of post COVID-19 condition and its overlap with myalgic encephalomyelitis/ chronic fatigue syndrome (Sukocheva et al)	Review (Available in *J Adv Res)*	COVID-19 triggers development of numerous pathologies and infection-linked complications and exacerbates existing pathologies in nearly all body systems. Adverse SARS-CoV-2 effects were observed in nervous, cardiovascular, gastrointestinal/metabolic, immune, and other systems in COVID-19 survivors. Long-term effects of this infection have been recently observed and represent distressing sequelae recognised by WHO as post-COVID-19 condition. Considering the pandemic is still ongoing, more time is required to confirm post COVID-19 condition diagnosis in the COVID-19 infected cohorts, although many reported post COVID-19 symptoms overlap with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS).

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Study of Prevalence and Characteristics of Long Covid in Spanish Children (Bergia et al)	*Research Square prepub*	Objective was to know prevalence of prolonged symptoms in children with confirmed SARS-CoV-2 infection, and to describe their clinical characteristics and possible risk factors. 82% presented mild outpatient infection, and 5.1% required admission in PICU. Mean age was 5.9 years old. Control group of 98 children included. In 14.6% cases at least one symptom lasted longer than 12 weeks. Insomnia, concentration problems, apathy or sadness and anxiety were the longest. Age above 5 years; admission, the need for PICU, and to have a relative with prolonged symptoms were significantly associated with Long-COVID. When comparing with controls age above 5 years old, myalgia, asthenia, and loss of appetite were significantly associated with Long-COVID.

Clinical characteristics with inflammation profiling of Long-COVID and association with one-year recovery following hospitalisation in the UK: a prospective observational study (Evans et al)	*medRxiv*	PHOSP-COVID is a prospective longitudinal cohort study, recruiting adults hospitalised with COVID-19 across the UK. 2320 participants have been assessed at 5 months after discharge and 807 participants have completed both five-month and one-year visits. Proportion of patients reporting full recovery was unchanged between five months (25.6%) and one year (28.9%). Factors associated with being less likely to report full recovery at one year were: female sex, obesity and IMV.
Cognitive sequelae of long COVID may not be permanent. A prospective study (Del Brutto et al)	*Eur J Neurol*	Study aimed to assess whether COVID-19-related cognitive decline is a permanent deficit or if it improves over time. Study participants had 4 cognitive evaluations, 2 before the pandemic and the other two, 6 and 18 months after initial SARS-CoV-2 outbreak infection in village. 6 months after infection, only COVID-19 survivors had significant decline in MoCA scores, which reversed after one additional year of follow-up.
Characterizing the COVID-19 Illness Experience to Inform the Study of Post-acute Sequelae and Recovery (Santiago-Rodriguez et al)	*Int J Behav Med*	We characterized variability in acute illness experience and ongoing recovery process from participants in a COVID-19 recovery cohort study in Northern California in 2020. After integrating thematic analysis with clinical data, identified 3 key themes: (1) across symptom profiles and severity, experiencing COVID-19 was associated with psychological distress; (2) symptomatic infection carried uncertainty in symptom presentation and ongoing recovery (e.g., long COVID); and (3) health information-seeking behavior was facilitated by access to medical care and uncertainty with the recovery process.
Assessing the acceptability of a co-produced long COVID intervention in an underserved community in the UK (Fowler-davis et al)	*Int J Environ*	Aim of project was to co-produce an acceptable intervention for people with Long COVID living in communities recognised as more deprived in the UK. The online intervention was based on a multi-disciplinary team using approaches from sport and exercise medicine and functional rehabilitation. 8 participants completed intervention, and their needs were commonly associated with fatigue, anxiety and depression.
Association between vaccination status and reported incidence of post-acute COVID-19 symptoms in Israel: a cross-sectional study of patients infected between March 2020 and November 2021 (Kuodi et al)	*medRxiv*	We determined whether vaccination was associated with reporting long-term symptoms post-SARS-CoV-2 infection by comparing, among individuals previously infected with SARS-CoV-2, those who were vaccinated to those who were not, in terms of self-reported long-term symptoms. After adjusting for follow-up time and baseline symptoms, fully vaccinated (2 or more doses) individuals were less likely than unvaccinated individuals to report fatigue, headache, weakness, and persistent muscle pain by 64%, 54%, 57%, and 68% respectively.
Effect of SARS-CoV-2 Vaccination on Symptoms from Post-Acute Sequelae of COVID-19: Results from the Nationwide VAXILONG Study (Scherlinger et al)	*Vaccines*	We conducted a nationwide online study among adult patients with PASC as defined by symptoms persisting over 4 weeks following a confirmed or probable COVID-19, without any identified alternative diagnosis. Information concerning PASC symptoms, vaccine type and scheme and its effect on PASC symptoms were studied. The initial infection was proven in 365 patients (64%) and 5.1% had been hospitalized to receive oxygen. 396 patients had received at least one injection of SARS-CoV-2 vaccine at time of survey. Among 380 patients who reported persistent symptoms at time of vaccination, 201 (52.8%) reported a global effect on symptoms following the injection, corresponding to an improvement in 21.8% and a worsening in 31%. No differences based on type of vaccine used. After complete vaccination, 93.3% (28/30) of initially seronegative patients reported a positive anti-SARS-CoV-2 IgG. A total of 170 PASC patients hadn't been vaccinated. Most common reasons for postponing vaccine were fear of worsening PASC symptoms (55.9%) and belief that vaccination was contraindicated because of PASC (15.6%).
Prevalence, characteristics, and predictors of Long COVID among diagnosed cases of COVID-19 (Arjun et al)	*medRxiv*	Study estimated prevalence and identified characteristics and predictors of long COVID among patients. Long COVID was reported by 29.2% participants. Prevalence of long COVID among patients with mild/moderate disease was 23.4% as compared to 62.5% insevere/critical cases. Most common Long COVID symptom was fatigue (64.8%) followed by cough (32.4%). Statistically significant predictors of Long COVID were - Pre-existing medical conditions, having a

		significant number of symptoms during acute phase of COVID-19, two doses of COVID-19 vaccination, severity of illness and being admitted to hospital.
Long COVID symptoms and duration in SARS-CoV-2 positive children - a nationwide cohort study (Borch et al)	*Eur J Pediatr*	Aim of study was to evaluate symptoms and duration of 'long COVID' in children. Nationwide cohort study of 37,522 children aged 0–17 years with RT-PCR verified SARS-CoV-2 infection and a control group of 78,037 children. Most reported symptoms among pre-school children were fatigue, loss of smell, loss of taste and muscle weakness. Among school children most significant symptoms were loss of smell, loss of taste, fatigue, respiratory problems, dizziness, muscle weakness and chest pain. Long COVID in children is rare and symptoms resolved within 1–5 months.
Trajectory Curves of post-COVID Anxiety/Depressive Symptoms and Sleep Quality in Previously Hospitalized COVID-19 Survivors: The LONG-COVID-EXP-CM Multicenter Study (Fernández-de-Las-Peñas et al)	*Psychol Med*	We present a study investigating trajectory curves of post-COVID anxiety/depressive symptoms as well as sleep quality, fitted with exponential trajectory model, in previously hospitalized COVID-19 survivors. Mosaic plots revealed prevalence of anxiety symptoms slightly decreased from 16% at T1 to 15.1% at T2, whereas prevalence of depressive symptoms decreased from 18% at T1 to 13.2% at T2.
Prevalence of Long COVID symptoms in Bangladesh: A prospective Inception Cohort Study of COVID-19 survivors (Hossain et al)	*BMJ Global Health*	Objective of study was to identify prevalence of long COVID symptoms in a large cohort of people living with and affected by long COVID and identify any potential associated risk factors. Cardiorespiratory parameters measured at rest (heart rate, systolic blood pressure, diastolic blood pressure, oxygen saturation levels, maximal oxygen consumption, inspiratory and expiratory lung volume) were also measured. Among 2198 participants, prevalence of long COVID symptoms at 12 weeks was 16.1%. 8 long COVID symptoms were identified and in descending order of prominence are: fatigue, pain, dyspnoea, cough, anosmia, appetite loss, headache and chest pain. People living with and affected by long COVID experienced between 1 and 8 long COVID symptoms with an overall duration period of 21.8±5.2 weeks.
Evaluation of 3-month follow-up of patients with post-acute COVID-19 syndrome (Kerget et al)	*J Med Virol*	Study aimed to evaluate patients with post-acute COVID-19 over 12 weeks of follow-up. Evaluation of laboratory parameters at 4 and 12 weeks showed that group 3 had higher lactose dehydrogenase (LDH) level and lower mean platelet volume than other groups at both time points. Group 3 also had lower FVC%, FEV1%, and DLCO/VA% compared to groups 1 and 2 at week 4 and compared to group 1 at 12 weeks. Patients with persistent dyspnea at 12 weeks had significantly lower FEV1%, FVC%, DLCO/VA%, and saturation levels in room air and significantly higher LDH, pro-BNP, D-dimer, and heart rate compared to those without dyspnea.
Determinants of COVID-19-Related Length of Hospital Stays and Long COVID in Ghana: A Cross-Sectional Analysis (Crankson et al)	*Int J Environ*	There is paucity of data on determinants of length of COVID-19 admissions and long COVID, an emerging long-term sequel of COVID-19, in Ghana. This study identified these determinants and discussed their policy implications. Regression analyses showed that, on average, COVID-19 patients with hypertension and diabetes mellitus spent almost 2 days longer in hospital had 4 times the odds of long COVID compared to those with no comorbidities. In addition, the odds of long COVID decreased with increasing patient's education level.
Perception, Prevalence, and Prediction of Severe Infection and Post-acute Sequelae of COVID-19 (Knightet al)	Am J Med Sci	Aim of study was to assess, characterize, and describe the prevalence and predicting factors of patient-reported severe COVID-19 infection and post-acute sequelae of COVID-19 (PASC). We prospectively surveyed patients who received care in our outpatient clinic for COVID-19 from Mar-Aug, 2020, and then retrospectively reviewed their electronic health records. Of those receiving survey, 437 adult patients with different degrees of severity of COVID-19 illness responded. In total, 34.9% had persistent symptoms, and 11.5% were hospitalized. The most common symptom was fatigue (75.9%), followed by poor sleep quality (60.3%), anosmia (56.8%), dysgeusia (55%), and dyspnea (54.6%). Predicting factors for PASC were female sex and a negative psychological impact of the disease. Age, hospitalization, persistent symptoms, psychological impact (eg,

		anxiety and depression), and time missed from work were significantly associated with perception of having severe COVID-19 illness. Hospitalization was not significantly associated with PASC.
Functional status, mood state, and physical activity among women with post-acute COVID-19 syndrome (Carter et al)	*medRxiv*	Case-control design was employed to assess attendant effects on functional status, mood state, and leisure-time physical activity (PA) in post-acute COVID-19 syndrome. SARS-CoV-2 participants exhibited poorer functional status and reduced leisure-time PA compared to controls. Significant between-group differences were also detected for POMS total mood disturbance with sub-scale analyses revealing elevated tension, confusion, and lower vigor among SARS-CoV-2 participants. Number of SARS-CoV-2 symptoms (e.g., loss of taste / smell, muscle aches etc.) were associated with confusion.

COMMENTARIES, LETTERS AND OPINION PIECES (*DEC 16, 2021-JAN 14, 2022*)

- Long COVID: For the 1 in 10 patients who become long-haulers, COVID-19 has lasting effects *(Toronto Star)*: Some of long COVID's effects appear to be caused by inflammation, which is part of the body's typical reaction to any virus. This reaction is exaggerated in COVID-19, especially in terms of the immune system's inability to return to normal function. When a patient's body is unable to eliminate a virus quickly, it escalates its immune response, and can end up making antibodies against itself. Some of what we are seeing with long COVID may be due to the collateral damage from that response, especially when the inflammation resulting from the acute infection was severe. The health-care system needs to plan for the resources to care for this significant group of patients, perhaps for years after the pandemic has subsided.
- Towards a universal understanding of post covid-19 condition *(Bulletin of the WHO)*: Fewer than 1% (45/5000) of ongoing COVID-19 research studies are focused on studying post COVID-19 condition – or its associated terminologies. Most studies are based on patients from hospital series. For this reason, new research from primary care and community-based settings is essential to incorporate the experience of those patients who were less likely to be hospitalized, including younger patients, and those who had either a mild infection with fewer symptoms or were undiagnosed. Low antibody titres may be correlated with persistent symptoms and patients with low or no antibodies should be included in research.
- The contested meaning of "long COVID" – Patients, doctors, and the politics of subjective evidence *(Social Science and Medicine)*: Experiential knowledge can fill crucial gaps in the pandemic discourse. Long COVID online self-advocacy provides a rich source of subjective evidence. Patient subjective evidence is challenging the normative role of clinical evidence. Activism made long COVID diagnosis as a requirement for recognition obsolete.

MEDIA HIGHLIGHTS

CANADA

- **Everything we know about long COVID, from strange phantom smells to chronic fatigue (National Post):** With 271 million confirmed infections worldwide, some researchers have warned long COVID is the next "looming catastrophe," with prevalence estimates all over the map, from as low as two per cent of the COVID "recovered" to as high as 89 per cent. Some have called for greater nuance and a more cautious approach to thinking about long COVID, worried that, without clear, diagnostic tests, some symptoms are being misattributed to SARS-CoV-2. Under WHO's definition of long COVID, there's no need for proof of a lab-confirmed infection. It includes a history of probable infection, acknowledging that many people didn't have access to testing early in the pandemic.
- **One of B.C.'s few COVID recovery clinics faces possible closure, patients say (CBC):** A patient at one of B.C.'s few post-COVID-19 recovery clinics says he has been told the service is at risk of closure, potentially jeopardizing the health of hundreds of B.C. patients known as long-haulers. A spokesperson for Fraser Health has not confirmed if the clinic would close in March, but pointed to an evaluation of the post-COVID clinic program that ended in December. Currently in the province, those who want to access long COVID care have to provide either a positive PCR test or a positive serology report, the latter of which can only be accessed through private medical labs. In light of the testing limits, the province has said they would be reviewing eligibility requirements for long COVID clinics "to ensure continued equitable access."
- **Omicron 'isn't a regular cold,' Quebec doctor says, urging people to avoid infection and risk of long-COVID (CTV News):** "This isn't like a regular cold," infectious diseases specialist Dr. Emilia Liana Falcone said, explaining that nobody should be under the impression that catching Omicron, or any other variant, is a good idea. "Even individuals who have very mild symptoms or even no symptoms can develop long-term sequelae (after-effects) of COVID," she said, adding that applies to people who are vaccinated and unvaccinated.
- **COVID-19: People suffering from long-COVID fight uphill battle for acknowledgment and support (Vancouver Sun):** Dr. Angela Cheung is leading two research studies on long-COVID funded by the Canadian Institutes for Health Research. "Just two years ago, we really didn't have anything to treat COVID in the acute care setting and now we have a number of treatments which improve outcomes" said Cheung. "And now we are looking at treatments in the outpatient setting to try to decrease long-COVID both in prevention and in treatment, so I would stay tuned. The federal government has promised to spend $20 million a year on long-COVID research.

GLOBAL

- **What the long COVID numbers aren't telling us (Rolling Stone):** Early studies estimate that between 10 and 30 percent of coronavirus patients will experience Long Covid — but research is just scratching the surface. The type of Long Covid statistics people expect are the kind that result from large-scale studies conducted by the National Institutes of Health (NIH) that follow a group of people over a long period of time, says Natalie Lambert, PhD, a biostatistician and associate research professor of biostatistics and health data sciences at the Indiana University of School of Medicine.
- **Long COVID brain fog found similar to 'chemo brain'; clip-on device shows promise in virus detection (Reuters):** The "brain fog" reported by some people after COVID-19 shows striking similarities to the condition known as "chemo brain" - the mental cloudiness some people experience during and after cancer treatment, according to new research. People who had COVID-19 "frequently experience lingering neurological symptoms, including impairment in attention, concentration, speed of information processing and memory," similar to patients with cancer therapy-related cognitive impairment that is known to involve inflammation of the brain, the researchers explained in a report posted on *bioRxiv*.

POST-COVID-19 RESOURCES

- (NEW) British Heart Foundation (UK): UK-based foundation with resources on long COVID.

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)

- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Webinar - Implications of Long COVID (Canada): October 2021 CADTH webinar with expert panel discussing what is known know about long COVID, long COVID clinics, and what needs to be done to ensure quality of care.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)

- ECDC: Webinar on post-COVID-19 condition in children (December 7).

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From:	Day, Barbara (DH/MS)
To:	Chalifoux, Mathieu (DH/MS); NBPH_CRT (DH/MS); van der Pluijm, Nina (DH/MS); Power, Michaela (ECO/BCE); LeBlanc, Shannon (DH/MS); Clair, Suzanne (DH/MS); Donovan, Wendy (FTB/FCT); Walker-Haley, Joyce (DH/MS)
Cc:	Macfarlane, Bruce (DH/MS); Burkhardt, Tracey (DH/MS)
Subject:	RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
Date:	January 28, 2022 1:57:36 PM

Thanks Matt. We're good for approvals now – thanks everyone and Joan!

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: January 28, 2022 1:53 PM
To: NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Donovan, Wendy (FTB/FCT) <Wendy.Donovan@gnb.ca>; Walker-Haley, Joyce (DH/MS) <joyce.walker-haley@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
Good on my end.
Thanks,
Matt

From: NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>
Sent: January 28, 2022 1:47 PM
To: van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Donovan, Wendy (FTB/FCT) <Wendy.Donovan@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; Walker-Haley, Joyce (DH/MS) <joyce.walker-haley@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
Joan Clark is reviewing now….will get back to you ASAP
Laura

From: van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>
Sent: January 28, 2022 1:41 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Donovan, Wendy (FTB/FCT) <Wendy.Donovan@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; Walker-Haley, Joyce (DH/MS) <joyce.walker-haley@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
CRT- can someone with Long Covid expertise review please. See yellow below
Nina

Nina van der Pluijm
January 2022- HEOC Case & Contact Management Cell- Lead Alternate
Janvier 2022- COUMS Cellule de gestion des cas et des contacts- Responsable alterne
Director/ Directrice
Well-being, Legislation & Standards/ Bien-être, législation & normes
Public Health New Brunswick/ Santé publique Nouveau-Brunswick
Department of Health/ Ministère de la Santé

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: Friday, January 28, 2022 1:11 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Donovan, Wendy (FTB/FCT) <Wendy.Donovan@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Walker-Haley, Joyce (DH/MS) <joyce.walker-haley@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
Importance: High
Hi everyone, can someone pls confirm the information below is correct re: long covid atm? See proposed reply below. Merci!!!!

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: January 28, 2022 11:15 AM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Donovan, Wendy (FTB/FCT) <Wendy.Donovan@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
Importance: High
Hi everyone,
I am checking on the status of this request.
Thank you,
Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: January 28, 2022 8:21 AM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; NBPH_CRT (DH/MS) <NBPH_CRT@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Donovan, Wendy (FTB/FCT) <Wendy.Donovan@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
Looks great to me – thanks Michaela. Adding in the inbox to see if any updates or changes are needed to the media response below on long covid.

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>

Sent: January 28, 2022 7:53 AM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>
Subject: MEDIA REQUEST: 21(1) – RC – Long COVID - January 28
I attached our most recent media response from December that spoke about COVID, I'm not sure if anything has changed since then.
Thank you
NAME: 21(1)
OUTLET: Radio Canada
CONTACT #: 21(1)
EMAIL: 21(1) @radio-canada.ca
DEADLINE TO SEND RESPONSE TO REPORTER:
ROUTINE (Yes or No):
REQUEST:
Nous préparons un reportage aujourd'hui sur la covid longue.
Est-ce qu'on sait combien de patients ont la covid longue au NB ?
Quel suivi est fait avec les patients qui ont des symptômes de la covid à long terme ?
La province a-t-elle l'intention de mettre sur pied une clinique spécialisée à ce sujet comme d'autres provinces l'ont fait ?
We are preparing a report today on the long covid.
Do we know how many patients have long covid in NB?
What follow-up is done with patients who have long-term covid symptoms?
Does the province intend to set up a specialized clinic on this subject, as other provinces have done?
PROPOSED RESPONSE:
26(1)(a)

From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	Cidsc Secretariat (PHAC/ASPC); Archibald, Chris (PHAC/ASPC); Fitzgerald-Husek, Alanna (PHAC/ASPC); Jamil, Marium (PHAC/ASPC); Janicki, Rachelle (PHAC/ASPC); Lingohr, Erika (PHAC/ASPC); Al-Karkhi, Lina (PHAC/ASPC); Carter, Luisa (PHAC/ASPC); Wilkinson, David (PHAC/ASPC); annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Brenda Clement; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Claudia Kraft; colette.gaulin@msss.gouv.qc.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jayne Boutilier; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP; MPS; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Wajid.ahmed@ontario.ca
Subject:	OCSO Post COVID-19 Condition Scan (Jan 28)
Date:	January 31, 2022 2:47:14 PM
Attachments:	OCSO Post-COVID Condition Scan15_Jan28_2021.pdf

TAC Members,

On behalf of the *Office of the Chief Science Officer*, please find attached the latest COVID-19 environmental scan.

This biweekly product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Jan 15th to Jan 28th).

Thanks,

TAC Secretariat

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #15

Jan 15-28, 2022

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc). Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a preprint by Kuodi et al from Israel suggesting that long-COVID symptoms are less likely in vaccinated people, as well as a study from Switzerland published in *Nature Communications* examining how an immunoglobulin signature (Ig) can predict the risk of post-acute COVID-19 syndrome.

GUIDELINES OR STANDARDS

- The **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve. A separate definition may be applicable for children.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - WHO Q&A page on Post-COVID-19 Condition (December 2021).

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals by UK **NICE** (Updated November 2021).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for 'long COVID' patients.

NATIONAL AND INTERNATIONAL DEVELOPMENTS (*JAN 15-28, 2022*)

CANADA

- (NEW) Public Health in Nova Scotia has created an online survey to help the province track symptoms and impairments that linger after three months. People who've had symptoms or impairments for 3 months can use the website to get help. The online survey is a continuation of a phone-based survey initiated last year. A positive PCR test or an at-home positive rapid test both count as the COVID-19 start date for the survey. About 2,000 people have completed the survey so far. According to national surveys, about 10% of people who get COVID-19 will need support for more than three months.

UK

- (NEW) Vaccination could reduce the risk of long Covid, research by the Office for National Statistics suggests. ONS found 9.5% of the double-vaccinated group reported long Covid, compared with 14.6% of a socio-demographically matched group who were unvaccinated. There was no statistical evidence that the relationship between vaccination status at the time of infection and the likelihood of subsequently reporting long COVID symptoms differed by whether participants received adenovirus vector (Oxford/AstraZeneca) or mRNA vaccines. Analysis was based on data to 30 November 2021, and longer follow-up time is needed to assess the impact of booster doses and the Omicron variant.

US

- (NEW) CDC has been asked to publicly report findings on the prevalence of long COVID, including disaggregated demographic data. Lawmakers say minorities may disproportionately suffer from long-term symptoms of coronavirus infection. The letter requesting the data notes that this will help direct Congressional action to support those with long COVID along with their families and communities.

EMERGING SCIENTIFIC EVIDENCE (*JAN 15-28, 2022*)

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
Fatigue and cognitive impairment in Post-COVID-19 Syndrome: A systematic review and meta-analysis (Ceban et al)	Systematic Review (Available in *Brain Behav Immun*)	Searched databases inception to June 8, 2021 on PubMed/MEDLINE, The Cochrane Library, PsycInfo, Embase, Web of Science, Google/Google Scholar, and select reference lists. Literature search yielded 10,979 studies, and 81 studies were selected for inclusion. The fatigue meta-analysis comprised 68 studies, the cognitive impairment meta-analysis comprised 43 studies, and 48 studies were included in the narrative synthesis. Meta-analysis revealed that the proportion of individuals experiencing fatigue 12 or more weeks following COVID-19 diagnosis was 0.32.The proportion of individuals exhibiting cognitive impairment was 0.22. Narrative synthesis revealed elevations in proinflammatory markers and considerable functional impairment in a subset of individuals.

Proposal of a food supplement for the management of post-COVID syndrome (Naureen et al)	Review (Available in *Eur Rev Med Pharmacol Sci)*	The mechanisms by which the virus causes prolonged illness are still unclear. The aim of this review is to gather information regarding post-COVID syndrome so as to highlight its etiological basis and the nutritional regimes and supplements that can mitigate, alleviate or relieve the associated chronic fatigue, gastrointestinal disorders and continuing inflammatory reactions. Naturally-occurring food supplements, such as acetyl L-carnitine, hydroxytyrosol and vitamins B, C and D hold significant promise in the management of post-COVID syndrome. In this pilot observational study, we evaluated the effect of a food supplement containing hydroxytyrosol, acetyl L-carnitine and vitamins B, C and D in improving perceived fatigue in patients who recovered from COVID-19 but had post-COVID syndrome characterized by chronic fatigue. Results suggest that the food supplement could proceed to clinical trials of its efficacy in aiding the recovery of patients with long COVID.

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Long-term perturbation of the peripheral immune system months after SARS-CoV-2 infection (Ryan et al)	*BMC Med*	An integrated analysis of immune responses in blood at a transcriptional, cellular, and serological level at 12, 16, and 24 weeks post-infection (wpi) in 69 patients recovering from mild, moderate, severe, or critical COVID-19 in comparison to healthy uninfected controls. Anti-Spike and anti-RBD IgG responses were largely stable up to 24 wpi and correlated with disease severity. There were significant differences in multiple innate and adaptive immune populations in convalescent individuals compared to healthy controls, which were most strongly evident at 12 and 16 wpi. RNA sequencing revealed significant perturbations to gene expression in COVID-19 convalescents until at least 6 months post-infection. We also uncovered significant differences in the transcriptome at 24 wpi of convalescents who were referred to a long COVID clinic compared to those who were not.
Effects of exercise rehabilitation in patients with long COVID-19 (Barbara et al)	*Eur J Prev Cardiol*	Evaluated whether exercise rehabilitation program could be applied in a population of patients with long COVID-19. The patients started a laboratory controlled eight weeks exercise training program, which included three exercise sessions a week. In each exercise session, aerobic exercise (starting 30 min and increasing to 60 min) was performed, including 5 min warm-up and 5-min cool down. VO2peak increased 15% and peak ventilation 9%. Eighteen patients (36.0%) had a post-training predicted VO2peak above 85% (indicating normality). Muscle strength increased markedly for all major muscle groups ranging from 16% to 33% increase.
Changes in Physical Activity and the Occurrence of Specific Symptoms of "Long-COVID Syndrome" in Men Aged 18–25 (Sojka et al)	*Int J Environ Res*	Aim of study was to assess the occurrence of non-specific symptoms of "long-COVID syndrome" depending on the physical activity undertaken resulting from the imposed forms of study (distance learning–contact learning); 136 men aged 21.5 ± 1.58 from universities educating students of medical faculties were examined. Among the respondents, 17% in Group I and 16% in Group II were infected with the SARS-CoV-2 virus, including 50% in Group I with moderate symptoms, and in Group II—most people 45% with mild symptoms. The conducted research shows a number of important problems, such as reduced physical activity, as well as increased body weight and time spent in front of the monitor.
Immunological dysfunction persists for 8 months following initial mild-to-moderate SARS-CoV-2 infection (Phetsouphanh et al)	*Nat Immunol*	Studied individuals with post-acute COVID syndrome (long COVID (LC)) compared to age- and gender-matched recovered individuals without LC, unexposed donors and individuals infected with other coronaviruses. Patients with LC had highly activated innate immune cells, lacked naive T and B cells and showed elevated expression of type I IFN (IFN-β) and type III IFN (IFN-λ1) that remained persistently high at 8 months after infection.
Patient-related outcomes in patients referred to a respiratory clinic with persisting symptoms	*Chron Respir Dis*	Described the ongoing symptoms, quality of life and return to work status in a cohort of non-hospitalised COVID-19 survivors with persisting respiratory symptoms presenting to clinic, who consented and completed patient-reported outcome measures. We identified fatigue, reduced quality of life and dysregulated

following non-hospitalised COVID-19 (Harvey-Dunstan et al)		breathing alongside the breathlessness. Those with co-existent fatigue had worse mood and quality of life and were less likely to have returned to normal working arrangements compared to those without fatigue.
Long COVID in the Faroe Islands: A Longitudinal Study Among Nonhospitalized Patients (Petersen et al)	*Clin Infect Dis*	This longitudinal study presents symptoms registered during the acute phase as well as long COVID in patients from the Faroe Islands. Results show that of the 180 participants (96.3% of the 187 eligible COVID-19 patients), 53.1% reported persistence of at least 1 symptom after a mean of 125 days after symptoms onset, 33.0% reported 1 or 2 symptoms, and 20.1% reported 3 or more symptoms. At the last follow-up, 46.9% were asymptomatic compared with 4.4% during the acute phase. The most prevalent persistent symptoms were fatigue, loss of smell and taste, and arthralgias.
Association between vaccination status and reported incidence of post-acute COVID-19 symptoms in Israel: a cross-sectional study of patients tested between March 2020 and November 2021 (Kuodi et al)	*medRxiv*	Study aimed to determine whether vaccination was associated with the incidence of reporting long-term symptoms post-SARS-CoV-2 infection. After adjusting for follow-up time and baseline symptoms, those who received two doses less likely than unvaccinated individuals to report any of these symptoms by 64%, 54%, 57%, and 68% respectively, (Risk ratios 0.36, 0.46, 0.43, 0.32, $p<0.04$ in the listed sequence). Those who received two doses were no more likely to report any of these symptoms than individuals reporting no previous SARS-CoV-2 infection.
Incidence and risk factors of long COVID in the UK: a single-centre observational study (Nune et al)	*J R Coll Physicians Edinb*	Evaluated the presence of long COVID and its risk factors in patients discharged from a hospital with COVID-19 illness. This observational study included 271 COVID-19 patients admitted between February and July 2020 in a hospital in the UK. Out of 89 patients interviewed, 55 (62%) had long COVID for 3 months, 46 (52%) for 6 months and 37 of the 75 patients admitted to the hospital with acute COVID-19 had long COVID for 9 months (49%). The most common long COVID symptoms were fatigue and breathlessness. Nearly two-thirds of patients at 3 months and a half at 9 months had long COVID. COVID-19 pneumonia was the strongest predictor of long COVID in Caucasians at 3 months.
Characterizing long COVID in an international cohort: 7 months of symptoms and their impact (Davis et al)	*EClinicalMedicine*	Conducted an online survey of people with suspected and confirmed COVID-19, distributed via COVID-19 support groups and social media from September 6, 2020 to November 25, 2020. We analyzed responses from 3762 participants with confirmed (diagnostic/antibody positive; 1020) or suspected (diagnostic/antibody negative or untested; 2742) COVID-19, from 56 countries, with illness lasting over 28 days and onset prior to June 2020. For the majority of respondents (>91%), the time to recovery exceeded 35 weeks. The most frequent symptoms after month 6 were fatigue, post-exertional malaise, and cognitive dysfunction. Patients with Long COVID report prolonged, multisystem involvement and significant disability. By seven months, many patients have not yet recovered (mainly from systemic and neurological/cognitive symptoms), have not returned to previous levels of work, and continue to experience significant symptom burden.
Impact of persistent COVID-19 symptoms on social life of female long haulers: A qualitative study (Aghaei et al)	*medRxiv*	Conducted 15 semi-structured interviews with female long haulers in the United States purposely recruited from Facebook groups, Slack groups, and organization websites. Persistent COVID-19 symptoms negatively affected female long haulers' social lives in many aspects including physical function, financial security, social relationship, conflict of social roles, and social stigma. Physical limitations changed their body image. Social isolation and work-family conflicts caused huge stress. They experienced internalization of stigma and job insecurities. Shifting to new methods of communication, especially social media may buffer the negative effects of social isolation because of long COVID.
The Effects of Messaging on Expectations and Understanding of Long COVID: An Online Randomised Trial (Bhogal et al)	*medRxiv*	Examined whether providing different types of information about Long COVID would affect expectations about the illness. We found a main effect of illness description: individuals reported longer symptom duration and less illness coherence when the illness was described as Long COVID (compared to ongoing COVID-19 recovery). There was a main effect of illness uncertainty: when uncertainty was emphasized, participants reported longer expected symptom duration, less treatment control, and less illness coherence than when uncertainty

		was not emphasized. There was also a main effect of efficacy of support: participants reported higher personal control and higher treatment control when support was enhanced (compared to basic support).
Long COVID-19: Objectifying most self-reported neurological symptoms (Bungenberg et al)	*Ann Clin Transl Neurol*	Aimed to objectify and compare persisting self-reported symptoms in initially hospitalized and non-hospitalized patients after infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) by applying clinical standardized measures. Fifty patients with persisting symptoms for at least 4 weeks were included and classified by initial hospitalization status. In both groups, fatigue severity was associated with reduced performance in attention and psychomotor speed tasks and reduced quality of life and with more persisting symptoms. PROMs identified fatigue, reduced sleep quality, and increased anxiety and depression in both groups but more pronounced in non-hospitalized patients.
Female Sex Is a Risk Factor Associated with Long-Term Post-COVID Related-Symptoms but Not with COVID-19 Symptoms: The LONG-COVID-EXP-CM Multicenter Study (Fernández-De-las-peñas et al)	*J Clin Med*	Multicenter cohort study investigated the differences between coronavirus disease 2019 (COVID-19) related symptoms and post-COVID symptoms between male and female COVID-19 survivors. The number of post-COVID symptoms was 2.25 for females and 1.5 for males. After adjusting by all variables, female sex was associated with ≥3 post-COVID symptoms, the presence of post-COVID fatigue, dyspnea, pain, hair loss, ocular problems, depressive levels and worse sleep quality.
Evaluation of 3-month follow-up of patients with postacute COVID-19 syndrome (Kerget et al)	*J Medical Virol*	Study aimed to evaluate patients with postacute COVID-19 over 12 weeks of follow-up. The patients were divided into three groups based on COVID-19 severity: nonsevere pneumonia (Group 1), severe pneumonia (Group 2), and severe pneumonia requiring intensive care (Group 3). Evaluation of laboratory parameters at 4 and 12 weeks showed that Group 3 had a higher lactose dehydrogenase (LDH) level and a lower mean platelet volume than the other groups at both time points. Group 3 also had lower percent predicted forced vital capacity (FVC%), percent predicted forced expiration volume in 1 s (FEV1%), and percent predicted diffusion capacity of the lungs for carbon monoxide divided by alveolar volume (DLCO/VA%) compared to Groups 1 and 2 at Week 4 and compared to Group 1 at 12 weeks. Patients with persistent dyspnea at 12 weeks had significantly lower FEV1%, FVC%, DLCO/VA%, and saturation levels in room air and significantly higher LDH, pro-BNP, D-dimer, and heart rate compared to those without dyspnea.
"I feel like my body is broken": Exploring the experiences of people living with long COVID (Wurz et al)	*medRxiv*	Objective of study was to better understand and explore individuals' experiences with long COVID and commonly reported symptoms, using qualitative data collected from 213 adults living with long COVID following a confirmed or suspected SARS-CoV-2 infection who participated in a larger observational, online survey. Four overlapping and interconnected themes were identified: (1) My long COVID symptoms are numerous, hard to describe, and debilitating, (2) All aspects of my day-to-day functioning have been impacted, (3) I can no longer be physically active, and (4) I keep asking for help, but no one is listening, and very little is working.
Post-COVID-19 Memory Impairment: Prevalence and Associated Factors (Ahmed et al)	*medRxiv*	Purpose of research was to determine the prevalence of memory impairment in post-COVID-19 patients and to find potential contributing factors. Memory impairment was prevalent in 19.2% of the post-COVID patients. Individual predictor analysis revealed that among the treatment modalities, steroids and antibiotics were associated with impaired memory.
Health Status, Persistent Symptoms, and Effort Intolerance One Year After Acute COVID-19 Infection (Kingery et al)	*J Gen Intern Med*	Study examined long-term prevalence and risk factors for post-acute COVID-19 sequelae (PASC). Survey respondents were survivors of acute COVID-19 infection requiring Emergency Department presentation or hospitalization between March 3 and May 15, 2020. 41.5% reported worse health compared to a year prior, 44.2% reported persistent symptoms, 36.2% reported limitations in lifting/carrying groceries, 35.5% reported limitations climbing one flight of stairs, 38.1% reported limitations bending/kneeling/stooping, and 22.1% reported limitations walking one block. The median time between hospital presentation and survey was 332 days.

COMMENTARIES, LETTERS AND OPINION PIECES (JAN 15-28, 2022)

- The blood markers that could help to diagnose long COVID *(Nature)*: Levels of some immune molecules are unusually high in people with persistent symptoms after infection with SARS-CoV-2. Chansavath Phetsouphanh at the University of New South Wales and his colleagues analysed blood samples from people with long COVID and found that a SARS-CoV-2 infection elicits an immune response distinct from that of other types of coronavirus, such as those that cause the common cold. This response persists in people experiencing long COVID. The team's analysis pointed to a collection of immune-system molecules that remained abnormally high in individuals with long COVID eight months after infection. These molecules, such as type 1 and type 3 interferons, are usually made at the time of a viral infection. They activate immune cells called T cells and trigger inflammation.

- Long COVID and self-management *(The Lancet):* There is an absence of research on self-management practices among individuals with long COVID. Patients and patient advocacy groups have reported an absence of timely support and poor recognition of long COVID, partly attributable to insufficient knowledge and evidence of long COVID and overwhelmed health-care systems. Insufficient support has led to loss of faith and disappointment in health-care service delivery, leading people with long COVID to seek alternative sources of support and treatment.

- Do vaccines protect from long COVID? *(The Lancet):* The data on long COVID are worrying, particularly during the current increase in global cases of COVID-19 infection. There are, however, encouraging emerging data that individuals who are vaccinated against COVID-19 are less likely to report long COVID symptoms. A case-control study of 1.2 million users of a COVID symptom tracker app in the UK showed that there were lower odds of symptoms lasting 28 days or more in individuals who had received two vaccine doses.

MEDIA HIGHLIGHTS

CANADA

- **Researchers predict risk of long COVID with patients' blood (CTV News):** By looking at COVID-19 patients' blood, researchers in Switzerland have identified an antibody "signature" that can be used to predict the risk of long-term complications like extreme fatigue and shortness of breath. They also found other risk factors for what's known as long COVID, including the severity and number of initial symptoms, and a previous history of asthma. In the study, which was published in *Nature Communications*, researchers compared 40 healthy people with 175 COVID-19 patients at four hospitals in Switzerland. The patients were assessed and given blood tests during their initial infection, about six months later, and again after approximately one year. By analyzing their blood, researchers were able to see that comparatively low levels of antibodies immunoglobulin M (IgM) and immunoglobulin G3 (IgG3) soon after infection correlated to an increased risk of long COVID.
- **How a rise in long-haul COVID-19 symptoms could be a 'mass disabling event' (CTV News):** Given that surging COVID-19 cases could result in an increase in the number of Canadians living with disabilities due to long-haul symptoms, Arya says it underscores the need to strengthen disability supports such as access to rehabilitation centres and social assistance. The federal government introduced Bill C-35, which would create the Canada Disability Benefit and provide a basic income support for low-income Canadians with disabilities. Disability advocates are urging the feds to fast-track the bill.
- **Long COVID will have health, economic impact for years to come, says expert (CBC News):** Omicron will lead to 'tsunami' of long COVID cases, says sufferer behind support group. Prince Edward Island and the rest of the Maritime provinces have done "extraordinarily well" keeping COVID-19 in check, says a member of the Ontario Science Table. But Omicron has changed the playing field, says Dr. Fahad Razak, and now P.E.I. and even the territories need to be prepared for what comes after COVID: long COVID. Of the 6,800 total cases on the Island since the pandemic began, 94% occurred after Dec. 15, 2021. A report co-authored by Razak for the Ontario Science Table forecasted that 10 to 14% of Ontarians who contracted COVID would end up with long COVID.

GLOBAL

- **How Europe is approaching long covid (BMJ):** In the European Union, specialist long covid clinics are reported to be operating in Belgium, France, Germany, and Spain, among others, but these rarely cater for more than a small part of the population. In Italy, no government funded clinics for long covid have yet been established. In May 2021, the Italian government allocated around €28m for 2021 and €24m for 2022, to the "respiratory care" of covid-19 patients who had been admitted to hospital. In Spain, two doctors recently received a grant of €1.8m from the Spanish government to open a clinic for long covid patients. German Ministry of Education and Research has allocated €6.5m to 10 projects investigating the condition. French government's budget for long covid research is €2.2m, according to France. UK has allocated nearly £20m in funding to research the condition.
- **Long Covid-19: drug trial results to watch in 2022 (Clinical Trials Arena):** At least four long Covid-19 drug trial readouts are expected in 2022 that could shape the future of the therapeutic space. Axcella Health, PureTech, MGC Pharma, and 9 Meters Biopharma each have Phase II readouts expected this year for long Covid-19, or post-acute sequelae of SARS-COV-2 infection (PASC). Each asset targets a different class of long Covid-19 symptoms, ranging from exertional fatigue to breathing complications. At least six more long Covid-19 trials have expected completions dates in 2022, though no established timelines for results.

POST-COVID-19 RESOURCES

- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)
- British Heart Foundation (UK): UK-based foundation with resources on long COVID.
- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)
- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.
- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.
- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.
- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.
- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.
- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.
- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.
- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.
- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Webinar - Implications of Long COVID (Canada): October 2021 CADTH webinar with expert panel discussing what is known know about long COVID, long COVID clinics, and what needs to be done to ensure quality of care.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

- ECDC: Webinar on post-COVID-19 condition in children (December 7).

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From:	Lachapelle, Stephane (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Brenda Clement; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Claudia Kraft; colette.gaulin@msss.gouv.qc.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jayne Boutilier; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP; MPS; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Wajid.ahmed@ontario.ca
Cc:	Cidsc Secretariat (PHAC/ASPC)
Subject:	FW: DAVE FOR APPROVAL/DISTRIBUTION - OCSO Post COVID-19 Condition Scan #16 (Feb 11)
Date:	February 14, 2022 1:41:48 PM
Attachments:	OCSO Post-COVID Condition Scan16_Feb11_2021.pdf

FYI TAC members…

Subject: OCSO Post COVID-19 Condition Scan #16 (Feb 11)

On behalf of the *Office of the Chief Science Officer*, please find attached the latest COVID-19 environmental scan.

This biweekly product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Jan 29th to Feb 11th).

Please let us know if you have any questions.

Regards,

Dave

David Wilkinson
613-614-3411
(he | il)
A/Director
Science Innovation and Collaboration Division
Office of the Chief Science Officer
Public Health Agency of Canada | Government of Canada
Directeur intérimaire
Division de la science, de Linnovation et de la collaboration
Bureau du conseiller scientifique en chef
Agence de la santé publique du Canada | Gouvernement du Canada

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #16

January 29- February 11, 2022

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

There are currently no preventative strategies or prognostic markers. Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc). Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a proposed definition for long COVID in children published in *Archives of Disease in Childhood*, as well as a study in the *Lancet* examining long COVID symptoms in adolescents, and a review looking at long COVID in hematologic patients.

GUIDELINES OR STANDARDS

- The **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - **WHO** Q&A page on Post-COVID-19 Condition (December 2021).
    - (NEW) On 1 March 2022 from 1:30 – 3:30PM CET WHO will host a **webinar** focused on **neurology and mental health in post COVID-19 condition**.

- The U.S. **CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals by UK **NICE** (Updated November 2021).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for 'long COVID' patients.

- (NEW) A paper by Stephenson et al. published in BMJ's *Archives of Disease in Childhood* has produced a consensus on a definition of **long COVID in children**:
    - *"Post-COVID-19 condition occurs in young people with a history of confirmed SARS CoV2 infection, with one or more persisting physical symptom for a minimum duration of 12 weeks after initial testing that cannot be explained by an alternative diagnosis. The symptoms have an impact on everyday functioning, may continue or develop after COVID-19 infection, and may fluctuate or relapse over time."*

NATIONAL AND INTERNATIONAL DEVELOPMENTS (*JAN 29-FEB 11, 2022*)

CANADA

- (NEW) Patients with a BC Care Card who have symptoms, persisting 3 or more months can be referred to the BC Post-COVID-19 Interdisciplinary Clinical Care Network. Effective March 1, 2022, a patient does not need a positive COVID test for referral.
- (NEW) A Toronto tech institute is using artificial intelligence (AI) and social media to track and determine which long-COVID symptoms are most prevalent. The Vector Institute, an AI organization based at the MaRS tech hub in Toronto, has teamed up with telecommunications company Telus Corp., consulting firm Deloitte and diagnostics and pharmaceuticals business Roche Canada to help health care professionals learn more about the symptoms that people with a long-lasting form of COVID experience. They built an AI framework that used machine learning to locate and process 460,000 Twitter posts from people with long COVID. About 80% of adults surveyed by Viral Neuro Exploration, COVID Long Haulers Support Group Canada and Neurological Health Charities Canada reported one or more symptoms between 4 and 12 weeks after they were first infected.
- (NEW) A recent survey created by VIDO-InterVac (University of Sakatchewan) aims to gather more information about long COVID symptoms. The survey is open to anyone and is available through an app called Ethica. Dr. Alyson Kelvin with VIDO-InterVac said if health-care experts can understand what people are experiencing with long COVID, they may be able to start developing support services and treatments locally.

UK

- (NEW) The latest data, published on February 3 from the Office of National Statistics (ONS) in the UK shows that around 1.3 million people reported having long COVID between December 2021 and January 2022. The figure shows an increasing trend from previous months — 1.27 million at the beginning of December and 945,000 in early July. Previous estimates showed that between 10-30% of people with COVID-19 developed long COVID. Although the number of people with COVID-19 is rising due to Omicron, the number of people reporting long COVID symptoms is not, which could mean vaccines are conferring protection

US

- (NEW) A study published in the *Journal of the American Medical Association Network Open* found that hospitalized patients who tested positive for COVID-19 were more likely to experience shortness of breath, fatigue and Type 2 diabetes months later. The research, led by scientists from the CDC and the Louisiana Public Health Institute, examined health record data from more than 2 million patients who were tested for COVID-19 between March and December 2020, and who had medical encounters between 31 and 150 days after testing. "Although new symptoms and conditions occurred infrequently, applying the proportions of these rare events to the millions of persons infected with SARS-CoV-2 means that a substantial number might experience new symptoms and conditions after their acute illness," observed the researchers in the study.

EMERGING SCIENTIFIC EVIDENCE (*JAN 29-FEB 11, 2022*)

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
Challenges and Management of Long COVID in Individuals with Hematological Illnesses (Yelin et al)	Review (Available in *Acta Haematol*)	COVID-19 has impacted hundreds of millions of people globally, a relatively large proportion of whom continue to suffer from ongoing, sometime debilitating symptoms. This phenomenon, termed “long COVID”, is difficult to diagnose and manage because of a paucity of objective findings and despite the abundance of descriptive data published so far. In this review we aimed to describe the

		common manifestations of long COVID, diagnostic and management challenges, and address specific aspects in hematologic patients.

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Neuropsychological, medical and psychiatric findings after recovery from acute COVID-19: A cross-sectional study (Ferrando et al)	*J Acad Consult Liaison Psychiatry*	Study describes neuropsychological, medical, psychiatric and functional correlates of cognitive complaints experienced after recovery from acute COVID-19 infection. Sixty participants underwent neuropsychological (NP), psychiatric, medical, functional, and quality of life assessments 6-8 months after acute COVID-19. Results suggest the existence of extremely low neuropsychological test performance experienced by some individuals months after acute COVID-19 infection, affecting multiple neurocognitive domains. This extremely low neuropsychological test performance is associated with worse acute COVID-19 symptoms, depression, medical comorbidities, functional complaints, and subjective cognitive complaints. Exploratory correlations with pro-inflammatory cytokines support further research into inflammatory mechanisms and viable treatments.
Population-based study of multisystem inflammatory syndrome associated with COVID-19 found that 36% of children had persistent symptoms (Kahn et al)	*Acta Paediatr*	Study aim was to describe the outcomes of multisystem inflammatory syndrome in children (MIS-C) associated with COVID-19. When followed up 2 weeks after MIS-C was diagnosed, 43% of the 119 patients had abnormal results, including complete blood cell counts, platelet counts, albumin levels, electrocardiograms and echocardiograms. After 8 weeks, 36% of 89 had an abnormal patient history, but clinical findings were uncommon. Echocardiogram results were abnormal in 5% of 67, and the most common complaint was fatigue. Older children and those who received intensive care were more likely to report symptoms and have abnormal cardiac results.
Post-acute COVID-19 syndrome in patients after 12 months from COVID-19 infection in Korea (Kim et al)	*BMC Infect Dis*	Study aimed to assess the long-term course of symptoms, factors associated with persistent symptoms, and quality of life after 12 months since recovery from acute COVID-19. The median age of the responders was 37 (IQR 26.0-51.0) years, and 164 (68.0%) responders were women. Altogether, 11 (4.6%) responders were asymptomatic, and 194 (80.5%), 30 (12.4%), and 6 (2.5%) responders had mild, moderate, and severe illness, respectively. Overall, 127 (52.7%) responders still experienced COVID-19-related persistent symptoms and 12 (5.0%) were receiving outpatient treatment for such symptoms. The main symptoms were difficulty in concentration, cognitive dysfunction, amnesia, depression, fatigue, and anxiety. Considering the EQ5D index scores, only 59.3% of the responders did not have anxiety or depression. Older age, female sex, and disease severity were identified as risk factors for persistent neuropsychiatric symptoms.
The Effects of Persistent Olfactory and Gustatory Dysfunctions on Quality of Life in Long-COVID-19 Patients (Vaira et al)	*Life*	An online survey was administered to individuals who reported to have had SARS-CoV-2 infection at least 6 months prior with persisting COVID-19 symptoms (using the COVID symptom index), including ratings of POD and PGD, and their physical (PCS) and mental (MCS) components of quality of life were assessed using the standardized short form 12 questionnaire (SF-12). POD and PGD are frequent symptoms of the long-COVID-19 syndrome and significantly reduce QoL, specifically in the mental health component.
Six-Month Post-Acute COVID-19: High Self-Reported Morbidity Among Adults Younger Than Sixty Years and Females (Bhargava et al)	*J Clin Med*	Aimed to describe the self-reported occurrence of symptoms and their effect on patient's functioning 6 months after their acute hospitalization for COVID-19. The most common symptoms at the time of follow-up were fatigue (60.0%), dyspnea (57.1%), feeling irritable, sad or decreased pleasure (56.4%), and memory difficulty (56.4%). The mean (SD) GSQ-30 score for the cohort was 30.1. Females had a significantly higher mean (SD) GSQ-30 score than males versus 20.2.
Symptoms compatible with long-COVID in healthcare workers with and without SARS-CoV-2 infection - results	*Clin Infect Dis*	Within a cohort of healthcare workers (HCW), frequency and risk factors for symptoms compatible with long-COVID are assessed using baseline (August/September 2020) and weekly questionnaires on SARS-CoV-2 nasopharyngeal swab (NPS) results and acute disease symptoms. Of 3334 HCW,

of a prospective multicenter cohort (Strahm et al)		556 (17%) had a positive NPS and 228 (7%) were only seropositive. HCW with positive NPS more frequently reported ≥1 symptom compared to controls (73% vs. 52%, p6 months ago). Acute viral symptoms in weekly questionnaires best predicted long-COVID symptoms. Physical activity at baseline was negatively associated with neurocognitive impairment and fatigue scores.
Persistence of SARS CoV-2 S1 Protein in CD16+ Monocytes in Post-Acute Sequelae of COVID-19 (PASC) up to 15 Months Post-Infection (Patterson et al)	*Front immunol*	Investigated the presence of SARS-CoV-2 S1 protein in 46 individuals. We analyzed T-cell, B-cell, and monocytic subsets in both severe COVID-19 patients and in patients with post-acute sequelae of COVID-19 (PASC). In contrast, the data reported here supports the hypothesis that an immune response to persistent viral antigens, specifically the S1 fragment of the spike protein eliciting an the PASC immune response and marked by elevated inflammatory markers including IFN-γ, IL-6, IL-10, and IL-2, among others.
Development and Validation of the Long Coronavirus Disease (COVID) Symptom and Impact Tools: A Set of Patient-Reported Instruments Constructed From Patients' Lived Experience (Tran et al)	*Clin Infect Dis*	Study developed and validated patient-reported instruments, based on patients' lived experiences, for monitoring the symptoms and impact of long covid. The long covid Symptom and Impact Tools (ST and IT) were constructed from the answers to a survey with open-ended questions to 492 patients with long COVID. Validation of the tools involved 1022 adult patients with suspected or confirmed COVID-19 and symptoms extending over 3 weeks after onset. The long COVID ST and IT scores were strongly correlated with the EQ-5D-5L, the PCFS and the MYMOP2. Reproducibility was excellent with an interclass correlation coefficient of 0.83 for the ST score and 0.84 for the IT score. In total, 793 (77.5%) patients reported an unacceptable symptomatic state, thereby setting the PASS for the long covid IT score at 30.
Investigation of Long-Term COVID-19 Patients' Quality of Life and Affecting Factors: Data from Single COVID-19 Follow-Up Center (Uçan et al)	*Research Square prepub*	Article explored relationship between quality of life change and long-term COVID-19 patient's stats in COVID-19 Follow-up Centre. Comparison of baseline characteristics showed that cough and chest pain have been increased in second admission. Thirty-six item of short form Health Status Questionnaire-36 (SF-36) measured quality of life and there was a significant difference between first and second admission in all parameters.
Serum Level of Anti-Nucleocapsid, but Not Anti-Spike Antibody, Is Associated with Improvement of Long COVID Symptoms (Varnai et al)	Vaccines	Severity of long COVID symptoms and serum anti-SARS-CoV-2 spike (S-Ig) and nucleocapsid (NC-Ig) levels were assessed in 107 post-COVID subjects at baseline, and 17–24 weeks later. Vaccination status was also assessed. Serum level of S-Ig and NC-Ig at baseline were significantly higher in the patients with non-severe fatigue than those with severe fatigue, and this difference remained significant at follow-up in the case of NC-Ig. NC-Ig level above median was as an independent predictor for complete remission at follow-up. The difference in NC-Ig levels in subgroup analyses (severe fatigue vs. non-severe fatigue; complete remission vs. incomplete remission or progression) was found to be significant only in patients who received vaccination.
Heart rate variability and cardiac autonomic functions in post-COVID period (Asarcikli et al)	*J Interv Card Electrophysiol*	Study aimed to analyze autonomic function using HRV indices in the post-COVID period that may have a potential to enlighten symptoms of COVID long-haulers. This study revealed parasympathetic overtone and increased HRV in patients with history of COVID-19. This may explain the unresolved orthostatic symptoms occurring in post-COVID period which may be associated with autonomic imbalance.
Core Outcome Set for Research and Clinical Practice in Post COVID-19 Condition (Long COVID): An International Delphi Consensus Study 'PC-COS' (Munblit et al)	*SSRN - Lancet prepublication*	Aimed to identify core outcomes for Post COVID-19 Condition that stakeholders considered critical to assess in all research studies and clinical practice. 1535 participants from 71 countries, representing six continents, were involved in the online modified Delphi process, with 1148 participating in both rounds (75% completion rate). Eleven of 24 outcomes met consensus 'in' criteria after the two Delphi rounds and consensus meeting: fatigue or exhaustion; pain; post-exertion symptoms; work/occupational and study changes; survival; and "functioning, symptoms and conditions" for each of the following outcomes: cardiovascular, respiratory, nervous system, cognition, mental and physical. 'Recovery' outcome was added 'a-priori' as a part of previously published COS on COVID-19.
Persistence, Magnitude, and Patterns of Postacute Symptoms and Quality of Life	*Open Forum Infect Dis*	Study aimed to examine the spectrum, magnitude, duration, and patterns of COVID-19 post-acute sequelae, as well as their influence on quality of life. From April 21, 2020, to January 4, 2021, researchers enrolled a cohort of adults (n=179)

Following Onset of SARS-CoV-2 Infection: Cohort Description and Approaches for Measurement (Peluso et al)		in the USA with a documented history of SARS-CoV-2 RNA positivity at ≥2 weeks past onset of COVID-19 symptoms or, if asymptomatic, first positive test. At 4-month intervals, researchers queried physical and mental health symptoms and quality of life. Results showed that fatigue, shortness of breath, concentration problems, headaches, trouble sleeping, and anosmia/dysgeusia were most common through 8 months of observation. The median visual analogue scale rating of general health was lower at 4 and 8 months compared with pre-COVID-19.
Long COVID symptoms in SARS-CoV-2-positive adolescents and matched controls (LongCOVIDKidsDK): a national, cross-sectional study (Berg et al)	*Lancet Child Adolesc Health*	Aimed to investigate health, including symptoms of long COVID, in adolescents (aged 15–18 years) who tested positive for SARS-CoV-2 compared with a control group. Participants with SARS-CoV-2-positive tests had more long-lasting symptoms and sick leave, whereas participants in the control group had more short-lasting symptoms and worse quality of life. Knowledge of long COVID in adolescents is important to guide clinical recognition and management of this condition.
Physical and mental health 3 months after SARS-CoV-2 infection (long COVID) among adolescents in England (CLoCk): a national matched cohort study (Stephenson et al)	*Lancet Child Adolesc Health*	Study describes post-COVID symptomatology in a non-hospitalised, national sample of adolescents aged 11-17 years with PCR-confirmed SARS-CoV-2 infection compared with matched adolescents with negative PCR status. Adolescents who tested positive for SARS-CoV-2 had similar symptoms to those who tested negative, but had a higher prevalence of single and, particularly, multiple symptoms at the time of PCR testing and 3 months later.
Outcomes in post-acute sequelae of COVID-19 (PASC) at 6 months post-infection Part 1: Cognitive functioning (Whiteside et al)	*Clin Neuropsychol*	Study provides initial results on cognitive outcomes in Post-Acute Sequelae of COVID-19 (PASC) in 53 consecutive outpatients diagnosed with COVID-19. Four participants were excluded due to performance validity test failure. The sample was mostly white (89.8%), female (83.7%), and never hospitalized (69.4%) for COVID-19. Analyses indicated no mean scores in the Impaired range (>2 SD below normative mean) on objective cognitive testing and a low base rate of Impaired test scores. Higher (>20%) base rates of Borderline performance (1-2 SDs below normative mean) were found on some measures. There was also evidence for frequently elevated mean scores on mood measures which correlated with some cognitive measures and the number of Borderline scores per participants.
Evaluation of post-COVID health status using the EuroQol-5D-5L scale (Hegde et al)	*Pathog Glob Health*	There is a lack of a validated standard questionnaire to assess post-COVID health status. A retrospective observational study involving the recovered COVID patients admitted to a secondary care hospital in India. Our study found time to have a statistically significant impact on the mean index scores, level sum scores and dimension scores. Smoking was found to be significantly associated with usual activity scores at 4 weeks. The most remarkable changes occurred in the anxiety/depression dimension. Overall, there was a general trend of health improvement.
Prevalence of Post COVID-19 Condition in Primary Care: A Cross Sectional Study (Montenegro et al)	*Int J Environ*	Cross-sectional study to estimate the prevalence of post COVID-19 conditions in a community setting. Our main study finding was an overall population prevalence of 14.34% of post COVID-19. Only 9% of patients were hospitalized in our study. Prevalence was higher in women than men (15.63% versus 13.06%) and the most frequent persistent symptoms were fatigue (44.6%), smell impairment (27.7%) and dyspnea (24.09%).
Persistent, new-onset symptoms and mental health complaints in Long COVID in a Brazilian cohort of non-hospitalized patients (Titze-de-Almeida et al)	*BMC Infect Dis*	Study was aimed to examine if acute symptoms of coronavirus disease 2019 (COVID-19) would persist during LC, and if memory problems would be correlated with sleep, depressive mood, or anxious complaints. The SARS-CoV-2 infection leads to persistent symptoms during LC, in which memory problems may be associated with sleep and depressive complaints.

COMMENTARIES, LETTERS AND OPINION PIECES (JAN 29-FEB 11, 2022)

- **Long COVID and kids: more research is urgently needed (*Nature*):** What little is known about long COVID in children and teenagers suggests that it can be just as disabling as it is in adults. However, there are many fewer studies in teens than in

adults — and even fewer in children under the age of 11. This latter group is seeing a surge of COVID-19 infections: in many countries, children are not being vaccinated. More COVID-19 in kids will lead both to more long-COVID cases and to the spread of disease among vulnerable populations. It's time for younger people to be included in more studies of the condition, including trials of potential treatments. The UK support group Long Covid Kids says that reports of long COVID in children and teenagers are disbelieved by medical professionals. That, too, needs to change.

- **A research agenda for post-COVID-19 fatigue (*J Psychosom Res*):** Post-COVID-19 fatigue is expected to have a profound impact on daily functioning, including work ability and quality of life. It is also expected to have economic implications due to increased absenteeism and health care consumption, as was previously shown among patients with infectious diseases other than COVID-19. Given the global scale of this pandemic and the large group of potential patients, special attention needs to be given to how society as a whole will be affected.

MEDIA HIGHLIGHTS

- **Long covid: "Holistic" approach is best, given range of symptoms, say researchers (BMJ):** New research on long covid in adults and children supports the multidisciplinary approach to clinical care that is being provided at long covid clinics in England, experts have said. There are currently around 80 long covid clinics in England that take referrals from primary care for adults or children who are experiencing a range of symptoms that might include brain fog, anxiety, depression, breathlessness, and fatigue.
- **What Experts Know About 'Long Covid' and Who Gets It (Bloomberg):** There is not enough data collected and analyzed yet to know whether variants carry different long COVID risks, especially since reinfections and infections in vaccinated individuals may carry different risks of long Covid.
- **Can You Get Long COVID After an Infection With Omicron? (US News):** Experts say it's too early to know whether people infected with the omicron variant will develop long COVID. Long COVID is usually diagnosed many weeks after a bout with COVID-19. Any long-lasting effects typically appear about 90 days after symptoms of the initial infection go away, Maria Van Kerkhove of the World Health Organization said this week. Van Kerkhove said she hasn't seen any research indicating that the portion of COVID-19 survivors who get long COVID will change with the Omicron variant.

POST-COVID-19 CONDITION RESOURCES

- (NEW) PAHO Webinar Series on Post COVID-19 Condition launches 17 February, 2022, from 10:30 am to 12:30 pm (EST).
- (NEW) Body Politic COVID-19 Support Group (Global): Housed on the Slack app, group members have access to dozens of different channels, which give space for more personal discussion. Some of the channels include those specifically for medical professionals, parents of children with Covid-19, LGBTQ+ individuals, BIPOC+, and different regions around the world.
- (NEW) Patient-Led Research Collaborative (Global): Self-organized group of Long COVID patients working on patient-led research around the Long COVID experience.
- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)
- British Heart Foundation (UK): UK-based foundation with resources on long COVID.
- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)
- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.
- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Webinar - Implications of Long COVID (Canada): October 2021 CADTH webinar with expert panel discussing what is known know about long COVID, long COVID clinics, and what needs to be done to ensure quality of care.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

- ECDC: Webinar on post-COVID-19 condition in children (December 7).

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From: Day, Barbara (DH/MS)
To: "Macfarlane, Bruce (DH/MS) (Bruce.Macfarlane@gnb.ca)"; Power, Michaela (ECO/BCE)
Cc: Burkhardt, Tracey (DH/MS); Higdon, Penny (DH/MS); Chalifoux, Mathieu (DH/MS); McLennan, Danielle (DH/MS)
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) – CBC – COVID Update - February 17
Date: February 17, 2022 4:46:00 PM

Hi Bruce - suggested responses are below, and ready for next steps - approved by: Matt, Penny, and Danielle.
Stock answers are provided for questions 3 & 5 re: long haul COVID, and in response to travel / vaccine status of BA.2 infected individuals.

NAME: 21(1)
OUTLET: CBC
CONTACT #: 21(1)
EMAIL: 21(1)
DEADLINE TO SEND RESPONSE TO REPORTER:
ROUTINE (Yes or No):
REQUEST:

1. Can you please tell me how many BA.2 tests are pending? How is the lab sampling for these?

26(1)(a)

2. What are the symptoms of the 4 confirmed cases, how severe are they, and are they hospitalized/in ICU/on ventilators?

26(1)(a)

3. Can you tell me anything about the vax status of the 4 people, whether they have any underlying health conditions, and/or whether they've ever tested positive before? Was the initial case travel-related?

   If so, from where?
   If not, how did it get here?

26(1)(a)

26(1)(a) [redacted]

4. Have the actual causes of death of any that have occurred since the change in how they're being reported been determined?

   If so, how many died FROM COVID vs. WITH COVID? If the causes have not been determined yet, will they be? If not, why not? If so, when? Will they be made public? How?

   If not, why not?

26(1)(a) [redacted].

5. I'm hearing reports of an increase of long COVID with Omicron. What is New Brunswick seeing in terms of this? Are you able to provide any stats on long COVID in NB with Omicron vs. other COVID?

   How is this being taken into account in Public Health's approach to managing the pandemic?

26(1)(a) [redacted]

6. I see there are more than 7,000 cases under investigation, even with the changes in policy limiting which cases Public Health pursues. What accounts for this high number?

   Are cases becoming increasingly difficult to investigate? Why?

26(1)(a) [redacted]

26(1)(a)

[redacted]

[redacted]

7. How far back do these cases date? How long is it expected to take to clear them?

26(1)(a)

[redacted]

8. Meanwhile, community transmission cases have reached nearly 17,000. What can you tell me about that?

26(1)(a)

[redacted]

[redacted]

From: 21(1) [redacted] @cbc.ca>
Sent: Thursday, February 17, 2022 12:04 PM
To: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>; Harding, Gail (ECO/BCE) <Gail.Harding@gnb.ca>
Subject: info/comment request

Hi. Can you please tell me how many **BA.2** tests are pending?

How is the lab sampling for these?

What are the symptoms of the 4 confirmed cases, how severe are they, and are they hospitalized/in ICU/on ventilators?

Can you tell me anything about the vax status of the 4 people, whether they have any underlying health conditions, and/or whether they've ever tested positive before?

Was the initial case travel-related?

If so, from where?

If not, how did it get here?

Have the actual **causes of death** of any that have occurred since the change in how they're being reported been determined?

If so, how many died FROM COVID vs. WITH COVID?

If the causes have not been determined yet, will they be?

If not, why not?

If so, when?

Will they be made public?

How?

If not, why not?

Do you have any update on the effectiveness/use of **Paxlovid** and/or additional shipments?

I'm hearing reports of an increase of **long COVID with Omicron.** What is New Brunswick seeing in terms of this?

Are you able to provide any stats on long COVID in NB with Omicron vs. other COVID?

How is this being taken into account in Public Health's approach to managing the pandemic?

I see there are more than 7,000 **cases under investigation**, even with the changes in policy limiting which cases Public Health pursues. What accounts for this high number?

Are cases becoming increasingly difficult to investigate? Why?

How far back do these cases date?

How long is it expected to take to clear them?

Meanwhile, **community transmission cases** have reached nearly 17,000. What can you tell me about that?

I've listed these more or less in my preferred order of priority, but I'll obviously take whatever you can get as soon as you can get it.
Please send any info/comments ASAP and the rest as it becomes available.
Many thanks,
21(1) [redacted]
[redacted]

--

New Brunswick web editor/reporter
CBC News
21(1) [redacted]
506-632-7752 (main newsroom)
21(1) [redacted]

From: Day, Barbara (DH/MS)
To: "Macfarlane, Bruce (DH/MS) (Bruce.Macfarlane@gnb.ca)"; Harding, Gail (ECO/BCE); Chalifoux, Mathieu (DH/MS); Clair, Suzanne (DH/MS)
Cc: Burkhardt, Tracey (DH/MS); Power, Michaela (ECO/BCE)
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) – Global – MIS-C in NB - February 22
Date: February 22, 2022 3:28:00 PM

Hi all – see below. I believe this is a long haul COVID-19 question. Recycling a stock answer from earlier today, just tailored to MIS-C. Looping in Matt and Suzanne to confirm, and for approval.

NAME: 21(1)
OUTLET: Global
CONTACT #: 21(1)
EMAIL: 21(1) @globalnews.ca
DEADLINE TO SEND RESPONSE TO REPORTER:
ROUTINE (Yes or No):
REQUEST:
I'm working to update case numbers of MIS-C related to COVID-19 across the provinces and territories. Are there up to date case numbers available for New Brunswick?

PROPOSED RESPONSE:

26(1)(a)
[redacted]
.

From: 21(1) @globalnews.ca>
Sent: Tuesday, February 22, 2022 2:39 PM
To: Berry, Shawn (ECO/BCE)
Subject: RE: Global National Inquiry - MIS-C cases in New Brunswick

Good Morning
21(1) here from Global National. I'm working to update case numbers of MIS-C related to COVID-19 across the provinces and territories. Are there up to date case numbers available for New Brunswick?

Thank you!
21(1)

21(1)
Network Digital Journalist – Alberta Correspondent
Global News | Corus Entertainment
222 23 St NE | Calgary, Alberta T2E 7N2

21(1) [redacted] **News Room:** 403-235-7709
21(1) [redacted]

Global NEWS

From:	Day, Barbara (DH/MS)
To:	Chalifoux, Mathieu (DH/MS); LeBlanc, Shannon (DH/MS); Paulsen, Paige (DH/MS); Materniak, Stefanie (HorizonNB)
Cc:	Power, Michaela (ECO/BCE)
Subject:	RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Date:	February 25, 2022 9:24:00 AM

Good morning Stephanie – reaching out as we have a media request on long haul covid-19. We'd like to reuse the response below (we've used it before) but I wanted to make sure no changes have been made since. Could you review and provide input?

CONTACT #: 21(1)
EMAIL: 21(1) @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1) Is the registry still operating, and if so, how many New Brunswickers have now signed up?

2) Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

3) Have there been any COVID deaths attributable to long COVID? If so, how many?

4) Are there any children on the registry? If so, how many?

PROPOSED RESPONSE:

26(1)(a)

26(1)(a)

From:	McDavid, Kris (HorizonNB)
To:	Power, Michaela (ECO/BCE); Day, Barbara (DH/MS); Chalifoux, Mathieu (DH/MS); LeBlanc, Shannon (DH/MS); Paulsen, Paige (DH/MS); Materniak, Stefanie (HorizonNB)
Cc:	Macfarlane, Bruce (DH/MS)
Subject:	RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Date:	February 25, 2022 2:08:48 PM

Everything you've answered looks accurate from my perspective … I may not have full answers for the reporter if he comes to us for information today, however, as Dr. Smyth has yet to get back to me.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: February 25, 2022 1:46 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Hi everyone,
I am checking on the status of this request.
Thank you,
Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:29 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Sounds good – thanks for double checking, Kris!

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 12:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Thanks Barb, on the surface this looks good to me. I'll check with our research team quickly to double check. Believe the project was to wind down at the end of 2021.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:24 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi Kris!
Hope you've been well.
We have a request from 21(1) on the long covid registry and have drafted responses below. Could you review and let us know if changes are required?
CONTACT #: 21(1)
EMAIL: 21(1) @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):

REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.
Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?
   26(1)(a) [redacted]
2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.
   26(1)(a) [redacted]
3. Have there been any COVID deaths attributable to long COVID? If so, how many?
   26(1)(a) [redacted]
4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: Day, Barbara (DH/MS)
Sent: February 25, 2022 9:25 AM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM
Good morning Stephanie – reaching out as we have a media request on long haul covid-19. We'd like to reuse the response below (we've used it before) but I wanted to make sure no changes have been made since. Could you review and provide input?
CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted] @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.
Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?
   26(1)(a) [redacted]
2. Is the province planning on doing anything beyond this registry to help long COVID patients? If

it is, please explain what's happening/planned.

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: Day, Barbara (DH/MS)
To: McDavid, Kris (HorizonNB); van der Pluijm, Nina (DH/MS); Clair, Suzanne (DH/MS); Power, Michaela (ECO/BCE); Chalifoux, Mathieu (DH/MS); LeBlanc, Shannon (DH/MS); Paulsen, Paige (DH/MS); Materniak, Stefanie (HorizonNB)
Cc: Macfarlane, Bruce (DH/MS)
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Date: February 25, 2022 2:16:00 PM

Thanks Kris. We've used this response before, so I think we're okay to provide what we have for now. Looping in Nina/Suzanne for final review and approval.
Matt – do you mind checking everything over as well?

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

   26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

   26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

   26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

   26(1)(a) [redacted].

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 2:09 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc,

Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Everything you've answered looks accurate from my perspective … I may not have full answers for the reporter if he comes to us for information today, however, as Dr. Smyth has yet to get back to me.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: February 25, 2022 1:46 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi everyone,

I am checking on the status of this request.

Thank you,

Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:29 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Sounds good – thanks for double checking, Kris!

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 12:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Thanks Barb, on the surface this looks good to me. I'll check with our research team quickly to double check. Believe the project was to wind down at the end of 2021.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:24 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi Kris!
Hope you've been well.
We have a request from 21(1) on the long covid registry and have drafted responses below. Could you review and let us know if changes are required?

CONTACT #: 21(1)
EMAIL: 21(1) @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

   26(1)(a)

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

   26(1)(a)

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

   26(1)(a)

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted].

From: Day, Barbara (DH/MS)
Sent: February 25, 2022 9:25 AM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Good morning Stephanie – reaching out as we have a media request on long haul covid-19. We'd like to reuse the response below (we've used it before) but I wanted to make sure no changes have been made since. Could you review and provide input?

CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted]@brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

   26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

   26(1)(a) [redacted]

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From:	Day, Barbara (DH/MS)
To:	Chalifoux, Mathieu (DH/MS); McDavid, Kris (HorizonNB); van der Pluijm, Nina (DH/MS); Clair, Suzanne (DH/MS); Power, Michaela (ECO/BCE); LeBlanc, Shannon (DH/MS); Paulsen, Paige (DH/MS); Materniak, Stefanie (HorizonNB)
Cc:	Macfarlane, Bruce (DH/MS)
Subject:	RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Date:	February 25, 2022 2:22:00 PM

I added just now (taken from this morning's huddle at 11) to give some info as I would like to prime and socialize on how COVID's going continue to be managed going forward. I don't mind removing though - what are your thoughts?

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February 25, 2022 2:18 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good afternoon,

Where did the highlighted line come from?

Thanks,

Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:17 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Thanks Kris. We've used this response before, so I think we're okay to provide what we have for now. Looping in Nina/Suzanne for final review and approval.
Matt – do you mind checking everything over as well?

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 2:09 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Everything you've answered looks accurate from my perspective … I may not have full answers for the reporter if he comes to us for information today, however, as Dr. Smyth has yet to get back to me.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications

Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: February 25, 2022 1:46 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi everyone,

I am checking on the status of this request.

Thank you,

Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:29 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Sounds good – thanks for double checking, Kris!

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 12:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Thanks Barb, on the surface this looks good to me. I'll check with our research team quickly to double check. Believe the project was to wind down at the end of 2021.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:24 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi Kris!

Hope you've been well.
We have a request from 21(1) [redacted] on the long covid registry and have drafted responses below. Could you review and let us know if changes are required?

CONTACT #: 21(1) [redacted]
EMAIL: 21(1) [redacted] @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

   26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

   26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

   26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

   26(1)(a) [redacted]

From: Day, Barbara (DH/MS)
Sent: February 25, 2022 9:25 AM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good morning Stephanie – reaching out as we have a media request on long haul covid-19. We'd like to reuse the response below (we've used it before) but I wanted to make sure no changes have been made since. Could you review and provide input?

CONTACT #: 21(1)
EMAIL: 21(1) @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

   26(1)(a) .

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

   26(1)(a)

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

   26(1)(a)

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted].

From:	Day, Barbara (DH/MS)
To:	Chalifoux, Mathieu (DH/MS); Clair, Suzanne (DH/MS); McDavid, Kris (HorizonNB); van der Pluijm, Nina (DH/MS); Power, Michaela (ECO/BCE); LeBlanc, Shannon (DH/MS); Paulsen, Paige (DH/MS); Materniak, Stefanie (HorizonNB)
Cc:	Macfarlane, Bruce (DH/MS)
Subject:	RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Date:	February 25, 2022 3:09:59 PM
Attachments:	FOR APPROVAL MEDIA REQUEST Andrew Waugh BN Long COVID - February 25 1PM.msg

You're cc'd on the final to Bruce and Tracey – attaching the email.

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February 25, 2022 3:04 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good afternoon Barb,
Just making sure – I see the sentence is still below. Want to ensure it was not sent in whatever you've sent along for approval.
Thanks,
Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 3:02 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Got it – this has been sent along for next steps. Thanks all!

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February 25, 2022 2:55 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good afternoon Barb,
Please leave out.
I'll try to swing by your office to explain the nuance later today.
Thanks,
Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:54 PM
To: Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
I understand – just stretching it a tad, since all of COVID should fall under communicable disease but am happy to leave it out!

From: Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>
Sent: February 25, 2022 2:42 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Agree…don't think discussion was about long-covid, discussion was about long term sector.

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February-25-22 2:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Good afternoon Barb,
Please remove for now. There may be some nuance here that was lost in this morning's meeting.
Thanks,
Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:22 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: Andrew Waugh – BN – Long COVID - February 25 1PM

I added just now (taken from this morning's huddle at 11) to give some info as I would like to prime and socialize on how COVID's going continue to be managed going forward. I don't mind removing though - what are your thoughts?

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February 25, 2022 2:18 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Good afternoon,
Where did the highlighted line come from?
Thanks,
Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:17 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Thanks Kris. We've used this response before, so I think we're okay to provide what we have for now. Looping in Nina/Suzanne for final review and approval.
Matt – do you mind checking everything over as well?

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?
   26(1)(a) [redacted].
2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.
   26(1)(a) [redacted]

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 2:09 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Everything you've answered looks accurate from my perspective … I may not have full answers for the reporter if he comes to us for information today, however, as Dr. Smyth has yet to get back to me.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: February 25, 2022 1:46 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB)

<Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Hi everyone,
I am checking on the status of this request.
Thank you,
Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:29 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Sounds good – thanks for double checking, Kris!

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 12:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Thanks Barb, on the surface this looks good to me. I'll check with our research team quickly to double check. Believe the project was to wind down at the end of 2021.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

système informatique dans son intégralité.

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:24 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi Kris!

Hope you've been well.

We have a request from 21(1) on the long covid registry and have drafted responses below. Could you review and let us know if changes are required?

CONTACT #: 21(1)

EMAIL: 21(1) @brunswicknews.com

DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM

ROUTINE (Yes or No):

REQUEST:

I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.

I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?
   26(1)(a) .
2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.
   26(1)(a)
3. Have there been any COVID deaths attributable to long COVID? If so, how many?
   26(1)(a)
4. Are there any children on the registry? If so, how many?

26(1)(a)

From: Day, Barbara (DH/MS)
Sent: February 25, 2022 9:25 AM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie

(HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Good morning Stephanie – reaching out as we have a media request on long haul covid-19. We'd like to reuse the response below (we've used it before) but I wanted to make sure no changes have been made since. Could you review and provide input?
CONTACT #: 21(1)
EMAIL: 21(1) @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM
ROUTINE (Yes or No):
REQUEST:
I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.
I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.
Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?
   26(1)(a)
2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.
   26(1)(a)
3. Have there been any COVID deaths attributable to long COVID? If so, how many?
   26(1)(a)
4. Are there any children on the registry? If so, how many?

26(1)(a)

From: Day, Barbara (DH/MS) []
To: Macfarlane, Bruce (DH/MS) [Bruce.Macfarlane@gnb.ca]; Burkhardt, Tracey (DH/MS) [Tracey.Burkhardt@gnb.ca]; Chalifoux, Mathieu (DH/MS) [Mathieu.Chalifoux@gnb.ca]; Clair, Suzanne (DH/MS) [suzanne.clair@gnb.ca]
CC: Power, Michaela (ECO/BCE) [Michaela.Power@gnb.ca]
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM
Date: Friday, February 25, 2022 16:03:34
Attachment 1: image001.gif
Attachment 2: image002.gif
Attachment 3: image003.gif
Attachment 4: image004.gif
Attachment 5: image005.gif
Attachment 6: image006.gif

Good afternoon Bruce, the following is ready for next steps – signed off on by Matt and Suzanne.

Thanks!

CONTACT #: 21(1)

EMAIL: 21(1) @brunswicknews.com

DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM

ROUTINE (Yes or No):

REQUEST:

I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.

I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now

signed up?

26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February 25, 2022 2:55 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good afternoon Barb,

Please leave out.

I'll try to swing by your office to explain the nuance later today.

Thanks,

Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:54 PM
To: Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long

COVID - February 25 1PM

I understand – just stretching it a tad, since all of COVID should fall under communicable disease but am happy to leave it out!

From: Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>
Sent: February 25, 2022 2:42 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Agree…don't think discussion was about long-covid, discussion was about long term sector.

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February-25-22 2:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good afternoon Barb,

Please remove for now. There may be some nuance here that was lost in this morning's meeting.

Thanks,

Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:22 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

I added just now (taken from this morning's huddle at 11) to give some info as I would like to prime and socialize on how COVID's going continue to be managed going forward. I don't mind removing though - what are your thoughts?

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: February 25, 2022 2:18 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Good afternoon,

Where did the highlighted line come from?

Thanks,

Matt

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 2:17 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; van der Pluijm, Nina (DH/MS) <nina.vanderpluijm@gnb.ca>; Clair, Suzanne (DH/MS) <suzanne.clair@gnb.ca>; Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: FOR APPROVAL: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Thanks Kris. We've used this response before, so I think we're okay to provide what we have for now. Looping in Nina/Suzanne for final review and approval.

Matt – do you mind checking everything over as well?

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

26(1)(a)

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 2:09 PM
To: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB)

<Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Everything you've answered looks accurate from my perspective … I may not have full answers for the reporter if he comes to us for information today, however, as Dr. Smyth has yet to get back to me.

Kris McDavid

Senior Communications Advisor / Conseiller principal en communications

Communications and Community Relations / Communications et Relations communautaires

Horizon Health Network / Réseau de santé Horizon

(506) 626-1681

Kris.McDavid@horizonnb.ca
news.horizonnb.ca

https://can01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.horizonnb.ca%2F&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=N%2B6D94v7mmOhBQzkSX3xlHnsurDRi7pkhNEeAGA3qTw%3D&reserved=0

https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.facebook.com%2FHorizonNB%2F&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=vOVy1NRzIXHFcIF4nbAQINan1gcmikDEVmC%2BiQZ%2Bfss%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Ftwitter.com%2FHorizonHealthNB&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=A0AL88%2F2MFoB3CeqI4HVTfMrMCo1Kvw5L7wjhCadTjQ%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.y

outube.com%2Fuser%2FHorizonNB&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=VCx0uKjTf%2FCcOvL25xlMKZBtL0u3EmU3fYloHSKsagQ%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.instagram.com%2Fhorizonhealthnb%2F%3Fhl%3Den&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=AGNlzy3IIYZ4MF6EUszolEgYfPsPljM%2FtiGrOAuPDsg%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.linkedin.com%2Fcompany%2Fhorizon-health-network%2F&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=97ImbQVpn58bQWHWwTPjt%2FK%2BWdhrsog5BFrc49pc2MI%3D&reserved=0

From: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Sent: February 25, 2022 1:46 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Hi everyone,

I am checking on the status of this request.

Thank you,

Michaela

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:29 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Sounds good – thanks for double checking, Kris!

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: February 25, 2022 12:26 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Thanks Barb, on the surface this looks good to me. I'll check with our research team quickly to double check. Believe the project was to wind down at the end of 2021.

Kris McDavid

Senior Communications Advisor / Conseiller principal en communications

Communications and Community Relations / Communications et Relations communautaires

Horizon Health Network / Réseau de santé Horizon

(506) 626-1681

Kris.McDavid@horizonnb.ca
news.horizonnb.ca

https://can01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.horizonnb.ca%2F&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=N%2B6D94v7mmOhBQzkSX3xlHnsurDRi7pkhNEeAGA3qTw%3D&reserved=0

https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.facebook.com%2FHorizonNB%2F&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=vOVy1NRzIXHFcIF4nbAQINan1gcmikDEVmC%2BiQZ%2Bfss%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Ftwitter.com%2FHorizonHealthNB&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=A0AL88%2F2MFoB3CeqI4HVTfMrMCo1Kvw5L7wjhCadTjQ%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.youtube.com%2Fuser%2FHorizonNB&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=VCx0uKjTf%2FCcOvL25xlMKZBtL0u3EmU3fYloHSKsagQ%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.instagram.com%2Fhorizonhealthnb%2F%3Fhl%3Den&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=AGNlzy3IIYZ4MF6EUszolEgYfPsPljM%2FtiGrOAuPDsg%3D&reserved=0https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.linkedin.com%2Fcompany%2Fhorizon-health-network%2F&data=04%7C01%7CBarbara.Day%40gnb.ca%7Cfb40cdc0662f42a6fbe708d9f89058dd%7Ce08b7eefb5014a679ed007e38bfccee7%7C0%7C0%7C637814121112115474%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC

4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=97ImbQVpn58bQWHWwTPjt%2FK%2BWdhrsog5BFrc49pc2MI%3D&reserved=0

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: February 25, 2022 12:24 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>; Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) – BN – Long COVID - February 25 1PM

Hi Kris!

Hope you've been well.

We have a request from 21(1) on the long covid registry and have drafted responses below. Could you review and let us know if changes are required?

21(1)

[redacted]

DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM

ROUTINE (Yes or No):

REQUEST:

I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.

I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted].

From: Day, Barbara (DH/MS)
Sent: February 25, 2022 9:25 AM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; Paulsen, Paige (DH/MS) <Paige.Paulsen@gnb.ca>; Materniak, Stefanie (HorizonNB) <Stefanie.Materniak@HorizonNB.ca>
Cc: Power, Michaela (ECO/BCE) <Michaela.Power@gnb.ca>
Subject: RE: MEDIA REQUEST: 21(1) [redacted] – BN – Long COVID - February 25 1PM

Good morning Stephanie – reaching out as we have a media request on long haul covid-19. We'd like to reuse the response below (we've used it before) but I wanted to make sure no changes have been made since. Could you review and provide input?

CONTACT #: 21(1) [redacted]

EMAIL: 21(1) [redacted] @brunswicknews.com

DEADLINE TO SEND RESPONSE TO REPORTER: 1 PM

ROUTINE (Yes or No):

REQUEST:

I have some questions about long COVID, or "post COVID-19 condition," as the WHO calls it.

I'm following up from a story we did in August, when the Department of Health told us that 280 people had signed up to the TripleC-NB registry.

Please answer each question separately.

1. Is the registry still operating, and if so, how many New Brunswickers have now signed up?

26(1)(a) [redacted]

2. Is the province planning on doing anything beyond this registry to help long COVID patients? If it is, please explain what's happening/planned.

26(1)(a) [redacted]

3. Have there been any COVID deaths attributable to long COVID? If so, how many?

26(1)(a) [redacted]

4. Are there any children on the registry? If so, how many?

26(1)(a) [redacted]

From: LeBlanc, Shannon (DH/MS)
To: Chowdhury, Sharmeen (DH/MS)
Subject: FW: OCSO Post COVID-19 Condition Scan #17
Date: February 28, 2022 12:42:52 PM
Attachments: OCSO Post-COVID Condition Scan 17_Feb 25,2022.pdf
Importance: High

FYI

From: Lachapelle, Stephane (PHAC/ASPC) <stephane.lachapelle@phac-aspc.gc.ca> **On Behalf Of** Cidsc Secretariat (PHAC/ASPC)
Sent: Monday, February 28, 2022 12:24 PM
To: annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Brenda Clement <brenda.clement@novascotia.ca>; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Claudia Kraft <Claudia_Kraft@gov.nt.ca>; colette.gaulin@msss.gouv.qc.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC) <Denise.Werker@phac-aspc.gc.ca>; Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca <Fiona.kouyoumdjian@ontario.ca>; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS) <Hanan.Smadi@gnb.ca>; Heather Morrison <hgmorrison@gov.pe.ca>; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jayne Boutilier <jayne.boutilier@novascotia.ca>; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; mayank.singal@bccdc.ca; Dr. Marguerite Cameron <mcameron@ihis.org>; michelle.murti@ontario.ca <michelle.murti@ontario.ca>; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP <marieve.pelletier@inspq.qc.ca>; MPS <marie-pascale.sassine@inspq.qc.ca>; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>; shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Wajid.ahmed@ontario.ca <Wajid.ahmed@ontario.ca>
Cc: Cidsc Secretariat (PHAC/ASPC) <cidsc_secretariat@phac-aspc.gc.ca>; Cornelisse, Mette (PHAC/ASPC) <mette.cornelisse@phac-aspc.gc.ca>
Subject: FW: OCSO Post COVID-19 Condition Scan #17
Importance: High

FYI TAC members… (take note of short poll as well)

Subject: OCSO Post COVID-19 Condition Scan #17
Importance: High
Hi,
Please find attached the latest COVID-19 environmental scan to be shared with TAC.
This biweekly product presents an overview of the current state of knowledge, and emerging

evidence on **Post COVID-19 Condition** (Feb 12th to Feb 25th).
OCSO is seeking feedback on the scan to inform its development. We kindly request your help by completing a short poll that can be found here. Any responses by **March 7** would be greatly appreciated.
Please let us know if you have any questions.
Many thanks,
Mette

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #17

February 12-February 25, 2022

- (NEW) OCSO is seeking feedback on the scan to inform its development. Please complete this short poll here by **March 7.**

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc). Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a review examining long COVID from a cardiovascular focus, a *UKHSA* evidence brief on the impact of vaccination on long COVID, as well as emerging guidelines from *ESCMID* for the assessment and management of long COVID.

GUIDELINES OR STANDARDS

- (NEW) European Society of Clinical Microbiology and Infectious Diseases (**ESCMID**): Rapid guidelines for assessment and management of long COVID

- The **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - (UPDATED) **WHO:** Q&A page on Post-COVID-19 Condition (February 2022).

- The **US CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals by UK **NICE** (Updated November 2021).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for 'long COVID' patients.

- A paper by Stephenson et al. published in BMJ's *Archives of Disease in Childhood* has produced a consensus on a definition of **long COVID in children**:
    - *"Post-COVID-19 condition occurs in young people with a history of confirmed SARS CoV2 infection, with one or more persisting physical symptom for a minimum duration of 12 weeks after initial testing that cannot be explained by an alternative diagnosis. The symptoms have an impact on everyday functioning, may continue or develop after COVID-19 infection, and may fluctuate or relapse over time."*

NATIONAL AND INTERNATIONAL DEVELOPMENTS (*FEB 12-25*)

CANADA

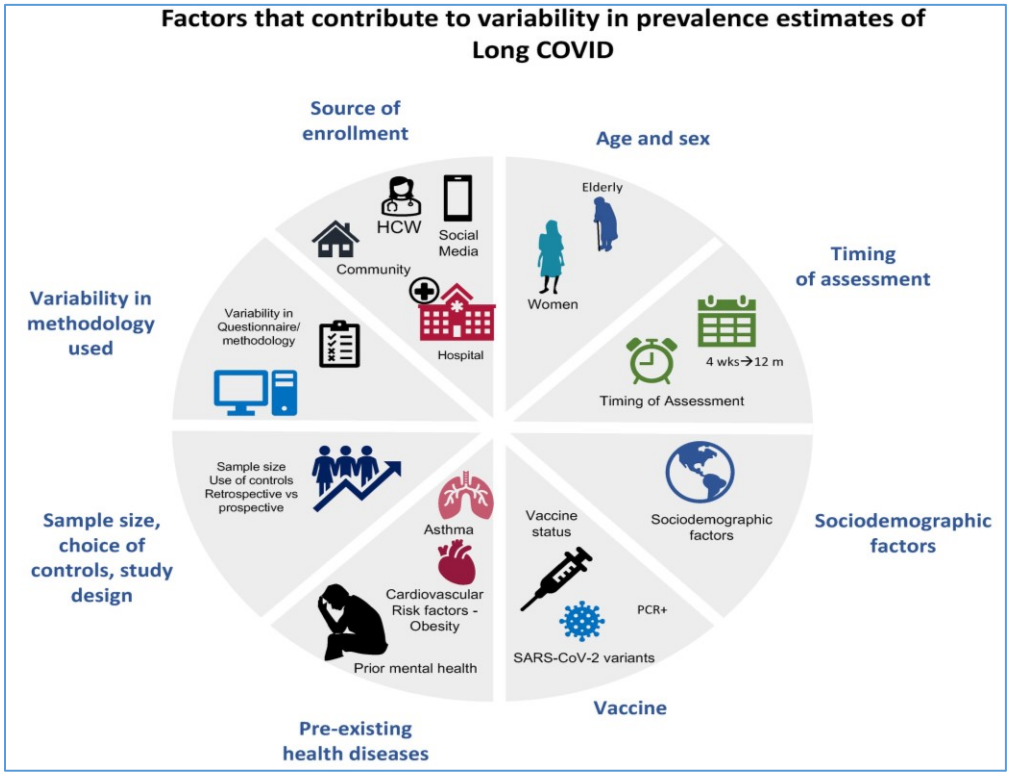
- (NEW) According to the BC Ministry of Health, approximately 4,200 people have been referred to long COVID clinics in BC, and about 66% of them have been accepted.
- (NEW) The University of Victoria has launched research to better understand COVID's long-term impacts on the brain.
- (NEW) The Canadian Donation and Transplant Program has issued a call for immunocompromised populations, such as transplant recipients, to share their experience with long COVID.

UK

- (NEW) According to a UKHSA evidence review, fully vaccinated people were half as likely to develop long covid symptoms as people who received only one vaccine dose or were unvaccinated. The review included 15 UK and international studies up to January 2022. They found that vaccine effectiveness against most post-covid symptoms in adults was highest in people over 60 and lowest in those aged 19 to 35. Being vaccinated was defined as having two doses of the Pfizer-BioNTech, Oxford-AstraZeneca, or Moderna vaccine or one dose of the Janssen vaccine.

US

- (NEW) Weill Cornell Medicine has been awarded a $9.8 million grant from the National Institutes of Health to lead a consortium of health care institutions that are analyzing nationwide health data in an effort to unravel the complexities of long COVID.



Source: *Long COVID: post-acute sequelae of COVID-19 with a cardiovascular focus* (Raman et al, 2022).

EMERGING SCIENTIFIC EVIDENCE (*FEB 12-25*)

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
European Respiratory Society Statement on Long COVID-19 Follow-Up (Antoniou et al)	Report (Available in *Eur Respir J*)	Patients diagnosed with COVID-19 associated with SARS-CoV-2 infection frequently experience symptom burden post-acute infection or post-hospitalisation. A European Respiratory Society Task Force convened and prioritised 8 clinical questions. Targeted search of literature defined timeline of long COVID-19 as 1 to 6 months post infection and identified clinical evidence in follow-up of patients. Studies meeting inclusion criteria report an association of characteristics of acute infection with persistent symptoms, thromboembolic events in follow-up period and evaluations of pulmonary physiology and imaging. This statement reviews QOL consequences, symptom burden, disability and home care follow-up. Evidence for follow-up care for patients with long COVID-19 is limited.
Clinical patterns of somatic symptoms in patients suffering from post-acute long COVID: a systematic review (Nguyen et al)	Systematic Review (Available in *Eur J Clin Microbiol Infect Dis)*	PubMed and Google Scholar were searched for studies on prevalence of somatic clinical symptoms lasting at least 4 weeks after onset of a PCR- or serology-confirmed diagnosis of COVID-19. 18 studies involved in-patients only with a duration of follow-up of either less than 12 weeks, 12 weeks to 6 months, or more. In these studies, fatigue (16-64%), dyspnea (15-61%), cough (2-59%), arthralgia (8-55%), and thoracic pain (5-62%) were most frequent persisting symptoms. In 19 studies conducted in a majority of out-patients, persistence of these symptoms was lower and 3-74% of patients reported prolonged smell and taste disorders. Main risk factors for persisting symptoms were being female, older, having comorbidities and severity at the acute phase of the disease.
Long COVID: post-acute sequelae of COVID-19 with a cardiovascular focus (Raman et al)	Review (Available in *Eur Heart J)*	This review discusses the definition of long COVID and its epidemiology, with an emphasis on cardiopulmonary symptoms. They review the pathophysiological mechanisms underlying acute and chronic cardiovascular (CV) injury, range of post-acute CV sequelae, and impact of COVID-19 on multi-organ health. Authors propose a possible model for referral of post-COVID-19 patients to cardiac services and discuss future directions including research priorities and clinical trials currently underway to evaluate efficacy of treatment for long COVID and associated CV sequelae.

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Impact of COVID-19 symptoms on social aspects of life among female long haulers: A qualitative study (Aghaei et al)	*Research Square prepub*	Study aimed to explore the impacts of long COVID on various aspects of social life among female long haulers. The main impacts included physical limitation, financial hardship, social relationship, conflict of social roles, and social stigma. Negative effects of long COVID hindered female long haulers' recovery process. Social isolation, COVID-19 associated stigma, and conflicts of social roles cause tremendous stress. Employers' support and social media usage may play positive role in their coping with impacts of long COVID on their social life.
Two months follow-up of patients with non-critical COVID-19 in Cape Town, South Africa (Mendelsohn et al)	*S Afr Fam Pract*	Study aimed to describe prevalence of long COVID in mild COVID-19 patients in Cape Town, and to document the impact of COVID-19 on patients' well-being, work, and their access to long COVID treatment. It was found that 60% of patients with mild COVID-19 had ≥ 1 long COVID symptom, while 35% had ≥ 3 ongoing symptoms for two months. Dyspnoea and fatigue were the most common symptoms. The findings revealed that 52% of employed patients missed work and 25% of patients self-reported non-recovery from their COVID-19. Moreover, 24% of patients consulted a clinician for long COVID, but only 7% of patients received long COVID care in the public sector.

'I can't cope with multiple inputs': a qualitative study of the lived experience of 'brain fog' after COVID-19 (Callan et al)	*BMJ Open*	UK-wide longitudinal qualitative study was used to investigate the lived experience of 'brain fog'-the wide variety of neurocognitive symptoms that can follow COVID-19. Of 50 participants, 42 were female and 32 white British. Most never hospitalised for COVID-19. Qualitative analysis revealed following themes: mixed views on appropriateness of term 'brain fog'; rich descriptions of experience of neurocognitive symptoms (especially executive function, attention, memory and language), accounts of how illness fluctuated-and progressed over time; the profound psychosocial impact of the condition on relationships, personal and professional identity; self-perceptions of guilt, shame and stigma; strategies used for self-management; challenges accessing and navigating the healthcare system; and participants' search for physical mechanisms to explain their symptoms.
Persistence, prevalence, and polymorphism of sequelae after COVID-19 in young adults (Deuel et al)	*medRxiv*	Study aimed to describe sequelae presenting more than six months after COVID-19 in non-hospitalized young adults. Young, previously healthy, individuals largely recover from mild infection and the multi-system impact of the infection is less that seen in older or hospitalized patients. These results may be extrapolated to health-care workers and other young workforce adults. The constellation of higher body mass index, dyslipidemia and lower physical endurance 6 months post COVID-19 is suggestive of a higher risk of developing metabolic disorders and possible cardiovascular complications.
Olfactory Dysfunction, Headache, and Mental Clouding in Adults with Long-COVID-19: What Is the Link between Cognition and Olfaction? A Cross-Sectional Study (Di Stadio et al)	*Brain Sci*	Study investigated mental clouding, headache, and cognitive function in adult patients with persistent COVID-19 olfactory dysfunction. In our cohort of adult patients with post-COVID-19, smell alterations persisting over 6 months, cognitive impairment and headache were associated with more severe olfactory loss, consistent with neuroinflammatory mechanisms mediating a variety of Long-COVID symptoms.
Determinants of Persistence of Symptoms and Impact on Physical and Mental Wellbeing in Long COVID: A Prospective Cohort Study (Righi et al)	*J Infect*	Prospective cohort study aimed to understand predictors of symptom persistence in cohort of 465 COVID-19 patients followed for 9 months after disease onset. Patients with advanced age, ICU stay and multiple symptoms at onset were more likely to suffer from long-term symptoms, which had a negative impact on both physical and mental wellbeing. 37% presented with at least 4 symptoms and 42% complained of symptom lasting more than 28 days. At month 9, 20% of patients were still symptomatic, showing mainly fatigue (11%) and breathlessness (8%), with 18% of patients not returning to optimal pre-COVID physical health, and 19% showing psychological distress.
Patterns of Long COVID Symptoms: A Multi-Center Cross Sectional Study (Yelin et al)	*J Clin Med*	Study aimed to determine patterns of symptoms in convalescing COVID-19 patients. Six patterns of symptoms identified: cognitive, pain-syndrome, pulmonary, cardiac, anosmia-dysgeusia and headache. Cognitive pattern was the major symptoms pattern, explaining 26.2% of the variance; the other patterns each explained 6.5–9.5% of the variance. Cognitive pattern was higher in patients who were outpatients during the acute disease. Pain-syndrome pattern was associated with acute disease severity, higher in women and increased with age. Pulmonary pattern was associated with prior lung disease and severe acute disease. Only two patterns (cognitive and cardiac) were associated with failure to return to pre-COVID occupational and physical activity status. Long COVID diverse symptoms can be grouped into six unique patterns.
Long COVID-19 symptoms: clinical characteristics and recovery rate among non-severe outpatients over a six-month follow-up (Seang et al)	*Infect Dis Now*	Aim was to describe persistent symptoms in long COVID-19 non-severe outpatients and report the 6-month clinical recovery rate. 63 patients (79% women, mean age: 48 years) enrolled; main symptoms (mean 81 days after acute infection): asthenia/myalgia (77%), dyspnea (51%), headaches (35%), cough (33%). At 6 months (n=56), 30% had complete, 57% partial, and 13% lack of recovery. Proportion of patients with >2 persistent symptoms was 27% at 6 months (main symptoms: dyspnea 54%] and asthenia/myalgia 46%]).
Assessment of 115 symptoms for Long COVID (post-COVID-19 condition) and their risk	*Research Square prepub*	Retrospective matched cohort study aimed to assess which symptoms are associated with confirmed SARS CoV-2 beyond 12 weeks post-infection in non-hospitalised individuals, and the risk factors associated with developing persistent

factors in non-hospitalised individuals: a retrospective matched cohort study in UK primary care (Nirantharakumar et al)		symptoms. 62 symptoms were significantly associated with prior exposure to SARS CoV-2 after 12 weeks. Largest adjusted hazard ratios were for anosmia, hair loss, and sneezing. Among the infected cohort, risk factors for Long COVID included younger age, female sex, belonging to an ethnic minority group, socioeconomic deprivation, smoking, obesity, and a wide range of comorbidities.
Post-COVID-19 syndrome, low-grade inflammation and inflammatory markers: a cross-sectional study (Maamar et al)	*Curr Med Res Opin*	Aim was to know whether subjects with PCS present higher levels of inflammatory markers, after a mild COVID-19. Analysed 121 mild COVID-19 cases (mean age =45.7 years, 56.2% women). Among acute symptoms, women presented higher frequency of fatigue (54.4% vs 30.2%). PCS affected 35.8% of women and 20.8% of men (p = 0.07), and the most reported symptoms were fatigue (42.8%), anosmia (40%), ageusia (22.8%), dyspnea (17.1%) and myalgia (11.4%).
Post-COVID-19 Memory Complaints: Prevalence and Associated Factors (Ahmed et al)	*medRxiv*	Aim was to determine prevalence of memory complaints in post-COVID-19 patients and to find potential contributing factors. Memory complaints was prevalent in 19.2% of the post-COVID patients. Multiple logistic regression showed that individuals who recovered from COVID-19 within 6 to 12 months more likely to have memory deficits.
Immune Response To SARS-Cov-2 In Severe And Long COVID-19 (Sumi et al)	*Research Square prepub*	Study developed a mathematical model of the immune response to SARS-CoV-2 and revealed that typical age-related risk factors such as only a 10% decrease in innate immune cell activity and inhibition of type-I interferon signaling by autoantibodies drastically increased the viral load. It was reported that the numbers of certain dendritic cell subsets remained less than half those in healthy donors even seven months after infection. Hence, the inflammatory response was ongoing. Model predicted the persistent DC reduction and showed that certain patients with severe and even mild symptoms could not effectively eliminate the virus and could potentially develop long COVID.
Eye Movement Alterations in Post-COVID-19 Condition: A Proof-of-Concept Study (García Cena et al)	*Sensors*	Video-oculography study describing potential alterations of eye movements in the post-COVID-19 condition by measuring visually guided saccades, memory-guided saccades, and antisaccades in horizontal axis. Found that patients with post-COVID-19 condition had eye movement alterations mainly in centripetal latency in visually guided saccades, the success rate in memory-guided saccade test, latency in antisaccades, and its standard deviation, which suggests involvement of frontoparietal networks.
Symptoms After COVID-19 Vaccination in Patients with Post-Acute Sequelae of SARS-CoV-2 (Nehme et al)	*J Gen Intern Med*	Cross-sectional study aimed to describe association of COVID-19 vaccination and evolution of six cardinal symptoms embodying post-acute sequelae of SARS-CoV-2. From April 23 to July 27, 2021, an online survey was conducted with 2094 individuals who previously tested positive for SARS-CoV-2 infection at outpatient testing center of Geneva University Hospitals, Switzerland. Of symptomatic participants, n = 1596 reported their symptoms developed after SARS-CoV-2 infection. Results showed that vaccination (one or two doses) was associated with a decreased prevalence of the six cardinal post-SARS-CoV-2 symptoms. Vaccination with 2 doses was associated with decreased prevalence of dyspnea and change in taste as well as decreased prevalence of any one symptom.
Childhood Trauma Exposure Increases Long COVID Risk (Villanueva van den Hurk et al)	*medRxiv*	Childhood trauma contributes to a pro-inflammatory state in adulthood evidenced by high morbidity and early mortality, but it has not yet been investigated as a risk factor for long COVID. Early adversity is a risk-factor for long COVID, likely due to altered immune response, central sensitization, and peripheral dysfunction. Childhood trauma, a crucial social determinant of health, should be routinely assessed in COVID-19 survivors and may aid in determining prognosis.
Post-COVID-19 tele-survey for persistent symptoms in a single center hospital cohort in India along with a parallel country-wide web-survey (Chaudhuri et al)	*medRxiv*	Study aimed at documenting prevalence and key associations of post-COVID symptoms (PCS) in India in telephonic survey among recovered patients in a single hospital in eastern India as well as a parallel web-survey covering a wider population of country.

COMMENTARIES, LETTERS AND OPINION PIECES (*FEB 12-25*)

- How can you help me integrate my long covid care? (*BMJ*): Long covid clinics in the UK can be a useful way to offer an organised medical response. But, in the UK, truly integrated clinics that comprise multiple disciplines are not readily available to all. Patients have to do much of the coordinating themselves. No strict rules apply to managing long covid. Different practices suit different people, but the end goal is essentially the same. For some, individual approaches or treatments have merit, but the power comes in combining them, and aiming to find the right blend and balance.

- Defining post-COVID condition (*Lancet*): Villar et al. noted that the WHO Delphi exercise had relatively few participants from Africa, South America, and Southeast Asia. Although we cannot say that having a more global presence would have changed the definition, this underrepresentation of LMICs might be associated with the lack of ongoing research about this condition in low-income countries. We suggest that such research is urgently needed. For example, the COVID-19 pandemic caused an unprecedented amount of stress for people in LMICs. Still, the full scale of mental health issues related to post-COVID-19 condition remains undetermined. One of the criteria in the proposed definition is that "symptoms cannot be explained by an alternative diagnosis". Fulfilling the criterion might also be difficult in LMICs, where additional diagnostic testing might not always be available.

MEDIA HIGHLIGHTS (*FEB 12-25*)

CANADA

- **Quebec health system unprepared to handle Omicron-fuelled long COVID cases (CBC News):** Dr. Emilia Liana Falcone, an infectious disease specialist and the director of a COVID-19 clinic at the Montreal Clinical Research Institute, says it will take another 12 weeks to appreciate the extent of patients who have long COVID from Omicron. Dr. Laura Caspin and Dr. Audrey Ouaknine work at a COVID-19 clinic north of Montreal say the services offered in the province for people with persistent COVID-19 symptoms don't come close to meeting demand.
- **What we know — and what we still need to learn — about long COVID (CBC News):** Dr. Amy Tan, a family doctor and palliative care physician in Victoria, said early research indicates 10 to 25% of all people infected will end up with some sort of long COVID symptoms. But the Omicron surge has not been factored into the research, so it's unclear how many people infected by the variant will deal with long COVID. Tan says a greater commitment to research and research funding is needed. "This is where the research and academic world directly impacts clinical practice," she said. "We do need investment in research to be able to distil a robust diagnosis list, symptoms list.

GLOBAL

- **Long COVID a global issue for patients and healthcare systems, UK review finds (Reuters):** British researchers led by Oxford University said that the current understanding of long COVID and options to treat it is emerging as a major long-term issue for global healthcare systems after reviewing the illness' effects on patients. The review, published in the *European Heart Journal,* looked at direct impacts of a coronavirus infection such as myocardial infarction or inflammatory myocarditis - severe heart conditions - and long-term effects such as fatigue and mental wellbeing**.**

POST COVID-19 CONDITION RESOURCES

- (NEW) Agency for Clinical Innovation (Australia): Living Evidence - post acute sequelae of COVID-19.

- (UPDATED) WHO: On 1 March 2022 from 1:30 – 3:30PM CET WHO will host a webinar focused on neurology and mental health in post COVID-19 condition.

- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)

- PAHO Webinar Series on Post COVID-19 Condition launched 17 February, 2022, from 10:30 am to 12:30 pm (EST).

- Body Politic COVID-19 Support Group (Global): Housed on the Slack app, group members have access to dozens of different channels, which give space for more personal discussion. Some of the channels include those specifically for medical professionals, parents of children with Covid-19, LGBTQ+ individuals, BIPOC+, and different regions around the world.

- Patient-Led Research Collaborative (Global): Self-organized group of Long COVID patients working on patient-led research around the Long COVID experience.

- British Heart Foundation (UK): UK-based foundation with resources on long COVID.
- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)
- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.
- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.
- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.
- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.
- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.
- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.
- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.
- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.
- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.
- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.
- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.
- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.
- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.
- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Brenda Clement; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Claudia Kraft; colette.gaulin@msss.gouv.qc.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jayne Boutilier; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP; MPS; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Wajid.ahmed@ontario.ca
Cc:	Cidsc Secretariat (PHAC/ASPC)
Subject:	OCSO Post COVID-19 Condition Scan #18
Date:	March 14, 2022 11:28:26 AM
Attachments:	OCSO Post-COVID Condition Scan 18_March 11_2022.pdf

---

TAC Members,

On behalf of the *Office of the Chief Science Officer*, please find attached the latest COVID-19 environmental scan.

This biweekly product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Feb 26th to Mar 11th).

FYI - OCSO is seeking feedback on the scan to inform its development. We kindly request your help by completing a short poll that can be found here. Any responses **by March 18** would be greatly appreciated.

Please let us know if you have any questions.

Thanks,

TAC Sec't

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #18

February 26 - March 11, 2022

- (REMINDER) OCSO is seeking feedback on the scan to inform its development. Please complete this short poll here.

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc). Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a scoping review on the management of long COVID in general practice (GP), as well as data from the UK highlighting the prevalence of self-reported long COVID was greatest in people aged 35 to 49 years, females, people living in more deprived areas, those working in teaching and education, social care or health care, and those with another activity-limiting health condition or disability.

GUIDELINES OR STANDARDS

- The **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - **WHO:** Q&A page on Post-COVID-19 Condition (February 2022).

- The **US CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- Rapid guidelines for healthcare professionals by UK **NICE** (Updated November 2021).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for 'long COVID' patients.

- A paper by Stephenson et al. published in BMJ's *Archives of Disease in Childhood* has produced a consensus on a definition of **long COVID in children**:
    - *"Post-COVID-19 condition occurs in young people with a history of confirmed SARS CoV2 infection, with one or more persisting physical symptom for a minimum duration of 12 weeks after initial testing that cannot be explained by an alternative diagnosis. The symptoms have an impact on everyday functioning, may continue or develop after COVID-19 infection, and may fluctuate or relapse over time."*

- European Society of Clinical Microbiology and Infectious Diseases (**ESCMID**): Rapid guidelines for assessment and management of long COVID

NATIONAL AND INTERNATIONAL DEVELOPMENTS (*FEB 26-MAR 11*)

CANADA

- (NEW) A study surveyed Quebec health-care workers infected with COVID-19 in first 3 waves of pandemic, between July 2020 and May 2021, and were not hospitalized. A sample of symptomatic health workers with a negative PCR test result served as control group. Researchers found among 6,000 workers who responded and were positive, 46% still had at least one post-COVID condition after 4 weeks and 40% had at least one symptom after 3 months.
- (NEW) Statement from Canada's Minister of Health (March 11): "Today, on the second National Day of Observance for COVID-19, we take time to mourn the people we lost, as well as recognize those who got sick, and those who are still suffering from long COVID-19. This is also the day where we recognize and show gratitude to our health care workers who sacrificed so much, and spent two years on the front lines to protect us all. "
- (UPDATED) Outpatient Rehabilitation Programs in Ontario for those with ongoing COVID-19 symptoms.

UK

- (UPDATED) 90 long COVID assessment centres have been set up across England. Similar clinics have opened in Northern Ireland, while in Scotland and Wales patients are referred to different services, depending on their specific symptoms.
- (NEW) According to the UK Office of National Statistics (March 3), long-COVID symptoms adversely affected the day-to-day activities of 989,000 people (65% of those with self-reported long COVID), with 18% reporting that their ability to undertake their day-to-day activities had been "limited a lot". Prevalence of self-reported long COVID was greatest in people aged 35 to 49 years, females, people living in more deprived areas, those working in teaching and education, social care or health care (likely reflecting increased exposure to COVID-19 infection in these sectors), and those with another activity-limiting health condition or disability.

US

- (NEW) A consortium of six sites in the Boston area will recruit participants as part of a nationwide study of the long-term effects and prolonged symptoms of COVID-19. Together, the sites will recruit 909 participants over the next year to be part of the greater Boston COVID Recovery Cohort (BCRC). Participants will be followed for the next three years. As part of the NIH "Researching COVID to Enhance Recovery" (RECOVER) Initiative, the cohort will help researchers to better understand and define the constellation of long-term complications that can occur after infection and lay the groundwork for preventing and treating symptoms.

EMERGING SCIENTIFIC EVIDENCE (*FEB 26-MAR 11*)

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
Long COVID in Children and Adolescents (Fainardi et al)	Narrative Review (Available in *Life*)	In children, data on long COVID are scant. Reports are conflicting regarding its prevalence, duration and impact on daily life. This narrative review explored the latest literature regarding long COVID-19 in the pediatric population. We showed that long COVID in children might be a relevant clinical problem. In most cases, the prognosis is good, but some children may develop long-term symptoms with a significant impact on their daily life. The paucity of studies on long COVID, including a control group of children not infected by SARS-CoV-2, prevents us from drawing

		firm conclusions. Whether the neuropsychiatric symptoms widely observed in children and adolescents with long COVID are the consequence of SARS-CoV-2 infection or are due to the tremendous stress resulting from the restrictions and the pandemics is still not clear. In both cases, psychological support can play a fundamental role in managing COVID pandemics in children. More knowledge is needed to share a standardized definition of the syndrome and improve its management and treatment.
The Challenge of Studying Long COVID: An Updated Review (Zimmermann et al)	Review (Available in *Pediatr Infect Dis J)*	Accurately determining the risk of long COVID is challenging. Existing studies in children and adolescents have considerable limitations and distinguishing long-term SARS-CoV-2 infection-associated symptoms from pandemic-related symptoms is difficult. Over half of individuals in this age group, irrespective of COVID-19, report physical and psychological symptoms, highlighting the impact of the pandemic. More robust data is needed to inform policy decisions.
Post-COVID-19 Syndrome (Pierce et al)	Review (Available in *Nurs Res*)	Findings from review indicated that there were four pathophysiological categories involved: virus-specific pathophysiological variations, oxidative stress, immunologic abnormalities, and inflammatory damage. Although studies examining the pathophysiology of post-COVID-19 syndrome are still relatively few, there is growing evidence that this is a complex and multifactorial syndrome involving virus-specific pathophysiological variations that affect many mechanisms but specifically oxidative stress, immune function, and inflammation. Further research is needed to elucidate the pathophysiology, pathogenesis, and longer term consequences involved in post-COVID-19 syndrome.
Enhancing the management of long COVID in general practice: a scoping review (Brennan et al)	Scoping Review (Available in *BJGP Open*)	Findings show that GPs can and have played a key role in the management of Long COVID, and that patient care can be improved through better understanding of patient experiences, standardised approaches for symptom identification/treatment, and facilitation of access to multidisciplinary specialist services when needed. Future research evaluating focused GP interventions is needed.
A systematic review and meta-analysis of Long COVID symptoms (Natarajan et al)	Systematic Review (Available in *medRxiv*)	Systematic review included publications from December 2019 to June 2021. Multiple electronic databases were used. The quality that differentiates this meta analysis is that they are cohort and cross-sectional studies with follow up. It is evident that there is limited knowledge available of long COVID and current clinical management strategies may be suboptimal as a result. Clinical practice improvements will require more comprehensive clinical research, enabling effective evidence-based approaches to better support patients.

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Risk of Long Covid in people infected with SARS-CoV-2 after two doses of a COVID-19 vaccine: community-based, matched cohort study (Ayoubkhani et al)	*medRxiv*	Study examined whether likelihood of symptoms 12 weeks after infection differed by vaccination status. Included COVID-19 Infection Survey participants aged 18-69 years who tested positive for SARS-CoV-2 between 26 April 2020 and 30 November 2021; excluded participants who, before their first test-confirmed infection, had suspected COVID-19 or Long Covid symptoms, or were single-vaccinated. Study sample comprised 3,090 double-vaccinated participants and matched control participants. COVID-19 vaccination is associated with reduced risk of Long

		Covid, emphasising the need for public health initiatives to increase population-level vaccine uptake. Longer follow-up is needed, as is the assessment of further vaccine doses and Omicron variant.
Excess risk and clusters of symptoms after COVID-19 in a large Norwegian cohort (Caspersen et al)	*Eur J Epidemiol*	Study aimed to calculate excess risk and identify patterns of 22 symptoms up to 12 months after COVID-19 in more than 70,000 adult participants in an ongoing cohort study. One year after infection, 13 of 22 symptoms were associated with SARS-CoV-2 infection. For instance, 17.4% of SARS-CoV-2 infected cohort participants reported fatigue that persist 12 months after infection, compared to new occurrence of fatigue that had lasted less than 12 months in 3.8% of non-infected subjects. Two main underlying factors explained 50% of the variance in the 13 symptoms. Brain fog, poor memory, dizziness, heart palpitations, and fatigue had high loadings on the first factor, while shortness-of breath and cough had high loadings on the second factor. Lack of taste and smell showed low to moderate correlation to other symptoms. Anxiety, depression and mood swings were not strongly related to COVID-19.
Examining Association of Personality Characteristics and Neuropsychiatric Symptoms in Post-COVID Syndrome (Delgado-Alonso et al)	*Brain Sci*	Study aimed to evaluate personality traits in patients with post-COVID syndrome, as well as the association with neuropsychiatric symptoms present in this disorder. Patients with post-COVID syndrome scored lower for emotional stability, equanimity, positive mood, and self-control. Extraversion, emotional stability, and openness correlated negatively with anxiety and depression levels.
The Impact of Long COVID-19 on Mental Health: Observational 6-Month Follow-Up Study (Houben-Wilke et al)	*JMIR Ment Health*	Longitudinal, observational study aimed to reveal symptoms of posttraumatic stress disorder (PTSD) and symptoms of anxiety and depression up to 6 months after onset of COVID-19-related symptoms in patients with confirmed COVID-19 and persistent complaints. At 3-month follow-up, 37.2% patients had symptoms of PTSD, 35.6% had symptoms of anxiety, and 46.9% had symptoms of depression, which remained high at the 6-month follow-up. TSQ scores and HADS anxiety and depression scores were strongly correlated at the 3- and 6-month follow-ups.
Outpatient Pulmonary Rehabilitation in Patients with Long COVID Improves Exercise Capacity, Functional Status, Dyspnea, Fatigue, and Quality of Life (Nopp et al)	*Respiration*	Prospective observational cohort study including consecutive patients admitted to an outpatient pulmonary rehabilitation center due to persistent symptoms after COVID-19. In patients with long COVID, exercise capacity, functional status, dyspnea, fatigue, and quality of life improved after 6 weeks of personalized interdisciplinary pulmonary rehabilitation.
Reassessment of persistent symptoms, self-reported COVID-19 infection and SARS-CoV-2 serology in the SAPRIS-SERO cohort: identifying possible sub-syndromes of Long Covid (Spiers et al)	*medRxiv*	Secondary analysis was used to describe the pattern of persistent symptoms by IgG seropositivity and self reported Long Covid in the SAPRIS-SERO survey. Participants in cross-sectional analysis were 26,823 individuals in France who took part in nested SAPRIS and SAPRIS-SERO surveys. Between May-November 2020, immunosorbent assays were used to detect anti SARS CoV 2 antibodies. Surveyed online between December 2020-January 2021, participants self reported previous COVID-19 infection and physical symptoms during the previous four weeks that were new since March 2020, and had persisted for at least eight weeks. Results showed that there may be three common subsyndromes of Long Covid, one with persistent anosmia, another with other respiratory tract symptoms and a third with symptoms relatable to chronic fatigue. Seropositivity for IgG antibodies did not predict symptoms independently of self reported Long Covid, except for anosmia.

Post-acute symptoms, new onset diagnoses and health problems 6 to 12 months after SARS-CoV-2 infection: a nationwide questionnaire study in the adult Danish population (Sørensen et al)	*medRxiv*	Nationwide cross-sectional study including 152 880 individuals with the data collected 6, 9 or 12 months after positive test. Six to twelve months after test date, risks of 18 out of 21 physical symptoms were elevated among test-positives and one third of the test-positives experienced at least one physical post-acute symptom. The largest risk differences were observed for dysosmia, dysgeusia, fatigue/exhaustion, dyspnea and reduced strength in arms/legs.
Risk factors and severity of functional impairment in long COVID: a single-center experience in Croatia (Banić et al)	*Croat Med J*	Aim of study was to determine the frequency of common symptoms in long COVID and their effect on the quality of life, and to determine the factors contributing to a more severe long COVID. Final sample consisted of 261 patients. After acute COVID-19 period (>4 weeks), almost 80% had impaired functional status. 21.5% reported no functional impairment. A higher Post Covid Functional Status (PCFS) score was associated with female sex and oxygen therapy requirement during acute disease. It was not associated with having a pre-existing lung disease. Disease severity did not pose a risk for developing more severe long COVID.
On the single and multiple associations of COVID-19 post-acute sequelae: 6-month prospective cohort study (Jiménez-Rodríguez et al)	*Sci Rep*	Conducted a cohort study from May to October 2020 to analyze single and multiple associations between post-COVID-19 characteristics with up to 6-months of follow-up in hospitalized and non-hospitalized COVID-19 patients at the University Hospital Virgen de la Nieves in Granada, Spain. Post-COVID-19 clinical and mental health impairment symptoms are correlated with patient gender. Functional lung tests are good predictors of chest CT imaging abnormalities in elderly patients. Non-hospitalized patients suffer more severe thromboembolic events and fatigue than those hospitalized.
Peripheral Neuropathy Evaluations of Patients With Prolonged Long COVID (Oaklander et al)	*Neurol Neuroimmunol Neuroinflamm*	Study analyzed cross-sectional and longitudinal data from patients with World Health Organization (WHO)-defined long COVID without prior neuropathy history or risks who were referred for peripheral neuropathy evaluations. Among 17 patients (mean age 43.3 years, 69% female, 94% Caucasian, and 19% Latino), 59% had ≥1 test interpretation confirming neuropathy. These included 63% (10/16) of skin biopsies, 17% (2/12) of electrodiagnostic tests and 50% (4/8) of autonomic function tests. One patient was diagnosed with critical illness axonal neuropathy and another with multifocal demyelinating neuropathy 3 weeks after mild COVID, and ≥10 received small-fiber neuropathy diagnoses. Longitudinal improvement averaged 52%, although none reported complete resolution. For treatment, 65% (11/17) received immunotherapies (corticosteroids and/or IV immunoglobulins).
Long COVID in hospitalized and non-hospitalized patients in a large cohort in Northwest Spain, a prospective cohort study (Pérez-González et al)	*Sci Rep*	Aim of this study was to describe persisting symptoms 6 months after COVID-19 diagnosis in a prospective cohort in the Northwest Spain (n = 248). At 6 months, 48% patients described one or more persisting symptoms. The most prevalent were: extra-thoracic symptoms (39.1%), chest symptoms (27%), dyspnoea (20.6%), and fatigue (16.1%). These symptoms were more common in hospitalized patients (52.3% vs. 38.2%) and in women (59.0% vs. 40.5%). The multivariate analysis identified COPD, women gender and tobacco consumption as risk factors for long COVID. Persisting symptoms are common after COVID-19 especially in hospitalized patients compared to outpatients (52.3% vs. 38.2%).
Serial Changes of Long COVID Symptoms and Clinical Utility of Serum	*J Clin Med*	To determine the key factors that affect the onset and clinical course of longterm sequelae of COVID, a retrospective analysis was performed at Okayama University Hospital (Japan) between February and July 2021.

Antibody Titers for Evaluation of Long COVID (Sakurada et al)		The symptoms of sequelae were diverse, with more than 20 types. The most frequent symptoms were general malaise, dysosmia, dysgeusia, sleeplessness, and headache. These symptoms improved in about 60% of the patients after 3 months. Patients who required hospitalization and had a poor condition in the acute phase and patients who received oxygen/dexamethasone therapy had higher antibody titers at the time of consultation.
Relationship between changes in symptoms and antibody titers after a single vaccination in patients with Long COVID (Tsuchida et al)	*J Med Virol*	Study evaluated post-vaccination changes in symptoms and antibody titers in patients with Long COVID. Post-vaccination symptoms (fatigue, joint pain, and taste and olfactory abnormalities) were relieved, worsened, and unchanged in 7, 9, and 26 patients, respectively. Ratios of pre- and post-vaccination antibody titers were 53, 40, and 174 in the unchanged, relief, and worsened groups, respectively. Worsened group had significantly highest antibody titer ratio.
Persisting Symptoms After COVID-19-Prevalence and Risk Factors in a Population-Based Cohort (Förster et al)	*Dtsch Arztebl Int*	Using a population-based approach, study reports symptoms and clinical characteristics following COVID-19 (long COVID), focusing on symptoms ≥12 weeks (post-COVID-19). Prevalence of post-COVID-19 was 72.6% (n = 127) and 46.2% (n = 588) for hospitalized and non-hospitalized patients, respectively. The most frequent long-term symptoms were fatigue (41.5% of all symptoms ≥12 weeks, n = 297), physical exhaustion (40.8%, n = 292), difficulty in concentrating (30.6%, n = 219), ageusia (25.9%, n = 185), and anosmia (25.5%, n = 182). Quality of life was significantly impaired in patients with post-COVID-19. The strongest risk factors for post-COVID-19 were female sex, overall severity of comorbidities, and severity of acute COVID-19.
Post-COVID-19 syndrome. SARS-CoV-2 RNA detection in plasma, stool, and urine in patients with persistent symptoms after COVID-19 (Tejerina et al)	*BMC Infect Dis*	Study describes a cohort of patients with a constellation of symptoms occurring four weeks after COVID-19 diagnosis causing different degrees of reduced functional capacity. Evaluated 29 patients who reported fatigue, muscle pain, dyspnea, inappropriate tachycardia, and low-grade fever. Previous COVID-19 was mild in 55% of the cases. 45% patients had positive plasma RT-PCR results and 51% were positive in at least one RT-PCR sample (plasma, urine, or stool). Functional status was severely reduced in 48% of the subjects. 62% received antiviral treatment. Improvement was seen in most patients and patients in the treatment group achieved better outcomes with significant differences.
Experiences of workers with post-COVID-19 symptoms can signpost suitable workplace accommodations (Lunt et al)	*Int J Workplace Health Manag*	Study was undertaken to provide empirical evidence of the work-relevant experiences of workers recovering from COVID-19. Participants mainly from health/social care (50%) and educational settings (14%). Over 90% indicated that they had experienced at least some post-COVID-19 symptoms, notably fatigue and cognitive effects. For 55%, symptoms lasted longer than six months. Only 15% had managed a full return-to-work. Of 88 who provided workability ratings, 13 and 18% respectively rated physical and mental workability as good or very good. Difficulties in resuming work were attributed to symptom unpredictability, their interaction with job demands, managing symptoms and demands in parallel, unhelpful attitudes and expectations.
Impact of COVID-19 symptoms on social aspects of life among female long haulers: A qualitative study (Aghaei et al)	*Res Sq*	Study aims to explore impacts of long COVID on various aspects of social life among female long haulers. Conducted 15 semi-structured interviews with female long haulers in the United States purposely recruited from Facebook groups, Slack group, and organization websites. Participants reported persistent symptoms that negatively affected their social lives in many ways. Main impacts included physical limitation, financial hardship,

		social relationship, conflict of social roles, and social stigma. Negative effects of long COVID hindered female long haulers' recovery process. Social isolation, COVID-19 associated stigma, and conflicts of social roles cause tremendous stress. Employers' support and social media usage may play positive role in coping with impacts of long COVID on their social life.
Characteristics and impact of Long Covid: Findings from an online survey (Ziauddeen et al)	*PLoS One*	Study aimed to explore initial and ongoing symptoms of Long Covid following SARS-CoV-2 infection and describe its impact on daily life by self-reported data through an online survey. We analysed data from 2550 participants with a median duration of illness of 7.6 months (interquartile range (IQR) 7.1-7.9). 26.5% reported lab-confirmation of infection. The most common initial symptoms that persisted were exhaustion, chest pressure/tightness, shortness of breath and headache. Cognitive dysfunction and palpitations became more prevalent later in the illness. Most participants described fluctuating (57.7%) or relapsing symptoms (17.6%).

COMMENTARIES, LETTERS AND OPINION PIECES (*FEB 26-MAR 11*)

- Toward Unbiased Evaluation of Postacute Sequelae of SARS-CoV-2 Infection: Challenges and Solutions for the Long Haul Ahead (*Ann Intern Med*): Early reporting of post-acute SARS-CoV-2 syndrome (PASC) foretells a difficult challenge developing in parallel to the ongoing pandemic. Some patients with prior acute COVID-19 report multiple new or persistent symptoms affecting nearly every organ system. In the United States, PASC has already been approved for inclusion and protections within the Americans with Disabilities Act despite limited study data or medical consensus. Yet, we do not know what constitutes long COVID or how to formally diagnose it. An improved understanding of this condition is needed to provide appropriate care for our patients. However, developing high-quality scientific evidence on PASC presents a unique challenge due to the evolving circumstances of SARS-CoV-2 and the pandemic itself. Such work will indeed be a long haul. Inherent sources of potential bias in studying this new phenomenon require that the medical community understand both study design and study limitations when generating, publishing, and using reports.

- Long COVID: sustained and multiplied disadvantage *(Med J Aust):* From an equity perspective, the over-representation of chronic conditions among disadvantaged (and often racialised) populations (eg, Indigenous Australians) increases the risk of both COVID-19 acute severity and long COVID. People with long COVID have reported significant stigma, difficulties in accessing services and returning to full time work, trouble maintaining important relationships and life roles, and barriers to engaging in activities of daily living. Australian data confirm this. The infection risk for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is associated with age, immune status, and certain pre-existing non-communicable diseases such as obesity, asthma etc. One of the few predictive models available for long COVID has found associations with age, body mass index, female sex and the number of symptoms experienced within the first 7 days of infection. Each of these factors is already profoundly driven by the social determinants of health and health inequity. The enduring effects of long COVID in groups that already experience disadvantage and inequality will make livelihoods more perilous.

MEDIA HIGHLIGHTS (*FEB 26-MAR 11*)

CANADA

- **Two years after the start of the pandemic, many with long COVID suffer alone (CTV News):** Dr. Thao Huynh, an epidemiologist and cardiologist at the McGill University Health Centre (MUHC), is leading one of the first major studies on long COVID in Quebec. She explains that though symptoms can worsen for some patients after getting vaccinated, it's actually a good sign that the body is recognizing and fighting the virus. Huynh explains because there is such limited research about long COVID, many doctors don't have the tools to help their patients -- going so far as to make them feel like they're being dismissed or overreacting.

GLOBAL

- **Long Covid patients, in search of relief, turn to private company (NBC News):** The main premise of IncellDx, a private California-based company, is a diagnostic blood test which the company claims can diagnose long Covid, help determine effective therapies and show any improvements after treatment. IncellDx does not do blood draws; instead, patients must send a blood sample to the company for analysis. The test looks at levels of 14 immune system proteins called cytokines that the company says indicate the blood vessel inflammation specific to long Covid. Critics counter that there are no simple blood tests or widely accepted biomarkers to determine whether someone has long Covid.
- **The Pandemic After the Pandemic (The Atlantic):** Long COVID is written into CDC and WHO documents; it makes a cameo in the newest version of President Joe Biden's National COVID-19 Preparedness Plan. Too many studies have "inadvertently included COVID-infected people in their negative control groups" because they rely on fallible tests that can't adequately determine who's actually caught the virus. Even after much of the world puts the pandemic in its rearview, long COVID will keep filling hospitals and clinics.

POST COVID-19 CONDITION RESOURCES

- (NEWLY ADDED) Post-COVID-19 Functional Status Scale: An overview of a patient self-reported scale that helps to support assessment of functional status and recovery after the SARS-CoV-2 infection.
- (NEWLY ADDED) Ontario College of Family Physicians: Resources on Post-COVID Condition.
- Agency for Clinical Innovation (Australia): Living Evidence - post acute sequelae of COVID-19.
- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)
- PAHO Webinar Series on Post COVID-19 Condition launched 17 February, 2022, from 10:30 am to 12:30 pm (EST).
- Body Politic COVID-19 Support Group (Global): Housed on the Slack app, group members have access to dozens of different channels, which give space for more personal discussion. Some of the channels include those specifically for medical professionals, parents of children with Covid-19, LGBTQ+ individuals, BIPOC+, and different regions around the world.
- Patient-Led Research Collaborative (Global): Self-organized group of Long COVID patients working on patient-led research around the Long COVID experience.
- British Heart Foundation (UK): UK-based foundation with resources on long COVID.
- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)
- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.
- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
To: 21(1) [redacted]
Subject: FW: Covid protections
Date: March 16, 2022 9:41:00 AM

Good morning 21(1)

Thank you for sharing your concerns with us. We are listening to you and have shared your observations with the appropriate staff within the department. Because of the high volume of e-mail we receive, we are required to limit responses to those requiring immediate assistance and questions.

Although the Mandatory Order ended on March 14, Public Health New Brunswick has not made any changes to our current testing strategy. Anyone with symptoms of COVID-19 can be tested, based on a person's level of risk we either recommend a PCR lab-based test or at-home POCT tests.

People with COVID-19 who are at high risk of serious illness may be able to access an anti-viral treatment (**Paxlovid).** You must have a positive PCR test within 5 days of symptom onset to be eligible for the anti-viral treatment, get tested without delay.

As for personal protective measures, vaccination remains one of our strongest layers of personal and population-level protection to prevent severe illness, hospitalization, and death. More information on how to Protect yourself and others from COVID-19 (gnb.ca) can be found on our website.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: March 15, 2022 3:04 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Cc: Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>; Dunn, Arlene Hon. (DAA/MAA) <Arlene.Dunn@gnb.ca>
Subject: RE: Covid protections

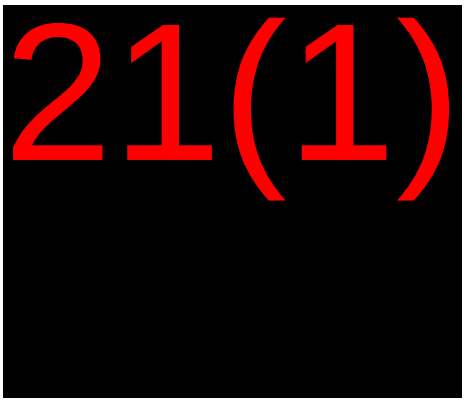
I appreciate your response. Unfortunately, much like the responses given to the media, this answer lacks specifics and omits significant considerations. I'd really like a more comprehensive answer.

Some of my specific concerns are:

1. You say there are not overwhelming levels of severe illness, but this seems to be a question of definition. I consider 3 or 4 of my NB neighbours dying daily to be overwhelming. I'm not alone in this. And this number is likely understated as reduced testing inevitably leads to difficulties in connecting deaths to Covid.
2. There has been almost no mention of Long Covid in the messaging around this. We seem to know very little about this outcome other than it can be debilitating and can occur even when initial symptoms are relatively mild. It also seems to be quite prevalent in younger populations. More discussion around how you've approached this, what new medical services you're going to introduce, etc. would be appreciated.
3. You cite high vaccination levels and yet booster doses have plateaued around 50% and haven't really moved since the last lockdown. You yourselves have stressed the importance of the booster and the waning effectiveness of the initial two doses.
4. What is the evidence there is "population-level protection"? It seems clear from other areas that multiple infections from Omicron are possible and that we don't know yet what protection Omicron infection might offer with respect to BA.2.
5. You have not indicated what the ability to access new medications and therapies will be. And my understanding is these treatments need to be administered soon after infection. With severely diminished testing, how are these treatments going to be delivered on time?
6. You note progress globally and yet we are seeing Denmark, Hong Kong, China and other areas being hit hard with BA.2. How are we going to avoid a similar fate?
7. And finally, you talk about personal risk level and taking your own precautions and yet we know that most protective measures offer more protection to those around us than they do ourselves. Since when are we a community that looks out for ourselves first and our neighbours second?

As you noted, the situation is fluid. That would seem to me to suggest taking an abundance of caution. I'd really welcome a response to my above concerns to better understand why you are not applying that caution.

Regards,



From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: March 15, 2022 1:07 PM

To: 21(1) [redacted]
Subject: FW: Covid protections

Good afternoon 21(1)

We understand that New Brunswickers may be at different levels of readiness to ease the population level mandatory measures. However, signs are present that support shifting to individual-level protective measures. These signs include:

- High case numbers without overwhelming levels of severe illness.
- Stability within the health care system, while high numbers of people testing positive.
- High vaccination levels among eligible New Brunswickers.
- Population-level protective buffer provided by the large number of individuals who recently recovered from Omicron.
- Availability of medications and therapies, including antiviral therapies, to treat those who have tested positive for COVID-19 and are at risk to experience more severe illness.

New Brunswick's recovery aligns with progress noted across Canada and globally. This recovery will continue to be monitored by Public Health, so that New Brunswick can respond promptly if required. As mandatory measures are eased and masking is no long required, Public health continues to recommend using layers of personal protective strategies, particularly if you are an at-risk individual or not yet vaccinated employing the following strategies and measures as required:

- Assess your local level of risk before gathering with others
- Put some space between yourself and others, when able
- Wear a multi-layer well-fitting mask
- Wash or sanitize hands frequently
- Stay home when symptomatic

Please be aware, the situation is fluid and the information changes daily. We strongly encourage you to visit our dedicated COVID-19 website for the most current information: www.gnb.ca/coronavirus.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: Saturday, March 12, 2022 2:22 PM
To: Dunn, Arlene Hon. (DAA/MAA) <Arlene.Dunn@gnb.ca>; Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>
Subject: Re: Covid protections

ATTENTION! External email / courriel externe.

Good afternoon,

I'm following up on this in the hopes of getting an evidence-based explanation for why your government doesn't believe in maintaining sensible protective measures against Covid 19.

I fear for immunocompromised members of our community. I fear for teachers and front/line healthcare workers. I fear for my kids and kids like them with still developing brains and how even a "mild" illness may impact their brain function and vascular systems.

You are failing New Brunswick. But there's time to get things back on track.

Regard,

21(1) [redacted]

Get Outlook for iOS

From: 21(1) [redacted]
Sent: Friday, March 11, 2022 12:23:04 PM
To: Arlene.Dunn@gnb.ca <Arlene.Dunn@gnb.ca>; blaine.higgs@gnb.ca <blaine.higgs@gnb.ca>
Subject: Covid protections

I'm writing to both of you today as I reside in Minister Dunn's riding, while my children go to school in Premier Higgs'.

I'm extremely concerned the removal of Covid protections on March 14th is going to have catastrophic consequences. Our health care system is overloaded, 3 or 4 people are dying daily and this decision is going to make that worse.

You're prioritizing the displeasure of some to wearing a piece of cloth over the right to healthy work/school conditions of others. This is shameful and short sighted.

I hope you will see the error of your ways and give students and staff the protection they deserve. If not, I hope to get a response explaining the rationale behind this decision that isn't just "public health said so".

Regards,

21(1)

Get Outlook for iOS

From: 21(1)
To: Galvin, Carolin (DH/MS); Higdon, Penny (DH/MS); Donovan, Wendy (DH/MS); Clair, Suzanne (DH/MS); Landsburg, Shelley (DH/MS); Barker, Dr. Kimberley (DH/MS); Leger, Dr. Yves (DH/MS); McKelvie, Dr. Mark (DH/MS); Salmon, Dr. Andrew (DH/MS); Chalifoux, Mathieu (DH/MS); Coulombe, Dan (DH/MS); Newton, Tracey (DH/MS); Daigle, Jean (HorizonNB); Duclos, Jacques (VitaliteNB); Melanson, Margaret (HorizonNB); MacGibbon, Eileen (HorizonNB); Brien, Dr. Susan (HorizonNB); Strack, Barry (HorizonNB); Sonier-Ferguson, Brigitte (VitaliteNB); Banville, Natalie (VitaliteNB); Dow, Dr. Gordon (HorizonNB); Smyth, Dr. Daniel (HorizonNB); Doucette, Douglas (HorizonNB); Gagnon, Josee (VitaliteNB); Louis, Faith (HorizonNB)
Cc: Russell, Dr. Jennifer (DH/MS); Wies, Mark (DH/MS); Levesque, Eric J. (DH/MS); Desrosiers, Dr. France (VitaliteNB); Dornan, Dr. John (HorizonNB)
Subject: FYI: CADTH Undertaking Full Review of Evidence related to "Long COVID" (Post–COVID-19) / À titre d'information : L'ACMTS entreprend un examen complet des données probantes sur le syndrome post-COVID-19
Date: March 17, 2022 10:22:13 AM

Le texte français suit.

Good morning all,

Having seen stories about "Long COVID" in the local news, I wanted to ensure you were aware that CADTH is proceeding to conduct a Condition Level Review on Post–COVID-19 (or "Long COVID"). A "Condition Level Review" is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of the condition, including prevention, identification, treatment and management.

As you may be aware, we have produced some initial reports on long COVID and also hosted a Webinar on this topic in October. The various, currently-available long COVID resources from CADTH are listed below.

For your information, we are working with other partners on this project and have convened a stakeholder panel involving PHAC, Ontario Ministry of Health, Alberta Health Services, various clinical experts and patient representatives.

The main effort currently underway is the full scoping review which I understand should be completed and posted in the next month. It will map all the available evidence and identify the knowledge and evidence gaps in this space and indicate where there is more room for evidence synthesis. Based on these findings and input from our customers (like you) we may pursue some of those identified topics for rapid reviews, etc. (Here is a link to the Scoping Review Project Protocol.)

In addition, a pan-Canadian Summit on long COVID is being explored with a likely focus being guideline development for long COVID and models of care.

We appreciate that post-COVID-19 is an evolving condition and that evidence needs may differ or change rapidly across jurisdictions with time. **We certainly welcome requests for any specific evidence needs from you at any time and will look forward to your input on this project as it evolves**. Please don't hesitate to touch base if you have any questions,

suggested input or information needs at this time.

Thanks,
21(1)

CADTH's Current Post-COVID Resources

- Post-COVID Condition Level Review General Landing Page
- Horizon Scan, September 2021: *An Overview of Post–COVID-19 Condition (Long COVID)*
- Preliminary Scoping Summary for CLR, September 2021: *Scoping Summary - A Condition-Level Review on Post-COVID 19 Condition (Long COVID)*
- Scoping Review - Project Protocol: *Clinical Classification and Clinical Interventions for Post–COVID-19 Condition: A Scoping Review - Project Protocol*
- CADTH Webinar, October 2021: The Implications of Long COVID
- CADTH News Release, December 2021: New CADTH Review Aims to Help Health Systems Understand and Manage the Long-Term Impact of Post–COVID-19 Condition
- *Hospital News* article, January 2022: *Long COVID and what it means for a struggling health care system*

**

Bonjour,

Après avoir lu de nombreuses publications dans les médias sur la COVID-19 de longue durée, je tiens à vous informer ou à vous rappeler que l'ACMTS procède à un examen global d'une maladie sur la COVID-19 de longue durée (aussi appelée syndrome post-COVID-19). Il s'agit d'une évaluation des données probantes portant sur diverses technologies de la santé et sur les questions émergentes touchant tous les aspects de la maladie, qu'on pense à la prévention, à la détection, au traitement ou à la prise en charge.

Comme vous le savez sans doute, l'ACMTS a déjà produit ses premiers rapports sur la COVID-19 de longue durée et a tenu un webinaire à ce sujet en octobre dernier. Les ressources de l'ACMTS présentement accessibles sur le syndrome post-COVID-19 figurent à la fin de ce message.

À titre d'information, nous collaborons avec certains partenaires pour mener à bien ce projet. Dans ce contexte, nous avons regroupé les parties prenantes suivantes : l'Agence de la santé publique du Canada (ASPC), le ministère de la Santé de l'Ontario, Alberta Health Services (AHS), des cliniciens experts et des représentants des patients.

Les principaux travaux en cours portent sur l'examen complet de la portée, dont la publication sur le site Web est attendue le mois prochain. L'examen permettra de présenter la structuration des données probantes, de recenser les connaissances et de relever les lacunes dans les données en un même endroit, en plus d'indiquer les autres possibilités de synthèse de données probantes. À la lumière des constatations dégagées et des

observations de la clientèle (dont vous faites partie), nous serons en mesure de poursuivre les travaux sur certains aspects au moyen d'examens rapides ou d'autres types d'évaluations. Voici un lien vers le protocole de l'examen de la portée (en anglais).

En outre, nous envisageons de tenir un sommet pancanadien sur le syndrome post-COVID-19 qui aura vraisemblablement pour thème l'élaboration de lignes directrices pour le syndrome post-COVID-19 et les modèles de soins.

Nous reconnaissons que le syndrome post-COVID-19 est une affection en évolution et que les besoins en matière de données probantes à son sujet varient ou se transforment selon la région ou le moment. **Assurément, nous accueillons les requêtes de données probantes particulières dont vous pourriez avoir besoin. De plus, nous espérons avoir votre avis sur ce projet au fil de son évolution.** N'hésitez pas à communiquer avec nous si vous avez des questions, des suggestions ou des demandes de renseignements.

Cordialement,
21(1)

Ressources de l'ACMTS sur le syndrome post-COVID-19

- Page d'accueil : La COVID-19 de longue durée : examen global d'une maladie
- Analyse prospective, septembre 2021 : Vue d'ensemble du syndrome post-COVID-19 (COVID-19 de longue durée) (en anglais)
- Résumé d'examen de la portée, septembre 2021 : Résumé d'examen de la portée – La COVID de longue durée : examen global d'une maladie (en anglais)
- Examen de la portée – Protocole : La classification et les interventions cliniques en contexte de syndrome post-COVID-19 : examen de la portée - Protocole (en anglais)
- Webinaire de l'ACMTS, octobre 2021 : Les répercussions de la COVID-19 de longue durée
- Communiqué de l'ACMTS, décembre 2021 : Un nouvel examen de l'ACMTS vient aider les systèmes de santé à comprendre et à prendre en charge les effets à long terme du syndrome post-COVID-19
- Article dans la revue *Hospital News*, janvier 2022 : Long COVID and what it means for a struggling health care system (en anglais)

21(1)
CADTH / ACMTS

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS)
To: Higgs, Premier Blaine (PO/CPM); DH Correspondence / Correspondance MS (DH/MS)
Subject: RE: Covid protections
Date: March 17, 2022 11:36:00 AM
Attachments: FW Covid protections.msg

We responded to the follow up email yesterday, at least the ones that we could answer, please see attached.

Tanya

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:
www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>
Sent: March 17, 2022 11:04 AM
To: DH Correspondence / Correspondance MS (DH/MS) <DHMC.CMMS@gnb.ca>
Subject: FW: Covid protections

FYI – not sure if another response is needed.

Thank you,

Sheri Forsythe
Correspondence Coordinator/Coordinatrice de la correspondance
Office of the Premier/Cabinet du premier ministre

From: 21(1) [redacted]
Sent: Tuesday, March 15, 2022 3:04 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>

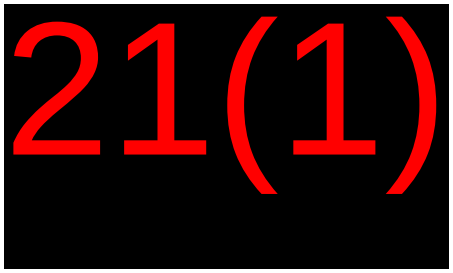
Cc: Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>; Dunn, Arlene Hon. (DAA/MAA) <Arlene.Dunn@gnb.ca>
Subject: RE: Covid protections

I appreciate your response. Unfortunately, much like the responses given to the media, this answer lacks specifics and omits significant considerations. I'd really like a more comprehensive answer. Some of my specific concerns are:

1. You say there are not overwhelming levels of severe illness, but this seems to be a question of definition. I consider 3 or 4 of my NB neighbours dying daily to be overwhelming. I'm not alone in this. And this number is likely understated as reduced testing inevitably leads to difficulties in connecting deaths to Covid.
2. There has been almost no mention of Long Covid in the messaging around this. We seem to know very little about this outcome other than it can be debilitating and can occur even when initial symptoms are relatively mild. It also seems to be quite prevalent in younger populations. More discussion around how you've approached this, what new medical services you're going to introduce, etc. would be appreciated.
3. You cite high vaccination levels and yet booster doses have plateaued around 50% and haven't really moved since the last lockdown. You yourselves have stressed the importance of the booster and the waning effectiveness of the initial two doses.
4. What is the evidence there is "population-level protection"? It seems clear from other areas that multiple infections from Omicron are possible and that we don't know yet what protection Omicron infection might offer with respect to BA.2.
5. You have not indicated what the ability to access new medications and therapies will be. And my understanding is these treatments need to be administered soon after infection. With severely diminished testing, how are these treatments going to be delivered on time?
6. You note progress globally and yet we are seeing Denmark, Hong Kong, China and other areas being hit hard with BA.2. How are we going to avoid a similar fate?
7. And finally, you talk about personal risk level and taking your own precautions and yet we know that most protective measures offer more protection to those around us than they do ourselves. Since when are we a community that looks out for ourselves first and our neighbours second?

As you noted, the situation is fluid. That would seem to me to suggest taking an abundance of caution. I'd really welcome a response to my above concerns to better understand why you are not applying that caution.

Regards,



21(1)

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: March 15, 2022 1:07 PM
To: 21(1)
Subject: FW: Covid protections

Good afternoon 21(1)

We understand that New Brunswickers may be at different levels of readiness to ease the population level mandatory measures. However, signs are present that support shifting to individual-level protective measures. These signs include:

- High case numbers without overwhelming levels of severe illness.
- Stability within the health care system, while high numbers of people testing positive.
- High vaccination levels among eligible New Brunswickers.
- Population-level protective buffer provided by the large number of individuals who recently recovered from Omicron.
- Availability of medications and therapies, including antiviral therapies, to treat those who have tested positive for COVID-19 and are at risk to experience more severe illness.

New Brunswick's recovery aligns with progress noted across Canada and globally. This recovery will continue to be monitored by Public Health, so that New Brunswick can respond promptly if required. As mandatory measures are eased and masking is no long required, Public health continues to recommend using layers of personal protective strategies, particularly if you are an at-risk individual or not yet vaccinated employing the following strategies and measures as required:

- Assess your local level of risk before gathering with others
- Put some space between yourself and others, when able
- Wear a multi-layer well-fitting mask
- Wash or sanitize hands frequently
- Stay home when symptomatic

Please be aware, the situation is fluid and the information changes daily. We strongly encourage you to visit our dedicated COVID-19 website for the most current information: www.gnb.ca/coronavirus.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:

www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●
● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: Saturday, March 12, 2022 2:22 PM
To: Dunn, Arlene Hon. (DAA/MAA) <Arlene.Dunn@gnb.ca>; Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>
Subject: Re: Covid protections

ATTENTION! External email / courriel externe.

Good afternoon,

I'm following up on this in the hopes of getting an evidence-based explanation for why your government doesn't believe in maintaining sensible protective measures against Covid 19.

I fear for immunocompromised members of our community. I fear for teachers and front/line healthcare workers. I fear for my kids and kids like them with still developing brains and how even a "mild" illness may impact their brain function and vascular systems.

You are failing New Brunswick. But there's time to get things back on track.

Regard,

21(1) [redacted]

Get Outlook for iOS

From: 21(1) [redacted]
Sent: Friday, March 11, 2022 12:23:04 PM
To: Arlene.Dunn@gnb.ca <Arlene.Dunn@gnb.ca>; blaine.higgs@gnb.ca <blaine.higgs@gnb.ca>
Subject: Covid protections

I'm writing to both of you today as I reside in Minister Dunn's riding, while my children go to school in Premier Higgs'.

I'm extremely concerned the removal of Covid protections on March 14th is going to have catastrophic consequences. Our health care system is overloaded, 3 or 4 people are dying daily and this decision is going to make that worse.

You're prioritizing the displeasure of some to wearing a piece of cloth over the right to healthy

work/school conditions of others. This is shameful and short sighted.

I hope you will see the error of your ways and give students and staff the protection they deserve. If not, I hope to get a response explaining the rationale behind this decision that isn't just "public health said so".

Regards,

21(1)

Get Outlook for iOS

From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) []
To: 21(1) [redacted]
Subject: FW: Covid protections
Date: Wednesday, March 16, 2022 09:41:10
Attachment 1: image001.jpg

Good morning 21(1)

Thank you for sharing your concerns with us. We are listening to you and have shared your observations with the appropriate staff within the department. Because of the high volume of e-mail we receive, we are required to limit responses to those requiring immediate assistance and questions.

Although the Mandatory Order ended on March 14, Public Health New Brunswick has not made any changes to our current testing strategy. Anyone with symptoms of COVID-19 can be tested, based on a person's level of risk we either recommend a PCR lab-based test or at-home POCT tests.

People with COVID-19 who are at high risk of serious illness may be able to access an anti-viral treatment (**Paxlovid).** You must have a positive PCR test within 5 days of symptom onset to be eligible for the anti-viral treatment, get tested without delay.

As for personal protective measures, vaccination remains one of our strongest layers of personal and population-level protection to prevent severe illness, hospitalization, and death. More information on how to Protect yourself and others from COVID-19 (gnb.ca) can be found on our website.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour

obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:

www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●

● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: March 15, 2022 3:04 PM
To: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Cc: Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>; Dunn, Arlene Hon. (DAA/MAA) <Arlene.Dunn@gnb.ca>
Subject: RE: Covid protections

I appreciate your response. Unfortunately, much like the responses given to the media, this answer lacks specifics and omits significant considerations. I'd really like a more comprehensive answer. Some of my specific concerns are:

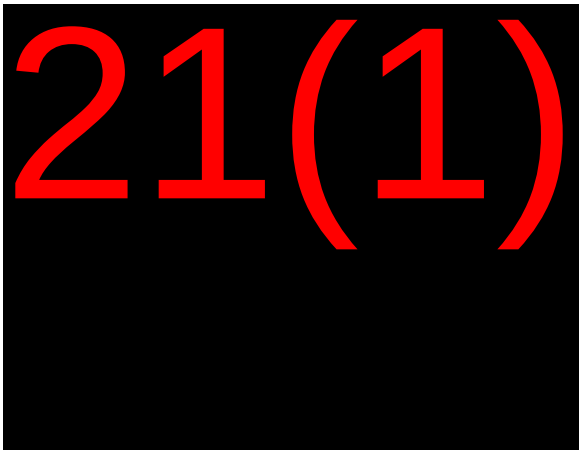
1. You say there are not overwhelming levels of severe illness, but this seems to be a question of definition. I consider 3 or 4 of my NB neighbours dying daily to be overwhelming. I'm not alone in this. And this number is likely understated as reduced testing inevitably leads to difficulties in connecting deaths to Covid.
2. There has been almost no mention of Long Covid in the messaging around this. We seem to know very little about this outcome other than it can be debilitating and can occur even when initial symptoms are relatively mild. It also seems to be quite prevalent in younger populations. More discussion around how you've approached this, what new medical services you're going to introduce, etc. would be appreciated.
3. You cite high vaccination levels and yet booster doses have plateaued around 50% and haven't really moved since the last lockdown. You yourselves have stressed the importance of the booster and the waning effectiveness of the initial two doses.
4. What is the evidence there is "population-level protection"? It seems clear from other areas that multiple infections from Omicron are possible and that we don't know yet what protection Omicron infection might offer with respect to BA.2.
5. You have not indicated what the ability to access new medications and therapies will be. And my understanding is these treatments need to be administered soon after

infection. With severely diminished testing, how are these treatments going to be delivered on time?

6. You note progress globally and yet we are seeing Denmark, Hong Kong, China and other areas being hit hard with BA.2. How are we going to avoid a similar fate?
7. And finally, you talk about personal risk level and taking your own precautions and yet we know that most protective measures offer more protection to those around us than they do ourselves. Since when are we a community that looks out for ourselves first and our neighbours second?

As you noted, the situation is fluid. That would seem to me to suggest taking an abundance of caution. I'd really welcome a response to my above concerns to better understand why you are not applying that caution.

Regards,



From: COVID-19 Public Enquiries / Demandes publiques COVID-19 (DH/MS) <COVID-19NB@gnb.ca>
Sent: March 15, 2022 1:07 PM
To: [redacted]
Subject: FW: Covid protections

Good afternoon 21(1)

We understand that New Brunswickers may be at different levels of readiness to ease the population level mandatory measures. However, signs are present that support shifting to individual-level protective measures. These signs include:

- High case numbers without overwhelming levels of severe illness.
- Stability within the health care system, while high numbers of people testing positive.
- High vaccination levels among eligible New Brunswickers.
- Population-level protective buffer provided by the large number of individuals who recently recovered from Omicron.
- Availability of medications and therapies, including antiviral therapies, to treat those who have tested positive for COVID-19 and are at risk to experience more severe illness.

New Brunswick's recovery aligns with progress noted across Canada and globally. This recovery will continue to be monitored by Public Health, so that New Brunswick can respond promptly if required. As mandatory measures are eased and masking is no long required, Public health continues to recommend using layers of personal protective strategies, particularly if you are an at-risk individual or not yet vaccinated employing the following strategies and measures as required:

- Assess your local level of risk before gathering with others
- Put some space between yourself and others, when able
- Wear a multi-layer well-fitting mask
- Wash or sanitize hands frequently
- Stay home when symptomatic

Please be aware, the situation is fluid and the information changes daily. We strongly encourage you to visit our dedicated COVID-19 website for the most current information: www.gnb.ca/coronavirus.

Sincerely,

Department of Health COVID-19 Public Enquiries Team/ l'Équipe de demandes publiques COVID-19 du Ministère de la Santé

For the most up-to-date information, please visit our dedicated COVID-19 website/Pour obtenir les informations les plus récentes, veuillez visiter notre site Web dédié à la COVID-19:

www.gnb.ca/coronavirus

● Be Informed ● Be Safe ● Be Prepared ● Be Kind ●

● Soyez informé ● Soyez protégé ● Soyez préparé ● Soyez bienveillant ●

From: 21(1) [redacted]
Sent: Saturday, March 12, 2022 2:22 PM
To: Dunn, Arlene Hon. (DAA/MAA) <Arlene.Dunn@gnb.ca>; Higgs, Premier Blaine (PO/CPM) <Blaine.Higgs@gnb.ca>
Subject: Re: Covid protections

ATTENTION! External email / courriel externe.

Good afternoon,

I'm following up on this in the hopes of getting an evidence-based explanation for why your government doesn't believe in maintaining sensible protective measures against

Covid 19.

I fear for immunocompromised members of our community. I fear for teachers and front/line healthcare workers. I fear for my kids and kids like them with still developing brains and how even a "mild" illness may impact their brain function and vascular systems.

You are failing New Brunswick. But there's time to get things back on track.

Regard,

21(1)

Get Outlook for iOS

From: 21(1)
Sent: Friday, March 11, 2022 12:23:04 PM
To: Arlene.Dunn@gnb.ca <Arlene.Dunn@gnb.ca>; blaine.higgs@gnb.ca <blaine.higgs@gnb.ca>
Subject: Covid protections

I'm writing to both of you today as I reside in Minister Dunn's riding, while my children go to school in Premier Higgs'.

I'm extremely concerned the removal of Covid protections on March 14th is going to have catastrophic consequences. Our health care system is overloaded, 3 or 4 people are dying daily and this decision is going to make that worse.

You're prioritizing the displeasure of some to wearing a piece of cloth over the right to healthy work/school conditions of others. This is shameful and short sighted.

I hope you will see the error of your ways and give students and staff the protection they deserve. If not, I hope to get a response explaining the rationale behind this decision that isn't just "public health said so".

Regards,

21(1)

From:	Day, Barbara (DH/MS)
To:	Chalifoux, Mathieu (DH/MS); McDavid, Kris (HorizonNB); LeBlanc, Shannon (DH/MS)
Subject:	RE: For approval: MEDIA REQUEST: 21(1) – MP – Long COVID Patient Care - March 28
Date:	March 24, 2022 1:59:59 PM

Will do – thank you both

From: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>
Sent: March 24, 2022 1:59 PM
To: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>
Subject: RE: For approval: MEDIA REQUEST: 21(1) – MP – Long COVID Patient Care - March 28

Good on my end as well. 26(1)(a) .

Thanks,

Matt

From: McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>
Sent: March 24, 2022 1:55 PM
To: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>; Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>
Subject: RE: For approval: MEDIA REQUEST: 21(1) – MP – Long COVID Patient Care - March 28

Thanks Barb … this aligns with my understanding of the situation.

Kris McDavid
Senior Communications Advisor / Conseiller principal en communications
Communications and Community Relations / Communications et Relations communautaires
Horizon Health Network / Réseau de santé Horizon
(506) 626-1681
Kris.McDavid@horizonnb.ca
news.horizonnb.ca

From: Day, Barbara (DH/MS) <Barbara.Day@gnb.ca>
Sent: March 24, 2022 1:54 PM
To: Chalifoux, Mathieu (DH/MS) <Mathieu.Chalifoux@gnb.ca>; McDavid, Kris (HorizonNB) <Kris.McDavid@HorizonNB.ca>; LeBlanc, Shannon (DH/MS) <Shannon.LeBlanc@gnb.ca>
Subject: For approval: MEDIA REQUEST: 21(1) – MP – Long COVID Patient Care - March 28

Good afternoon Matt and Kris!
Stock answer provided below in response to this request – with an additional line added below. Let me know if okay.

NAME: 21(1)
OUTLET: Medical Post
CONTACT #: 21(1)
EMAIL: 21(1)
DEADLINE TO SEND RESPONSE TO REPORTER: March 28
ROUTINE (Yes or No):
REQUEST:

I am writing an article for the Medical Post on how the healthcare system, and specifically family doctors, will have to take on the care of many patients with long COVID. I wanted to find out if the MOH has a strategy for caring for these patients and/or how this will be integrated into the health system and that resources will be provided to help healthcare providers and patients.

Please let me know if I could speak with someone about this or get a comment on it.

PROPOSED RESPONSE:

26(1)(a)

From: 21(1) [redacted]
Sent: Wednesday, March 23, 2022 3:24 PM
To: Macfarlane, Bruce (DH/MS) <Bruce.Macfarlane@gnb.ca>
Subject: Article on long COVID for the Medical Post

Dear Bruce,

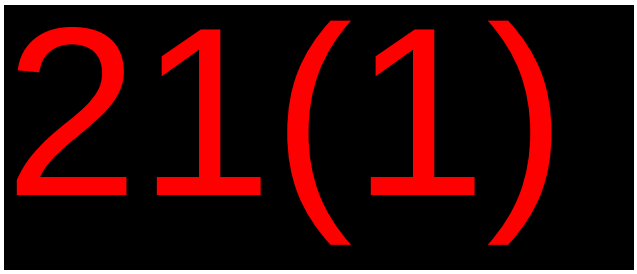
I am writing an article for the Medical Post on how the healthcare system, and specifically family doctors, will have to take on the care of many patients with long COVID. I wanted to find out if the MOH has a strategy for caring for these patients and/or how this will be integrated into the health system and that resources will be provided to help healthcare providers and patients.

Please let me know if I could speak with someone about this or get a comment on it.

If this is possible by the first half of next week, that would be great.

Thanks so much,

21(1) [redacted]



From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Brenda Clement; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Claudia Kraft; colette.gaulin@msss.gouv.qc.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jayne Boutilier; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; Lori.Strudwick@gov.yk.ca; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP; MPS; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Wajid.ahmed@ontario.ca
Cc:	Cidsc Secretariat (PHAC/ASPC)
Subject:	OCSO Post COVID-19 Condition Scan #19
Date:	March 28, 2022 10:57:59 AM
Attachments:	OCSO_Post-COVID Condition Scan 19_March25_2022.pdf

---

TAC Members,

On behalf of the *Office of the Chief Science Officer*, please find attached the latest COVID-19 environmental scan.

This biweekly product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Mar 12th to Mar 25th).

Thanks,
TAC Sec't

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #19

March 12-March 25, 2022

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc). Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a long COVID research library developed by Research-Aid Networks, a cohort study published in the *Lancet* on the risks of incident diabetes in long COVID, and a systematic review examining the effect of pulmonary rehabilitation for patients with post-COVID-19 published in *Frontiers in Medicine.*

GUIDELINES OR STANDARDS

- **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - **WHO:** Q&A page on Post-COVID-19 Condition (February 2022).

- **US CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- (UPDATED) UK **NICE**: Rapid guidelines for managing the long-term effects of COVID-19 (Updated March 2022).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for 'long COVID' patients.

- European Society of Clinical Microbiology and Infectious Diseases (**ESCMID**): Rapid guidelines for assessment and management of long COVID

- (NEWLY ADDED): **ACAS** (UK-based Advisory, Conciliation and Arbitration Service): Long COVID – advice for employers and employees

NATIONAL AND INTERNATIONAL DEVELOPMENTS (*MAR 12-MAR 25*)

CANADA

- (NEW) Quebec announced in its budget, released March 22, that it will fund 15 clinics throughout Quebec for people experiencing long COVID symptoms. The three-year plan will include $20.5 million in funding for the specialized clinics and scientific research into the condition. The project will include 5 reference clinics in Montreal, Quebec City, and Sherbrooke as well as 10 other locations throughout the province. The province will also hire physiotherapists, social workers, nurses, coordinators, and administrative staff to work in the clinics. Quebec estimates 9,000 people province-wide are living with long COVID.

UK

- (NEW) House of Commons Debate: Briefing on the impact of long COVID on the UK Workforce.

US

- (NEW) Lawmakers want data from public health officials on prevalence of long COVID, but according to reports, the CDC won't have it for another two years. Reps. Don Beyer and Ayanna Pressley asked the CDC in a January letter to publicly release their findings on how many people have long Covid and to break that data down by race, ethnicity, age, gender, previous disability, and other demographic characteristics. A spokesman for Beyer, said his office got a briefing from the Agency in response and were told the CDC "would not internally have a dataset from which they could publicly post disaggregated data for two years." Through its long Covid Initiative, non-profit organization Solve M.E. plans to release a white paper in the coming weeks that estimates 31.9 million adults in the U.S. have long Covid and 9.5 million of them are disabled by it.

EMERGING SCIENTIFIC EVIDENCE (*MAR 12-MAR 25*)

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
Effect of Pulmonary Rehabilitation for Patients With Post-COVID-19: A Systematic Review and Meta-Analysis (Chen et al)	Systematic Review (Available in *Front Med*)	5 databases were searched for all the published trials of pulmonary rehabilitation (PR) for patients with post-COVID-19 from 2019 to October 2021. Among 6,000 retrieved studies, 3 studies with 233 patients after COVID-19 were included. The pooled estimate of PR effect on 6-min walk test was in favor of the experiment group with clinical importance. It is found that PR could improve the symptom of dyspnea and QoL; however, its effect on pulmonary function test was inconsistent across studies. Risk of bias of included studies varied, with major concerns on the risk of blinding of participants and interventions performers.
Changes in cognitive functioning after COVID-19: A systematic review and meta-analysis (Crivelli et al)	Systematic Review (Available in *Alzheimers Dement*)	Searches in Medline/Web of Science/Embase from January 1, 2020, to December 13, 2021, were performed following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Of 6202 articles, 27 studies with 2049 individuals were included (mean age = 56.05 years, evaluation time ranged from the acute phase to 7 months post-infection). Impairment in executive functions, attention, and memory were found in post-COVID-19 patients. The meta-analysis was

		performed with a subgroup of 290 individuals and showed a difference in MoCA score between post-COVID-19 patients versus control.
Prognostic Factors for Post-COVID-19 Syndrome: A Systematic Review and Meta-Analysis (Maglietta et al)	Systematic Review (Available in *J Clin Med*)	MedLine and WebOfScience were last searched on 30 September 2021. Overall, 20 articles met the inclusion criteria, involving 13,340 patients. Associations were statistically significant for two factors: female sex with any symptoms, with mental health symptoms and with fatigue; acute disease severity with respiratory symptoms.

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Physical, psychological and cognitive profile of post-COVID condition in healthcare workers, Quebec, Canada (Carazao et al)	*medRxiv*	In this case series and case-control study between December 2020 and May 2021, the prevalence and duration of post-COVID condition, including physical, psychological and cognitive symptoms, was assessed in healthcare workers in Quebec. Four-week and 12-week post-COVID condition prevalences of 46% (2,746/5,943) and 40% (653/1,746), respectively, were observed among non-hospitalized cases and 76% (90/118) and 68% (27/37), respectively, among hospitalized cases. Aspects of cognitive dysfunction were 2.2 to 3.0 times more prevalent among cases with post-COVID condition than in controls, but also independently associated with psychological distress and fatigue.
Cohort study: Post-acute effects of outpatient SARS-CoV- 2 infections in Denmark (Gappa)	*Gesundheitswesen*	Study examined prescription drug and health-care use after SARS-CoV-2 infection not requiring hospital admission. Individuals with a positive or negative RT-PCR test for SARS-CoV-2 in Denmark between Feb 27 and May 31, 2020, were eligible for inclusion. 10 498 eligible individuals tested positive for SARS-CoV-2 in Denmark from Feb 27 to May 31, 2020, of whom 8983 (85·6%) were alive and not admitted to hospital 2 weeks after their positive test. The absolute risk of severe post-acute complications after SARS-CoV-2 infection not requiring hospital admission is low.
'Brain fog', guilt, and gratitude: experiences of symptoms and life changes in older survivors 6 months after hospitalisation for COVID-19 (Heiberg et al)	*Eur Geriatr Med*	Aim of this study was to explore how older survivors experienced post-COVID-19 condition and life changes approximately 6 months after hospitalisation for COVID-19. Analyses of the responses of 17 participants showed that most had experienced various physical and/or cognitive symptoms, such as reduced physical fitness, heavy breathing, fatigue, and 'brain fog'. On the other hand, they also experienced guilt and gratitude for having survived.
Blood group O and post-COVID-19 syndrome (Diaz-Salazar et al)	*medRxiv*	Study aimed to assess whether blood group O is related to post-COVID-19 syndrome (PCS) after mild COVID-19. Blood group O had increased risk of developing PCS compared to non-O subjects. The variables that contributed the most to the predictive model were blood group O, lymphocyte count, neutrophil count, and female sex.
Long COVID and its associated factors among COVID survivors in the community from a middle-income country: an online cross-sectional study (Moy et al)	*medRxiv*	Cross-sectional study aimed to explore long COVID symptoms and associated factors. Online survey was conducted with 732 COVID-19 survivors in Malaysia, from July to September 2021. Results showed 21.1% of respondents reported experiencing Long COVID. Most commonly reported symptoms for long COVID were fatigue, brain fog, depression, anxiety, insomnia, arthralgia or myalgia. Females had 58% higher odds of experiencing long COVID.
Brain functional connectivity alterations	*Research Square*	Neuropsychological deficits and brain damage following SARS-CoV-2 infection are not well understood. 110 patients, with either severe,

associated with neuropsychological post-COVID syndrome (Voruz et al)		moderate or mild disease in the acute phase underwent neuropsychological and olfactory tests, as well as completed psychiatric and respiratory questionnaires at 223 ± 42 days post-infection. Patients in severe group displayed poorer verbal episodic memory performances, and moderate patients had reduced mental flexibility. Neuroimaging revealed patterns of hypo and hyper functional connectivity in severe patients, while only hyperconnectivity patterns were observed for moderate. Default mode, somatosensory, dorsal attention and cerebellar networks were implicated. Partial least squares correlations analysis confirmed specific association between memory performances and brain functional connectivity.
Post-COVID-19 syndrome. SARS-CoV-2 RNA detection in plasma, stool, and urine in patients with persistent symptoms after COVID-19 (Tejerina et al)	*BMC Infect Dis*	Study describes a cohort of patients with a constellation of symptoms occurring four weeks after diagnosis causing different degrees of reduced functional capacity. They evaluated 29 patients who reported fatigue, muscle pain, dyspnea, inappropriate tachycardia, and low-grade fever. 13 patients (45%) had positive plasma RT-PCR results and 51% were positive in at least one RT-PCR sample (plasma, urine, or stool). Functional status was severely reduced in 48% of subjects. 18 patients (62%) received antiviral treatment. Improvement was seen in most patients and patients in treatment group achieved better outcomes with significant differences.
Prevalence, determinants, and impact on general health and working capacity of post-acute sequelae of COVID-19 six to 12 months after infection: a population-based retrospective cohort study from southern Germany (Peter et al)	*medRxiv*	Population-based retrospective cohort study in four geographically defined regions in southern Germany included persons aged 18-65 years with PCR confirmed SARS-CoV-2 infection between October 2020 and March 2021. Symptom frequencies (six to 12 months after versus before acute infection, expressed as prevalence differences [PD] and prevalence ratios [PR]), symptom severity and clustering, risk factors and associations with general health recovery, and working capacity were analysed. Burden of self-reported post-acute symptoms and possible sequelae, notably fatigue and neurocognitive impairment, remains considerable six to 12 months after acute infection even among young and middle-aged adults after mild acute SARS-CoV-2 infection, and impacts general health and working capacity.
Long COVID and Symptom Trajectory in a Representative Sample of Americans (Wu et al)	*Research Square*	Study uses a sample representing U.S. community population from the Understanding America Study COVID-19 Survey. Final sample includes 308 infected individuals who were interviewed one month before, around the time of, and 12 weeks after infection. 23% of sample experienced new-onset symptoms during infection which lasted for more than 12 weeks, and thus can be considered as having long COVID. Most common persistent new-onset symptoms among those included in study were headache (22%), runny or stuffy nose (19%), abdominal discomfort (18%), fatigue (17%), and diarrhea (13%). Long COVID was more likely among obese individuals and those who experienced hair loss, headache, and sore throat during infection.
PMC8924350; Post-COVID-19 syndrome: assessment of short- and long-term post-recovery symptoms in recovered cases in Saudi Arabia (Garout et al)	*Infection*	Study aims to examine prevalence, variation, and severity of continual symptoms in post-COVID-19 using a single-center questionnaire. Questionnaire was distributed among population in Saudi Arabia who recovered from COVID-19 between April 1, 2020 and December 31, 2021. 744 participants completed questionnaire, 318 (42.8%) recovered less than 3 months, 75 (10.1%) recovered 3-6 months, while 351 (47.2%) recovered more than 6 months. Half of the participants 353 (47.5%) had incessant symptoms and of those patients, more than half had two or more symptoms. Common symptoms included fatigue 189 (25.4%),

		headache 118 (15.9%), and myalgia 63 (8.5%). Of the participants, 189 (21.4%) experienced continual symptoms including anxiety in 98 (13.2%) and depression in 70 (9.5%).
Assessing the impact of COVID-19 at 1 year using the SF-12 questionnaire: Data from the Anticipate longitudinal cohort study (O'Kelly et al)	*Int J Infect Dis*	Prospective cohort study aimed to assess longitudinal impact of COVID-19 in patients using 12-item Short Form Survey score (a Health Related Quality of Life tool). Hospitalised and non-hospitalised patients (n=155; recruited Jun-Nov 2020) were assessed at a dedicated post-Covid clinic in Ireland at a 2-4 month (Timepoint 1) and 7-14 month follow up (Timepoint 2). Results showed that those with PoCS had reduced SF-12 scores at 1-year compared to those without. Predictors of PoCS at 1-year were a higher baseline heart rate and lower Physical Composite Score at median 3 months after COVID-19.
Factors shaping the mental health and well-being of people experiencing persistent COVID-19 symptoms or 'long COVID': qualitative study (Burton et al)	*BJPsych Open*	Study explored factors affecting mental health and well-being from perspective of people with long COVID. Five themes were identified across participant accounts regarding factors affecting mental health and well-being, including symptoms causing severe disruption to daily life, lack of service and treatment options, uncertainty of illness trajectories, experiences of care and understanding from others and changes to identity.
Multi-organ impairment and Long COVID: a 1-year prospective, longitudinal cohort study (Dennis et al)	*medRxiv*	Prospective, longitudinal study aimed to determine prevalence of organ impairment in long COVID patients at 6 and at 12 months after initial symptoms and to explore links to clinical presentation. Extreme breathlessness (36% and 30%), cognitive dysfunction (50% and 38%) and poor health-related quality of life (EQ-5D-5L<0.7; 55% and 45%) were common at 6 and 12 months, and associated with female gender, younger age and single organ impairment.
Risks and burdens of incident diabetes in long COVID: a cohort study (Xie et al)	*Lancet Diabetes Endocrinol*	In post-acute phase of disease, compared with contemporary control group, people with COVID-19 exhibited an increased risk and excess burden of incident diabetes; and an increased risk and excess burden of incident antihyperglycaemic use. Analyses to estimate risk of a composite endpoint of incident diabetes or antihyperglycaemic use yielded a HR of 1·46 and an excess burden of 18·03 per 1000 people at 12 months.
Post-COVID-19 Syndrome in Outpatients: a Cohort Study (Desgranges et al)	*J Gen Intern Med*	Aimed to characterize post-COVID-19 syndrome after mild COVID-19 and identify predictors. Median time between initial visit and phone survey was 150 days in COVID-positive and 242 days in COVID-negative patients. Persistent symptoms were reported by 223 (53%) COVID-positive and 33 (37%) COVID-negative patients and proportions were stable among periods of phone interviews. Among COVID-positive, female gender and overweight/obesity were predictors of persistent symptoms.
PMC8661751; Post-COVID syndrome symptoms, functional disability, and clinical severity phenotypes in hospitalized and nonhospitalized individuals: A cross-sectional evaluation from a community COVID rehabilitation service (Sivan et al)	*J Med Virol*	Correlation between symptom severity, functional disability, and overall health was explored. Mean age was 47, with 64% females. Median duration of symptoms was 211 days. Symptoms and functional difficulties increased substantially when compared to before infection. Three distinct severity phenotypes of mild (n = 90), moderate (n = 186), and severe (n = 94) were identified where severity of individual symptoms was of similar severity within each phenotype. Symptom scores were strongly positively correlated with functional difficulty scores and moderately negatively correlated with overall health. This is the first study reporting on severity phenotypes in a largely non-hospitalized PCS cohort. Severity phenotypes may help stratify patients for targeted interventions and planning of care pathways.

Visual interpretation of brain hypometabolism related to neurological long COVID: a French multicentric experience (Verger et al)	*Eur J Nucl Med Mol Imaging*	Multicentre study aimed to provide a qualitative and consensual description of brain hypometabolism observed through visual analysis of (18)F-FDG PET images of patients with suspected neurological long COVID, regarding previously reported long-COVID hypometabolic pattern. Brain (18)F-FDG PET scans of patients referred for suspected neurological long COVID with positive RT-PCR and/or serology tests were retrospectively reviewed in 3 French nuclear medicine departments. On the 143 brain (18)F-FDG PET scans performed during this 3-month period, 53% of scans were visually interpreted as normal, 21% as mildly to moderately or incompletely affected, and 26% as severely affected according to COVID hypometabolic pattern.

COMMENTARIES, LETTERS AND OPINION PIECES (*MAR 12-MAR 25*)

- Long COVID: A growing problem in need of intervention *(Cell Reports Medicine):* Considering the public health impact of long COVID, need for specific medical therapy is pressing. Of equal interest as vaccine effects is whether early treatment aimed at preventing severe disease and hospitalization can also prevent long COVID. An Italian study provides some evidence that treatment with remdesivir during hospitalization for acute COVID-19 prevents up to one-third of long-COVID cases. Remdesivir must be given as an injection and is, therefore, unlikely to be useful on a large scale for non-hospitalized patients. Two oral and less expensive antiviral drugs have recently been licensed, the protease inhibitor nirmatrelvir/ritonavir and molnupiravir, a drug that introduces mutations in the viral genome, but there are so far no data to support any protective effect on long COVID. Whether treatment-as-prevention could be applied as a strategy to combat long COVID in general, or for select risk populations, should be investigated further.

- Rising diabetes diagnosis in long COVID (*Lancet Diabetes Endocrinol):* The data presented by Xie and Al-Aly have major implications for clinical policy and public health. If COVID-19 is indeed a risk factor for diabetes in post-acute phase of infection, screening and management of dysglycaemia should be an integral part of clinical guidelines for COVID-19 diagnosis and follow-up. Long-term implications of SARS-CoV-2 infection increasing diabetes risk are profound. Potential connection between COVID-19 and diabetes highlights that infectious diseases (eg, SARS-CoV-2) and chronic diseases (eg, diabetes) cannot be viewed in siloes. When we emerge out of the pandemic, the much-neglected non-communicable diseases, such as type 2 diabetes, will continue their relentless trajectory, possibly in an accelerated manner, as the leading burdens of global health.

MEDIA HIGHLIGHTS (*MAR 12-MAR 25*)

CANADA

- **Saskatchewan's long-COVID sufferers say they are on their own (CBC):** The Saskatchewan Health Authority (SHA) doesn't have dedicated clinics for long COVID, and the organization didn't respond when asked by CBC News whether there are plans to set some up in the future. The SHA said it has no clear estimates of how many people have long COVID in the province. A new study, called Sask Long COVID, was recently launched by researchers at the University of Saskatchewan. The goal is to solve the information gap by providing scientists and policy-makers with a more accurate picture of long COVID in Saskatchewan.
- **Long COVID, mental health concerns, and other episodic disabilities raise workplace questions as Canada opens up (Financial Post):** The 2nd National Summit on Episodic Disabilities and Employment, hosted by Realize, will open on March 23rd with a pre-Summit spotlight session on Long COVID. Opening speaker, Dr. Theresa Tam, the Chief Public Health Officer of Canada, will address the national health implications of Long COVID. Other presentations during the pre-Summit will include speakers from Canada, the US and the UK living with long-COVID and the latest research on how it is impacting work.

GLOBAL

- **Long Covid could create a generation affected by disability, expert warns (The Guardian):** Prof Danny Altmann, immunologist at Imperial College London, says UK's approach fails to take the impact of infections seriously. A report published by the All-Party Parliamentary Group (APPG) on coronavirus found the UK government's policymaking on Covid has "continuously failed" to take long Covid into account and has not "adequately funded" research into treatments for the condition.

POST COVID-19 CONDITION RESOURCES

- (NEWLY ADDED): Altea (Switzerland): A network for sharing evidence-based information on the long-term effects of COVID-19.
- (NEWLY ADDED): Pandemic-Aid Networks: Long COVID research library.
- Post-COVID-19 Functional Status Scale: An overview of a patient self-reported scale that helps to support assessment of functional status and recovery after the SARS-CoV-2 infection.
- Ontario College of Family Physicians: Resources on Post-COVID Condition.
- Agency for Clinical Innovation (Australia): Living Evidence - post acute sequelae of COVID-19.
- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)
- PAHO Webinar Series on Post COVID-19 Condition launched 17 February, 2022, from 10:30 am to 12:30 pm (EST).
- Body Politic COVID-19 Support Group (Global): Housed on the Slack app, group members have access to dozens of different channels, which give space for more personal discussion. Some of the channels include those specifically for medical professionals, parents of children with Covid-19, LGBTQ+ individuals, BIPOC+, and different regions around the world.
- Patient-Led Research Collaborative (Global): Self-organized group of Long COVID patients working on patient-led research around the Long COVID experience.
- British Heart Foundation (UK): UK-based foundation with resources on long COVID.
- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)
- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.
- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.
- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.
- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.
- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.
- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.
- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.
- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.
- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From: McKelvie, Dr. Mark (DH/MS)
To: (DH/MS)Regional MOH
Subject: Long Covid
Date: March 29, 2022 12:51:32 PM
Attachments: Policy-brief-Long COVID__WHO.pdf
covid19-rapid-guideline-managing-the-longterm-effects-of-covid19-pdf-51035515742.pdf

---

Here is the document I mentioned from WHO.
I'm also attaching one from the UK that has a number of clinical practice guidelines about managing long-term effects (it's also referenced in the WHO document).
Mark

Documents available online:
https://apps.who.int/iris/handle/10665/339629
https://www.nice.org.uk/guidance/ng191

From: Barker, Dr. Kimberley (DH/MS)
To: Rahman, Dr. Arifur (DH/MS)
Cc: McKelvie, Dr. Mark (DH/MS); (DH/MS)Regional MOH
Subject: Re: Long Covid
Date: March 29, 2022 2:12:19 PM

Thanks Mark, I know that we ran out of time to talk about long Covid today but I wonder whether we could potentially ask Matt and Shannon to tell us what the capacity is for them to pick up where we left off with the 2000 Covid cases that are already consented to participating in the long-haul Covid study here in New Brunswick? I don't wanna take up any more MOH time so perhaps we could just get updates in an email?

Sent from my iPhone

> On Mar 29, 2022, at 11:52 AM, Rahman, Dr. Arifur (DH/MS) <Dr.Arifur.Rahman@gnb.ca> wrote:
>
> Thank you, Mark.
>
> Arifur
>
> ---
>
> **From:** McKelvie, Dr. Mark (DH/MS) <Mark.McKelvie@gnb.ca>
> **Sent:** March 29, 2022 12:51 PM
> **To:** (DH/MS)Regional MOH <DHRegMOH@gnb.ca>
> **Subject:** Long Covid
>
> Here is the document I mentioned from WHO.
> I'm also attaching one from the UK that has a number of clinical practice guidelines about managing long-term effects (it's also referenced in the WHO document).
> Mark

From: Day, Barbara (DH/MS)
To: "Macfarlane, Bruce (DH/MS) (Bruce.Macfarlane@gnb.ca)"; Burkhardt, Tracey (DH/MS); Landsburg, Shelley (DH/MS); Clair, Suzanne (DH/MS); Elliott, Danielle (ECO/BCE)
Cc: Power, Michaela (ECO/BCE); Mullin, Tanya (DH/MS); Nienow, Flavio (ECO/BCE); Chalifoux, Mathieu (DH/MS)
Subject: RE: MEDIA REQUEST: 21(1) – PM – Response to Task Force - April 6 5PM
Date: April 6, 2022 3:35:00 PM

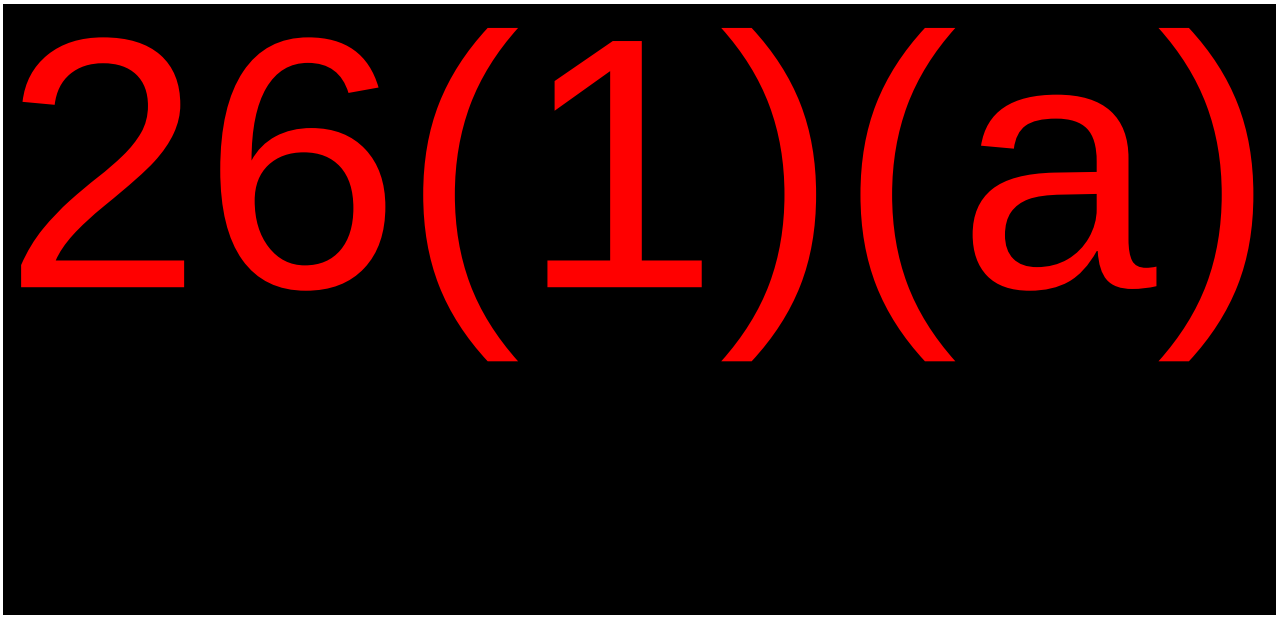
Hi Bruce – this has been approved by Suzanne and Shelley for next steps.
Looping in EECD as well as an FYI.

NAME: 21(1)
OUTLET: Post Media
CONTACT #:21(1)
EMAIL: 21(1) @brunswicknews.com
DEADLINE TO SEND RESPONSE TO REPORTER: 5 PM
ROUTINE (Yes or No):
REQUEST:
I am working on a story about a letter sent from the Memramcook-Tantramar Community Task Force. I spoke with one of the co-chairs and they said they have heard a lot of concerns in the community about how the COVID-19 pandemic is being handled. They would like to see better and more reliable data reporting, especially data on how many cases there are in schools and in the community. They would like more research done on the effects of long COVID-19, and would like masks to return to the schools.

Another thing they would like to see is incentives for people to get vaccinated.

I was wondering if the Department of Health had received this letter from the task force and what the department's response is to the letter and if there is any discussion on some of the initiatives they would like to see?

PROPOSED RESPONSE:



26(1)(a)

From:	Northwood, Brandon (PHAC/ASPC) on behalf of Cidsc Secretariat (PHAC/ASPC)
To:	annick.descormiers@msss.gouv.qc.ca; Barbara.Yaffe@ontario.ca; BethHalfyard@gov.nl.ca; Brenda Clement; Caroline_NewBerry@gov.nt.ca; Catherine.Elliott@gov.yk.ca; charlene.mack@gov.ab.ca; cindy.rogers@health.gov.sk.ca; Claudia Kraft; colette.gaulin@msss.gouv.qc.ca; Colleen.Kovach@yukon.ca; Daniel.Warshafsky@ontario.ca; Danuta.Skowronski@bccdc.ca; Werker, Denise (PHAC/ASPC); Dilan_Patel@gov.nt.ca; Emily.Karas@oahpp.ca; Eveline.Toth@msss.gouv.qc.ca; Fiona.kouyoumdjian@ontario.ca ; George.Doyle-Bedwell@novascotia.ca; Smadi, Hanan (DH/MS); Heather Morrison; Heather_Hannah@gov.nt.ca; Helene.Venables@msss.gouv.qc.ca; Jan.McFadzen@yukon.ca ; Jayne Boutilier; Jessica.Hopkins@oahpp.ca; Jing.Hu@gov.ab.ca; JPawa@GOV.NU.CA; Julie.Kryzanowski@health.gov.sk.ca; Julie_A_Miller@gov.nt.ca; Kelly.dean@novascotia.ca; KKulleperuma@GOV.NU.CA; louise.valiquette@inspq.qc.ca; Marie-Andree.Leblanc@msss.gouv.qc.ca; Martin.Vogel@oahpp.ca; martine.fortier@msss.gouv.qc.ca; Chalifoux, Mathieu (DH/MS); mayank.singal@bccdc.ca; Dr. Marguerite Cameron; michelle.murti@ontario.ca ; mireille.barakat@inspq.qc.ca; monika.naus@bccdc.ca; MP; MPS; OCMHO@health.gov.sk.ca; prahman@mun.ca; richard.masse@msss.gouv.qc.ca; Richard.Mather@oahpp.ca; RosannSeviour@gov.nl.ca; Sanaz.Vaseghi@health.gov.sk.ca; Santina.Lee@gov.mb.ca; LeBlanc, Shannon (DH/MS); shelley.deeks@novascotia.ca; Tim.hilderman@gov.mb.ca; Wajid.ahmed@ontario.ca
Cc:	Cidsc Secretariat (PHAC/ASPC)
Subject:	OCSO Post COVID-19 Condition Scan #20
Date:	April 11, 2022 12:19:29 PM
Attachments:	OCSO Post-COVID Condition Scan 20_Apr8_2022.pdf

TAC Members,

On behalf of the *Office of the Chief Science Officer*, please find attached the latest COVID-19 environmental scan.

This biweekly product presents an overview of the current state of knowledge, and emerging evidence on **Post COVID-19 Condition** (Mar 26th- Apr 8th).

Thanks,
TAC Sec't

POST COVID-19 CONDITION

OCSO BIWEEKLY SCAN OF EVIDENCE #20

March 26-April 8, 2022

SCOPE

This biweekly update presents an analysis of new evidence, guidance and issues related to post COVID-19 condition (commonly referred to as 'long COVID') and synthesizes the current state of knowledge. Comprehensive lists of details and resources on this issue are available at the Office of the Chief Science Officer.

CURRENT STATE OF KNOWLEDGE

The typical duration of acute COVID-19 illness is two to four weeks. However, some patients have described debilitating symptoms persisting or recurring for weeks or months after acute illness. The range of symptoms reported is broad, and can vary from mild to more severe and debilitating effects that can affect both young and older individuals, regardless of the severity of their initial COVID-19 symptoms in the acute stage. These symptoms are often described as, Post COVID-19 condition (WHO terminology), post-acute sequelae of SARS-CoV-2 infection (PASC), and long COVID (used by patient groups). Affected individuals are commonly referred to as COVID-19 long-haulers. While scientific knowledge on these conditions is building, there is still much that is unknown about this condition. There have been reports of more than 100 symptoms or difficulties with everyday activities.

There is limited data suggesting that the condition may be more likely to develop in those:

- who were hospitalized during acute infection;
- had more than 5 COVID symptoms during the acute phase;
- have pre-existing respiratory disease;
- are older;
- are women; and
- have other co-morbidities or have higher BMI.

Typical therapeutic itinerary involves consultations with multiple specialists and puts emphasis on self-management (rest & relaxation, self-pacing, etc). Emerging evidence points to the importance of multidisciplinary care given the heterogeneity of symptoms associated with Post COVID-19 condition. Multidisciplinary teams in "long COVID" clinics have been set to include professionals from the following fields: rehabilitation, respiratory and cardiac consultants, physiotherapists, occupational therapists, psychologists, etc.

It is anticipated that Post COVID-19 condition will have medium and long-term impact on public health in Canada. Further research with an equity lens on the predisposing conditions and risk factors is needed. Based on research to date, and reviewed by the Public Health Agency of Canada as part of a living systematic review, 56% of individuals who have had COVID-19 reported the presence of one or more symptoms 12 weeks after diagnosis. About 58% of children had 1 or more symptoms 4 weeks or more after their initial COVID-19 infection. Post COVID-19 condition will have implications for the economy, as well as federal programs including disability benefits, employment related measures and sick pay, among others. It is reported that 10% of adults are unable to return to work in the long term. The WHO has said that about one in 4 people infected with COVID-19 have experienced a post-COVID-19 condition for at least 1 month. One in 10 people experience symptoms lasting beyond 12 weeks.

This week's scan includes a bibliometric analysis on global trends and research hotspots for long COVID, as well as a systematic review preprint on risk factors and preventative interventions for Post COVID-19 condition.

GUIDELINES OR STANDARDS

- **WHO** has developed a clinical case definition of post COVID-19 condition by Delphi methodology that includes 12 domains, available for use in all settings. This first version was developed by patients, researchers and others with the understanding that the definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve.
    - "*Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time.*"
    - **WHO:** Q&A page on Post-COVID-19 Condition (February 2022).

- **US CDC** describes Post-COVID conditions as a range of new, returning, or ongoing health problems people experience four or more weeks after first being infected with the virus that causes COVID-19. The CDC highlights the various types of post-COVID conditions such as: Multiorgan Effects of COVID-19, Effects of COVID-19 Illness or Hospitalization, and 'New or Ongoing Symptoms'. The CDC posted Interim Guidance for healthcare providers on Evaluating and Caring for Patients with Post-COVID Conditions. Post-COVID conditions can be considered a disability under the Americans with Disabilities Act (ADA). The CDC also released information on Caring for People with Post-COVID Conditions.

- UK **NICE**: Rapid guidelines for managing the long-term effects of COVID-19 (Updated March 2022).

- **Chartered Society of Physiotherapy** in UK published its COVID-19 rehabilitation standards, which includes guidance about community-based rehab for people with COVID-19 and long COVID (July 2021).

- Guidelines to help doctors manage long COVID patients published in *British Journal of General Practice* (August 2021).

- UK **NHS** guidance for Post-COVID syndrome assessment clinics (April 2021).

- **CIHI** guidance for clinicians to ensure that data supports monitoring for Post-COVID conditions.

- Guidance for **Canadian Rehabilitation and Exercise Professionals** on Post COVID-19 condition and rehabilitation management strategies (August 2021).

- **Government of Canada**: COVID-19 for health professionals - Post COVID-19 condition

- **Center for Effective Practice** – COVID-19: Clinical Guidance for Primary Care Providers - Long-term symptoms / Post-acute sequelae of COVID-19 (PASC)

- Guideline S1: Long COVID: Diagnostics and treatment strategies (*Wiener klinische Wochenschrift*)

- American Academy of Physical Medicine and Rehabilitation (**AAPM&R**): Cognitive Symptoms Guidance and Breathing Discomfort Guidance.

- Royal Australian College of General Practitioners (**RACGP**) guidance for GPs caring for 'long COVID' patients.

- European Society of Clinical Microbiology and Infectious Diseases (**ESCMID**): Rapid guidelines for assessment and management of long COVID

- **ACAS** (UK-based Advisory, Conciliation and Arbitration Service): Long COVID – advice for employers and employees

NATIONAL AND INTERNATIONAL DEVELOPMENTS (*MAR 26-APR 8*)

CANADA

- (NEW) Federal Budget 2022 proposes to provide $20 million over five years, starting in 2022-23, for CIHR to support additional research on the long-term effects of COVID-19 infections on Canadians, as well as the wider impacts of COVID-19 on health and health care systems.
- (NEW) Government of Canada is launching a second cycle of the Canadian COVID-19 Antibody and Health Survey (CCAHS) led by StatsCan, PHAC and CITF. Survey will involve 100,000 Canadians and aim to estimate prevalence of post COVID-19 condition.

UK

- (NEW) Latest data from the Office for National Statistics shows 1.7 million people living in private households in the UK (2.7% of the population) were experiencing self-reported long COVID (symptoms persisting for more than four weeks) as of March 5. The number of people who have lived with long COVID for more than a year has risen from 685,000 to 784,000 - an increase of 14.4%. 74,000 people in the UK have been suffering from the condition for at least two years.
- (NEW) Long COVID symptoms adversely affected the day-to-day activities of 1.1 million people (67% of those with self-reported long COVID), with 322,000 (19%) reporting that their ability to undertake their day-to-day activities had been "limited a lot."

US

- (NEW) US President has directed government agencies to take additional steps to research and treat long covid. Under a memorandum issued by Biden, they will coordinate a government-wide action plan to address long covid, which is estimated to afflict anywhere from 7.7 million to 23 million Americans, according to a recent federal watchdog report. Government will issue a report in 120 days detailing available services and support for those who suffer from long covid.
- (NEW) Government plans to expand a nationwide network of long covid clinics. Federal officials will also launch a new initiative, the “Health+ project,” to solicit feedback from people living with long covid and use it to shape practices at clinics.

EMERGING SCIENTIFIC EVIDENCE (*MAR 26-APR 8*)*

EVIDENCE PRODUCTS

TITLE AND AUTHOR	EVIDENCE TYPE	SUMMARY
One-Year Temporal Change in Prevalence and Characteristic of Long COVID: A Systematic Review and Meta-Analysis (Huang et al)	Systematic Review (Available in *SSRN Lancet Prepub*)	Review aimed to explore the 1-year temporal change in prevalence, variety and potential risk factors of long COVID symptoms.137 studies were included, covering 134,093 subjects. Prevalence of long COVID symptoms was as high as 50% since 1-month after acute phase and did not show a downward trend during 1-year temporal change. Six months or more after the acute phase, the odds ratio (OR) of population characteristic factors increased, such as female gender (from <6 months OR=1.62 to ≥ 6 months OR=1.82), while the OR value of acute phase-related factors (severe/critical and hospitalization) partially decreased. As for specific symptoms, only about one-third of symptoms were significantly reduced trends. However, neuropsychiatric-symptoms shows a stable trend, and sleep disorders and impaired concentration even showed an increased trend. Neuropsychiatric related symptoms showed

		a higher long-term prevalence (approximately 25%) and longer persistence trend than physical symptoms.
Risk factors and preventive interventions for post Covid-19 condition: systematic reviews (Pillay et al)	Systematic Review (Available in *medRxiv*)	Objective was to systematically identify and synthesize evidence around pre-existing and clinical risk factors for post Covid-19 condition, and interventions during the acute and post-acute phases of the illness that could potentially prevent post Covid-19 condition. Found small-to-moderate associations between female sex and higher non-recovery, fatigue, and dyspnea. Guidelines in relation to surveillance, screening services, and other services such as access to sickness and disability benefits, might need to focus on females and those with previously severe Covid-19 illness.
Global Trends and Research Hotspots in Long COVID: A Bibliometric Analysis (Jin et al)	Review (Available in *Int J Environ Res Public Health*)	784 publications were extracted from Scopus in the field of long COVID. According to bibliometric analysis, it is found that: developed countries in Europe and America were in leading positions in terms of paper productivity and citations. International Journal of Environmental Research and Public Health and Journal of Clinical Medicine were leading journals in the perspective of publications count, and Nature Medicine had the highest number of citations. Author Greenhalgh T has the highest number of papers and citations
Dietary Recommendations for Post-COVID-19 Syndrome (Barrea et al)	Review (Available in *Nutrients*)	Review aimed to collect available evidence on the role of nutrients and their supplementation in post-COVID-19 syndrome to provide a practical guideline to nutritionists to tailor dietary interventions for patients recovering from COVID-19 infections.

SELECT PRIMARY RESEARCH

TITLE AND AUTHOR	SOURCE	SUMMARY
Clinical characteristics, activity levels and mental health problems in children with long coronavirus disease: a survey of 510 children (Buonsenso et al)	*Future Microbiol*	Study aimed to establish clusters of symptoms, as well as mental and physical health effects, of children with long COVID. Researchers analyzed data from the online "Long COVID Kids Rapid Survey 2" that was collected between February and March 2021. Links to the survey were disseminated on the closed Facebook group LongCOVIDKids. Only those children with symptoms lasting longer than 4 weeks were included (n=510). Results showed that fatigue, headache, muscle and joint pain, post-exertional malaise, rashes and heart palpitations were commonly reported symptoms. 25.3% of children had experienced constant COVID-19 infection symptoms, 49.4% had had periods of apparent recovery followed by return of symptoms and 19.0% had had a prolonged period of wellness followed by return of symptoms.
Long-term psychological consequences of long Covid: a propensity score matching analysis comparing trajectories of depression and anxiety symptoms before and after contracting long Covid vs short Covid (Fancourt et al)	*medRxiv*	Study examined when psychological symptoms first emerge following the infection with SARS-CoV-2, and the long-term trajectories of psychological symptoms comparing long and short Covid groups using longitudinal data from the UCL Covid-19 Social Study (March 2020-November 2021). Depressive and anxiety symptoms increased immediately following the onset of infection in both long and short Covid groups. The long Covid group had substantially greater initial increases in depressive symptoms and heightened levels over 22 months follow-up. Initial increases in anxiety were not significantly different between groups, but only the short COVID group experienced an improvement in anxiety over follow-up, leading to widening differences between groups.

Representation of long COVID syndrome in the awareness of the population is revealed by Google Trends analysis (Kaatz et al)	*Brain Behav Immun Health*	Google Trends data have been used to track levels of public awareness for long COVID and some important symptoms during the course of the COVID-19 pandemic. Results of this analysis clearly demonstrate the public interest in the new topic of long COVID, as documented by a corresponding search volume.
Efficacy of Adaptogens in Patients with Long COVID-19: A Randomized, Quadruple-Blind, Placebo-Controlled Trial (Karosanidze et al)	*Pharmaceuticals*	Randomized, quadruple-blind, placebo-controlled trial aimed to assess the efficacy of adaptogens on the recovery of patients with Long COVID symptoms. In this study, we, for the first time, demonstrate that adaptogens can increase physical performance in Long COVID and reduce the duration of fatigue and chronic pain.
Persistent symptoms after SARS-CoV-2 infection: Long-term implications for health and quality of life (So et al)	*Lancet Reg Health Eur*	Longitudinal study nested in the French CONSTANCES population-based cohort to investigate the acute symptoms associated with SARS-CoV-2 infection. Using logistic regression models, the authors found a higher chance for people with SARS-CoV-2 infection, compared to those without the infection, in developing dysgeusia/anosmia, dyspnea and asthenia as persistent symptoms. Not only the authors presented useful information on persistent symptoms post COVID-19 in the French population, they have also provided a good reference for persistent symptoms in other populations. Natural extension of the longitudinal study is to consider changes in the severity of symptoms over time, from which we can learn how long the “long covid” will persist.
Long COVID (post-COVID-19 condition) in children: a modified Delphi process (Stephenson et al)	*Arch Dis Child*	Aim of this study was to derive a research definition for 'Long COVID in children and young people (CYP) to allow comparisons between research studies. 10 statements were taken forward for discussion in the consensus meeting and five statements met threshold to be included in the research definition of Long COVID among CYP. Research definition, aligned to clinical case definition of WHO, is proposed as follows: Post-COVID-19 condition occurs in young people with a history of confirmed SARS-CoV-2 infection, with at least one persisting physical symptom for a minimum duration of 12 weeks after initial testing that cannot be explained by an alternative diagnosis. The symptoms have an impact on everyday functioning, may continue or develop after COVID infection, and may fluctuate or relapse over time. The positive COVID-19 test referred to in this definition can be a lateral flow antigen test, a PCR test or an antibody test.
The modified COVID-19 Yorkshire Rehabilitation Scale (C19-YRSm) patient-reported outcome measure for Long Covid or Post-COVID syndrome (Sivan et al)	*medRxiv*	Study aimed to modify and refine the COVID-19 Yorkshire Rehabilitation Scale (C19-YRS) based on psychometric properties, emerging evidence on additional Long Covid symptoms, and feedback from a working group of patients and healthcare professionals. Data were collected from 370 patients who completed the C19-YRS scale in a community Long COVID service in the UK. Rasch analysis revealed promising psychometric properties of the symptom severity and functional disability subscales, with both displaying good targeting and reliability, although some individual measurement anomalies were noted.
The changing characteristics of post-COVID-19 syndrome: Cross-sectional findings from 458 consultations using the Stanford Hall	*Research Square prepub*	Study aims to understand changes in post-COVID-19 syndrome between wave one and wave two, identify interactions between alert level and symptoms, and investigate any predictive nature of acute symptoms for post-acute symptomology in a young, physically-active population. Post-COVID-19 syndrome prevalence reduced from 43% to 2% between the waves. Acutely, widespread pain was more prevalent in wave two. Post-

remote rehabilitation assessment tool (O'Sullivan et al)		acutely, there was increased anxiety (p=0.10) in wave one and increased sleep disturbance, memory/concentration issues and shortness of breath/cough in wave two. Increasing alert level was associated with increased post-acute symptom prevalence, with sleep disturbance increasing at higher alert level. Acute symptoms, including fatigue, sleep disturbance and myalgia, were associated with multiple post-acute symptoms.
Post-COVID-19 syndrome and humoral response association after one year in vaccinated and unvaccinated patients (Peghin et al)	*Clin Microbiol Infect*	Study sought to describe the impact of vaccination and the role of humoral responses on post-COVID-19 syndrome one year after the onset of SARS-CoV-2. Post-COVID-19 syndrome was observed in 47.2% (226/479) of patients after one year. There were no significant differences in the worsening of post-COVID 19 symptoms (22.7% vs 15.8%) among vaccinated (n=132) and unvaccinated (n=347) patients.
Obesity and lipid metabolism disorders determine the risk for development of long COVID syndrome: a cross-sectional study from 50,402 COVID-19 patients (Loosen et al)	*Infection*	Cross-sectional study aimed to define risk factors for long COVID syndrome (LCS) development. 1,708/50,402 patients (3.4%) were diagnosed with LCS. In a multivariate regression analysis, lipid metabolism disorders and obesity were identified as strong risk factors for the development of LCS. Besides these metabolic factors, patients' age between 46 and 60 years (compared to age ≤ 30), female sex, as well as pre-existing asthma and depression in women, and cancer in men were associated with an increased likelihood of developing LCS.
PMC8960224; "Like before, but not exactly": the Qualy-REACT qualitative inquiry into the lived experience of long COVID (Schiavi et al)	*BMC Public Health*	Qualitative study investigated the experience of individuals who had been hospitalized for COVID-19, focusing on those needs and difficulties they perceived as most urgent. Overall, 150 individuals consented to participate in the REACT study, and 56 individuals (60.7% male, average age 62.8 years ±11.8) were interviewed in June-July 2020, up to data saturation. Persistent symptoms, feelings of isolation, fear and stigma, emotional distress, a fatalistic attitude, and return to (adapted) life course were the key themes that characterized the participants' experience after hospital discharge.

*Note: Content may have been published prior to this scan period but was only available through applying our search strategies during this period.

COMMENTARIES, LETTERS AND OPINION PIECES (*MAR 26-APR 8*)

- Can drugs reduce the risk of long COVID? What scientists know so far (*Nature*): A large UK-based trial called HEAL-COVID is testing two drugs that target the cardiovascular system in people who have been hospitalized with COVID-19. One, called apixaban, is an anticoagulant. The other, atorvastatin, is a cholesterol-lowering medication thought to reduce inflammation in blood vessels. A clinical trial called PANORAMIC has been testing the effects of the oral antiviral molnupiravir on COVID-19 severity. Although it is not the primary goal of the study, researchers will gather data from participants at three and six months after treatment — which could determine whether the drug affects long-COVID risk. Two trials of Paxlovid, an antiviral drug developed by Pfizer, will include a six-month follow-up of participants.

- Joint patient and clinician priority setting to identify 10 key research questions regarding the long-term sequelae of COVID-19 (*Thorax*): Research Questions: What are the underlying mechanisms of long COVID that drive symptoms and/or organ impairment? What imaging techniques or scans may be able to detect and predict the development of organ problems or wider systemic issues? What happens to the immune system throughout patients' recovery from COVID-19? What can data at 6 and 12 months tell us about the long-term trajectory of illness? What blood or other laboratory tests may be able to detect and predict the development of organ problems or wider systemic issues? What is the impact of treatment(s) during the acute (initial) stage of COVID-19 on recovery? What are the

problems within the muscles associated with symptoms limiting activity/function/exercise? If so, what can be done to help? What medications, dietary changes, supplements, rehabilitation and therapies aid recovery? What can be done to support mental well-being during recovery? What is the risk of future adverse health events (eg, stroke, heart attack)?

MEDIA HIGHLIGHTS (*MAR 26-APR 8*)

CANADA

- **Experts question research suggesting long COVID symptoms may depend on variant (CTV News):** While new research suggests that symptoms linked to long COVID could vary depending on which COVID-19 variant a person is infected with, infectious disease experts say they are not completely convinced this is the case. Data is based on a study involving 428 long COVID patients treated at a post-COVID outpatient service between March 2020 and June 2021, while the original strain of SARS-CoV-2 and the Alpha variant were in circulation. It suggests that those who contracted the Alpha variant encountered different neurological and emotional symptoms when compared with those who were infected with the original strain of SARS-CoV-2. Looking at the study's design, it appears as though researchers did not confirm which variant of the virus caused infection in which patients, said Dr. Nazeem Muhajarine, an epidemiologist at the University of Saskatchewan. Instead, patients were assessed based on whether they were infected when the original strain dominated, or while the Alpha variant was dominant. This raises doubts around the accuracy of the study, Muhajarine said.
- **Long COVID is affecting thousands of Canadians. These researchers are racing to understand its risk factors, treatments (Globe and Mail):** In a statement, a spokesperson for CIHR said it created a dedicated pool of funds for long-COVID research last year and has so far invested nearly $18-million in projects studying various aspects of the condition. A peer-reviewed study published in *Nature* found that people who had been infected with the virus experienced a reduction in grey matter and a greater cognitive decline compared with people who had not contracted COVID-19.

GLOBAL

- **A battle is raging over long covid in children (MIT Technology Review):** As of March 28, the CDC reported 7,880 cases of MIS-C in the US, which have so far resulted in 66 deaths. But there is disagreement over whether MIS-C falls under the umbrella of long covid or not. Few recent studies suggest that vaccination can reduce a child's risk of severe illness from Omicron by two-thirds. "There's been a real lack of support, understanding, research, and treatments for children," says Kane, who is a consultant respiratory physician at Manchester University NHS Foundation Trust.

POST COVID-19 CONDITION RESOURCES

- (NEWLY ADDED) Voices of Long COVID (US): Voices of Long Covid campaign features testimonials from a diverse group of people ages 18-29 who are suffering from long-term complications of COVID-19 infection.
- (NEWLY ADDED) Dignity Health (US): COVID-19 and Chronic Illness Recovery Program based in the U.S. has helped over 2,000 people struggling with COVID long-term effects ("COVID long haulers"). Treatment is exercise-based for lingering or long-term conditions (sequelae) from having the virus.
- Altea (Switzerland): A network for sharing evidence-based information on the long-term effects of COVID-19.
- Pandemic-Aid Networks: Long COVID research library.
- Post-COVID-19 Functional Status Scale: An overview of a patient self-reported scale that helps to support assessment of functional status and recovery after the SARS-CoV-2 infection.
- Ontario College of Family Physicians: Resources on Post-COVID Condition.
- Agency for Clinical Innovation (Australia): Living Evidence - post acute sequelae of COVID-19.
- Pre-populated literature searches: Long COVID search (LitCovid) and Long COVID search (NIH)
- PAHO Webinar Series on Post COVID-19 Condition launched 17 February, 2022, from 10:30 am to 12:30 pm (EST).

- Body Politic COVID-19 Support Group (Global): Housed on the Slack app, group members have access to dozens of different channels, which give space for more personal discussion. Some of the channels include those specifically for medical professionals, parents of children with Covid-19, LGBTQ+ individuals, BIPOC+, and different regions around the world.

- Patient-Led Research Collaborative (Global): Self-organized group of Long COVID patients working on patient-led research around the Long COVID experience.

- British Heart Foundation (UK): UK-based foundation with resources on long COVID.

- COVID Long Haul (Canada): Canada's largest online platform for COVID survivors, their family members and anyone searching for the most up-to-date information about the pandemic. There is a COVID long-haulers support group and a Report on Pan-Canadian Long COVID Impact Survey (PDF) (June 2021)

- BC ECHO for Post-COVID-19 Recovery (Canada): BC ECHO for Post-COVID-19 Recovery is a learning community of specialists and community health-care providers who use case-based learning to improve care for those recovering from symptoms post-COVID-19.

- Long Covid Support (UK): Peer support and advocacy group aiming to facilitate international peer support and campaigning in the UK for recognition, rehabilitation and research into treatments.

- Long COVID SOS (UK): Long-term sufferers formed the LongCovidSOS campaign to put pressure on the UK government to recognise the needs of those with Long Covid, and to raise awareness among the general public and employers.

- Survivor Corps (US): One of the largest and fastest growing grassroots movements connecting, supporting, and mobilizing COVID-19 Survivors to support research. They have a list of Post-COVID Care Centers (PCC) and a PCCC Best Practices Guide.

- The Center for Chronic Illness (US): Aims to promote well-being and decrease isolation for those impacted by chronic illness through support and education. Their online support groups are professionally-facilitated and offer psychoeducational tools for coping.

- Blooming Magnolia (US): Mission is to empower others by providing a platform to strengthen & protect mental health and support those afflicted with Long-Covid through education and funding of therapeutic research. They have a list of support groups and resources on their website.

- Long COVID Alliance (US): US-based network of patient-advocates, scientists, disease experts, and drug developers who have joined together to leverage their collective knowledge and resources to educate policy makers and accelerate research to transform our understanding of post-viral illness.

- Long COVID Kids (UK/US/Canada): Parent & patient led advocacy & support group based in the UK.

- Long COVID Physio (US & UK): International peer support, education and advocacy group of Physiotherapists living with Long COVID, founded in November 2020 by Physiotherapists living with Long COVID from the UK and US.

- Patient-Led Research Collaborative (Global): Group of Long COVID patients working on patient-led research around the Long COVID experience.

- CANCOV- Patient resources (Canada): CANCOV is a research platform grounded in a prospective longitudinal 1-year cohort study of patients infected with COVID-19.

- COVID Patient Recovery Alliance (CPRA) (US): CPRA aims to bring together leaders in business, health care, research, academia, data and analytics, and patient advocacy to develop solutions that coordinate diverse data sources, inform models of care, and ensure adequate payment for long-COVID patients. Their report outlines recommendations for federal policymakers to promote recovery.

- British Lung Foundation (UK): UK-based charity sharing resources on navigating the NHS, breathlessness support, movement and energy support for long COVID patients.

- Living with Long COVID (US): COVID-19 Long-Haulers and Post-COVID Support Community.

***Note**: Previous OCSO Post COVID-19 Condition Scans can be found here.*

From:	21(1)
To:	Levesque, Eric J. (DH/MS); Russell, Dr. Jennifer (DH/MS)
Cc:	Elliott, Jennifer (DH/MS); Coulombe, Dan (DH/MS); Burkhardt, Tracey (DH/MS); Dell, Dave (DH/MS); Donovan, Wendy (DH/MS); Liston, Heidi (DH/MS)
Subject:	Confirming NB invites for CADTH Roundtable Event in May on "Long COVID"/Post–COVID & Models of Care
Date:	April 13, 2022 10:17:58 AM

ATTENTION! External email / courriel externe.

Good morning,

In follow-up to my note below, CADTH (in collaboration with its expert stakeholder panel) is convening a pan-Canadian Roundtable event next month to discuss "Long COVID" and related models of care.

The event will be by invitation only for approximately 25 stakeholders, including individuals with lived experience. The purpose of this event will be to raise awareness of the condition, hear from jurisdictions who are further along in this area, allow for exchange/collaboration regarding related care approaches/models of care, identify current efforts underway & potential knowledge gaps to be addressed (avoiding any duplication of efforts) etc. Engaging the right people for this event will be key to its success.

Two New Brunswick representatives will be invited to attend. The plan is to send these invites to 2 senior NB Health leaders involved in this space who can then accept the invitation or delegate the invite to an appropriate NB representative.

I would welcome your input/confirmation of the two NB invitations. Unless I hear otherwise, I will suggest your names, Eric and Jennifer, for the initial NB invites as follows:

- Eric Levesque, Acting ADM, Health Services & Programs
- Dr. Jennifer Russell, CMOH

Let me know if you'd prefer otherwise or have any questions at this time. More details will be available shortly and in the invitation that will be forthcoming.

Thank you,

21(1)

CADTH / ACMTS

officiellement l'information fournie et n'engage aucunement sa responsabilité.

From: 21(1) [redacted]
Sent: March 17, 2022 10:21 AM
To: 'Carolin.Galvin' <carolin.galvin@gnb.ca>; 'Higdon, Penny (DH/MS)' <penny.higdon@gnb.ca>; 'Wendy.Donovan@gnb.ca' <Wendy.Donovan@gnb.ca>; Suzanne Clair <suzanne.clair@gnb.ca>; 'Landsburg, Shelley (DH/MS)' <Shelley.Landsburg@gnb.ca>; 'Kimberley.Barker@gnb.ca' <Kimberley.Barker@gnb.ca>; 'Dr. Yves Leger' <Yves.Leger@gnb.ca>; 'Mark.McKelvie@gnb.ca' <Mark.McKelvie@gnb.ca>; 'dr.andrew.salmon@gnb.ca' <dr.andrew.salmon@gnb.ca>; 'Chalifoux, Mathieu (DH/MS)' <mathieu.chalifoux@gnb.ca>; Dan Coulombe <Dan.Coulombe@gnb.ca>; 'Tracey Newton (Tracey.Newton@gnb.ca)' <tracey.newton@gnb.ca>; 'Jean Daigle (Jean.Daigle@horizonnb.ca)' <jean.daigle@horizonnb.ca>; 'jacques.duclos@vitalitenb.ca' <jacques.duclos@vitalitenb.ca>; Margaret Melanson (Margaret.Melanson@HorizonNB.ca) <margaret.melanson@horizonnb.ca>; 'MacGibbon, Eileen (HorizonNB' <Eileen.MacGibbon@HorizonNB.ca>; 'Brien, Dr. Susan (HorizonNB' <Susan.Brien@HorizonNB.ca>; 'Strack, Barry (HorizonNB)' <Barry.Strack@HorizonNB.ca>; Brigitte Sonier-Ferguson (Brigitte.Sonier-Ferguson@vitalitenb.ca) <brigitte.sonier-ferguson@vitalitenb.ca>; 'natalie.banville@vitalitenb.ca' <natalie.banville@vitalitenb.ca>; 'Dr.Gordon.Dow@HorizonNB.ca' <dr.gordon.dow@horizonnb.ca>; Smyth, Dr. Daniel (HorizonNB) <Dr.Daniel.Smyth@HorizonNB.ca>; 'Douglas.Doucette@HorizonNB.ca' <douglas.doucette@horizonnb.ca>; 'Josee Gagnon (josee.gagnon@vitalitenb.ca)' <josee.gagnon@vitalitenb.ca>; 'Faith Louis (faith.louis@horizonnb.ca)' <faith.louis@horizonnb.ca>
Cc: 'Dr. Jennifer Russell ' <jennifer.russell@gnb.ca>; Mark Wies <mark.wies@gnb.ca>; Levesque, Eric J. (DH/MS) <eric.levesque2@gnb.ca>; France Desrosiers (Dr.France.Desrosiers@vitalitenb.ca) <dr.france.desrosiers@vitalitenb.ca>; Dr. John Dornan (HHN) <john.dornan@horizonnb.ca>
Subject: FYI: CADTH Undertaking Full Review of Evidence related to "Long COVID" (Post–COVID-19) / À titre d'information : L'ACMTS entreprend un examen complet des données probantes sur le syndrome post-COVID-19

Le texte français suit.

Good morning all,

Having seen stories about "Long COVID" in the local news, I wanted to ensure you were aware that CADTH is proceeding to conduct a Condition Level Review on Post–COVID-19 (or "Long COVID"). A "Condition Level Review" is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of the condition, including prevention, identification, treatment and management.

As you may be aware, we have produced some initial reports on long COVID and also hosted a Webinar on this topic in October. The various, currently-available long COVID resources from CADTH are listed below.

For your information, we are working with other partners on this project and have convened a stakeholder panel involving PHAC, Ontario Ministry of Health, Alberta Health Services,

various clinical experts and patient representatives.

The main effort currently underway is the full scoping review which I understand should be completed and posted in the next month. It will map all the available evidence and identify the knowledge and evidence gaps in this space and indicate where there is more room for evidence synthesis. Based on these findings and input from our customers (like you) we may pursue some of those identified topics for rapid reviews, etc. (Here is a link to the Scoping Review Project Protocol.)

In addition, a pan-Canadian Summit on long COVID is being explored with a likely focus being guideline development for long COVID and models of care.

We appreciate that post-COVID-19 is an evolving condition and that evidence needs may differ or change rapidly across jurisdictions with time. **We certainly welcome requests for any specific evidence needs from you at any time and will look forward to your input on this project as it evolves**. Please don't hesitate to touch base if you have any questions, suggested input or information needs at this time.

Thanks,
21(1)

CADTH's Current Post-COVID Resources

- Post-COVID Condition Level Review General Landing Page
- Horizon Scan, September 2021: *An Overview of Post–COVID-19 Condition (Long COVID)*
- Preliminary Scoping Summary for CLR, September 2021: *Scoping Summary - A Condition-Level Review on Post-COVID 19 Condition (Long COVID)*
- Scoping Review - Project Protocol: *Clinical Classification and Clinical Interventions for Post–COVID-19 Condition: A Scoping Review - Project Protocol*
- CADTH Webinar, October 2021: The Implications of Long COVID
- CADTH News Release, December 2021: New CADTH Review Aims to Help Health Systems Understand and Manage the Long-Term Impact of Post–COVID-19 Condition
- *Hospital News* article, January 2022: *Long COVID and what it means for a struggling health care system*

**

Bonjour,

Après avoir lu de nombreuses publications dans les médias sur la COVID-19 de longue durée, je tiens à vous informer ou à vous rappeler que l'ACMTS procède à un examen global d'une maladie sur la COVID-19 de longue durée (aussi appelée syndrome post-COVID-19). Il s'agit d'une évaluation des données probantes portant sur diverses technologies de la santé et sur les questions émergentes touchant tous les aspects de la maladie, qu'on pense à la prévention, à la détection, au traitement ou à la prise en charge.

Comme vous le savez sans doute, l'ACMTS a déjà produit ses premiers rapports sur la COVID-19 de longue durée et a tenu un webinaire à ce sujet en octobre dernier. Les ressources de l'ACMTS présentement accessibles sur le syndrome post-COVID-19 figurent à la fin de ce message.

À titre d'information, nous collaborons avec certains partenaires pour mener à bien ce projet. Dans ce contexte, nous avons regroupé les parties prenantes suivantes : l'Agence de la santé publique du Canada (ASPC), le ministère de la Santé de l'Ontario, Alberta Health Services (AHS), des cliniciens experts et des représentants des patients.

Les principaux travaux en cours portent sur l'examen complet de la portée, dont la publication sur le site Web est attendue le mois prochain. L'examen permettra de présenter la structuration des données probantes, de recenser les connaissances et de relever les lacunes dans les données en un même endroit, en plus d'indiquer les autres possibilités de synthèse de données probantes. À la lumière des constatations dégagées et des observations de la clientèle (dont vous faites partie), nous serons en mesure de poursuivre les travaux sur certains aspects au moyen d'examens rapides ou d'autres types d'évaluations. Voici un lien vers le protocole de l'examen de la portée (en anglais).

En outre, nous envisageons de tenir un sommet pancanadien sur le syndrome post-COVID-19 qui aura vraisemblablement pour thème l'élaboration de lignes directrices pour le syndrome post-COVID-19 et les modèles de soins.

Nous reconnaissons que le syndrome post-COVID-19 est une affection en évolution et que les besoins en matière de données probantes à son sujet varient ou se transforment selon la région ou le moment. **Assurément, nous accueillons les requêtes de données probantes particulières dont vous pourriez avoir besoin. De plus, nous espérons avoir votre avis sur ce projet au fil de son évolution.** N'hésitez pas à communiquer avec nous si vous avez des questions, des suggestions ou des demandes de renseignements.

Cordialement,
21(1)

Ressources de l'ACMTS sur le syndrome post-COVID-19

- Page d'accueil : La COVID-19 de longue durée : examen global d'une maladie
- Analyse prospective, septembre 2021 : Vue d'ensemble du syndrome post-COVID-19 (COVID-19 de longue durée) (en anglais)
- Résumé d'examen de la portée, septembre 2021 : Résumé d'examen de la portée – La COVID de longue durée : examen global d'une maladie (en anglais)
- Examen de la portée – Protocole : La classification et les interventions cliniques en contexte de syndrome post-COVID-19 : examen de la portée - Protocole (en anglais)
- Webinaire de l'ACMTS, octobre 2021 : Les répercussions de la COVID-19 de longue durée

- Communiqué de l'ACMTS, décembre 2021 : Un nouvel examen de l'ACMTS vient aider les systèmes de santé à comprendre et à prendre en charge les effets à long terme du syndrome post-COVID-19
- Article dans la revue *Hospital News*, janvier 2022 : Long COVID and what it means for a struggling health care system (en anglais)

21(1) [redacted]

CADTH / ACMTS

CADTH endeavours to provide credible sources of information, in particular available evidence from recognized Health Technology Assessment (HTA) organizations, where available, as an added support to our customers. No official endorsement of this information by CADTH is intended as a result of this message.

L'ACMTS s'efforce de fournir des sources fiables et crédibles d'information, particulièrement en ce qui a trait aux preuves produites par des organismes reconnus d'évaluation des technologies de la santé (ETS), lorsque disponibles, pour offrir un meilleur appui à ses clients. Cet avis ne signifie pas que l'ACMTS endosse officiellement l'information fournie et n'engage aucunement sa responsabilité.

From: Levesque, Eric J. (DH/MS)
To: 21(1) Russell, Dr. Jennifer (DH/MS)
Cc: Elliott, Jennifer (DH/MS); Coulombe, Dan (DH/MS); Burkhardt, Tracey (DH/MS); Dell, Dave (DH/MS); Donovan, Wendy (DH/MS); Liston, Heidi (DH/MS); Leger, Dr. Yves (DH/MS)
Subject: RE: Confirming NB invites for CADTH Roundtable Event in May on "Long COVID"/Post–COVID & Models of Care
Date: April 13, 2022 10:45:54 AM

Hi 21(1)

Yes, that works. We can decide who best to attend from there. Thanks very much for connecting on this.

Regards,

Éric Levesque
Acting Assistant Deputy Minister / Sous-ministre adjoint par intérim
Health Services and Programs / Services et programmes de santé
Department of Health / Ministère de la Santé

Phone / Téléphone : 506-470-9783
E-mail / Courriel : eric.j.levesque@gnb.ca
www.gnb.ca

From: 21(1) @cadth.ca>
Sent: Wednesday, April 13, 2022 10:16 AM
To: Levesque, Eric J. (DH/MS) <Eric.Levesque2@gnb.ca>; Russell, Dr. Jennifer (DH/MS) <Jennifer.Russell@gnb.ca>
Cc: Elliott, Jennifer (DH/MS) <Jennifer.Elliott@gnb.ca>; Coulombe, Dan (DH/MS) <Dan.Coulombe@gnb.ca>; Burkhardt, Tracey (DH/MS) <Tracey.Burkhardt@gnb.ca>; Dell, Dave (DH/MS) <dave.dell@gnb.ca>; Donovan, Wendy (DH/MS) <Wendy.Donovan@gnb.ca>; Liston, Heidi (DH/MS) <Heidi.Liston@gnb.ca>
Subject: Confirming NB invites for CADTH Roundtable Event in May on "Long COVID"/Post–COVID & Models of Care

ATTENTION! External email / courriel externe.

Good morning,

In follow-up to my note below, CADTH (in collaboration with its expert stakeholder panel) is convening a pan-Canadian Roundtable event next month to discuss "Long COVID" and related models of care.

The event will be by invitation only for approximately 25 stakeholders, including individuals with lived experience. The purpose of this event will be to raise awareness of the condition, hear from jurisdictions who are further along in this area, allow for exchange/collaboration regarding related care approaches/models of care, identify current efforts underway & potential knowledge gaps to be addressed (avoiding any duplication of efforts) etc. Engaging the right people for this event will be key to its success.

Two New Brunswick representatives will be invited to attend. The plan is to send these invites to 2 senior NB Health leaders involved in this space who can then accept the invitation or delegate the invite to an appropriate NB representative.

I would welcome your input/confirmation of the two NB invitations. Unless I hear otherwise, I will suggest your names, Eric and Jennifer, for the initial NB invites as follows:

- Eric Levesque, Acting ADM, Health Services & Programs
- Dr. Jennifer Russell, CMOH

Let me know if you'd prefer otherwise or have any questions at this time. More details will be available shortly and in the invitation that will be forthcoming.

Thank you,
21(1) [redacted]

[redacted]
CADTH / ACMTS

From: 21(1) [redacted]
Sent: March 17, 2022 10:21 AM
To: 'Carolin.Galvin' <carolin.galvin@gnb.ca>; 'Higdon, Penny (DH/MS)' <penny.higdon@gnb.ca>; 'Wendy.Donovan@gnb.ca' <Wendy.Donovan@gnb.ca>; Suzanne Clair <suzanne.clair@gnb.ca>; 'Landsburg, Shelley (DH/MS)' <Shelley.Landsburg@gnb.ca>; 'Kimberley.Barker@gnb.ca'

<Kimberley.Barker@gnb.ca>; 'Dr. Yves Leger' <Yves.Leger@gnb.ca>; 'Mark.McKelvie@gnb.ca' <Mark.McKelvie@gnb.ca>; 'dr.andrew.salmon@gnb.ca' <dr.andrew.salmon@gnb.ca>; 'Chalifoux, Mathieu (DH/MS)' <mathieu.chalifoux@gnb.ca>; Dan Coulombe <Dan.Coulombe@gnb.ca>; 'Tracey Newton (Tracey.Newton@gnb.ca)' <tracey.newton@gnb.ca>; 'Jean Daigle (Jean.Daigle@horizonnb.ca)' <jean.daigle@horizonnb.ca>; 'jacques.duclos@vitalitenb.ca' <jacques.duclos@vitalitenb.ca>; Margaret Melanson (Margaret.Melanson@HorizonNB.ca) <margaret.melanson@horizonnb.ca>; 'MacGibbon, Eileen (HorizonNB' <Eileen.MacGibbon@HorizonNB.ca>; 'Brien, Dr. Susan (HorizonNB' <Susan.Brien@HorizonNB.ca>; 'Strack, Barry (HorizonNB)' <Barry.Strack@HorizonNB.ca>; Brigitte Sonier-Ferguson (Brigitte.Sonier-Ferguson@vitalitenb.ca) <brigitte.sonier-ferguson@vitalitenb.ca>; 'natalie.banville@vitalitenb.ca' <natalie.banville@vitalitenb.ca>; 'Dr.Gordon.Dow@HorizonNB.ca' <dr.gordon.dow@horizonnb.ca>; Smyth, Dr. Daniel (HorizonNB) <Dr.Daniel.Smyth@HorizonNB.ca>; 'Douglas.Doucette@HorizonNB.ca' <douglas.doucette@horizonnb.ca>; 'Josee Gagnon (josee.gagnon@vitalitenb.ca)' <josee.gagnon@vitalitenb.ca>; 'Faith Louis (faith.louis@horizonnb.ca)' <faith.louis@horizonnb.ca>
Cc: 'Dr. Jennifer Russell ' <jennifer.russell@gnb.ca>; Mark Wies <mark.wies@gnb.ca>; Levesque, Eric J. (DH/MS) <eric.levesque2@gnb.ca>; France Desrosiers (Dr.France.Desrosiers@vitalitenb.ca) <dr.france.desrosiers@vitalitenb.ca>; Dr. John Dornan (HHN) <john.dornan@horizonnb.ca>
Subject: FYI: CADTH Undertaking Full Review of Evidence related to "Long COVID" (Post–COVID-19) / À titre d'information : L'ACMTS entreprend un examen complet des données probantes sur le syndrome post-COVID-19

Le texte français suit.

Good morning all,

Having seen stories about "Long COVID" in the local news, I wanted to ensure you were aware that CADTH is proceeding to conduct a Condition Level Review on Post–COVID-19 (or "Long COVID"). A "Condition Level Review" is an assessment of the evidence on a range of health technologies and emerging issues on all aspects of the condition, including prevention, identification, treatment and management.

As you may be aware, we have produced some initial reports on long COVID and also hosted a Webinar on this topic in October. The various, currently-available long COVID resources from CADTH are listed below.

For your information, we are working with other partners on this project and have convened a stakeholder panel involving PHAC, Ontario Ministry of Health, Alberta Health Services, various clinical experts and patient representatives.

The main effort currently underway is the full scoping review which I understand should be completed and posted in the next month. It will map all the available evidence and identify the knowledge and evidence gaps in this space and indicate where there is more room for evidence synthesis. Based on these findings and input from our customers (like you) we may pursue some of those identified topics for rapid reviews, etc. (Here is a link to the Scoping

Review Project Protocol.)

In addition, a pan-Canadian Summit on long COVID is being explored with a likely focus being guideline development for long COVID and models of care.

We appreciate that post-COVID-19 is an evolving condition and that evidence needs may differ or change rapidly across jurisdictions with time. **We certainly welcome requests for any specific evidence needs from you at any time and will look forward to your input on this project as it evolves**. Please don't hesitate to touch base if you have any questions, suggested input or information needs at this time.

Thanks,
21(1)

CADTH's Current Post-COVID Resources

- Post-COVID Condition Level Review General Landing Page
- Horizon Scan, September 2021: *An Overview of Post–COVID-19 Condition (Long COVID)*
- Preliminary Scoping Summary for CLR, September 2021: *Scoping Summary - A Condition-Level Review on Post-COVID 19 Condition (Long COVID)*
- Scoping Review - Project Protocol: *Clinical Classification and Clinical Interventions for Post–COVID-19 Condition: A Scoping Review - Project Protocol*
- CADTH Webinar, October 2021: The Implications of Long COVID
- CADTH News Release, December 2021: New CADTH Review Aims to Help Health Systems Understand and Manage the Long-Term Impact of Post–COVID-19 Condition
- *Hospital News* article, January 2022: *Long COVID and what it means for a struggling health care system*

**

Bonjour,

Après avoir lu de nombreuses publications dans les médias sur la COVID-19 de longue durée, je tiens à vous informer ou à vous rappeler que l'ACMTS procède à un examen global d'une maladie sur la COVID-19 de longue durée (aussi appelée syndrome post-COVID-19). Il s'agit d'une évaluation des données probantes portant sur diverses technologies de la santé et sur les questions émergentes touchant tous les aspects de la maladie, qu'on pense à la prévention, à la détection, au traitement ou à la prise en charge.

Comme vous le savez sans doute, l'ACMTS a déjà produit ses premiers rapports sur la COVID-19 de longue durée et a tenu un webinaire à ce sujet en octobre dernier. Les ressources de l'ACMTS présentement accessibles sur le syndrome post-COVID-19 figurent à la fin de ce message.

À titre d'information, nous collaborons avec certains partenaires pour mener à bien ce

projet. Dans ce contexte, nous avons regroupé les parties prenantes suivantes : l'Agence de la santé publique du Canada (ASPC), le ministère de la Santé de l'Ontario, Alberta Health Services (AHS), des cliniciens experts et des représentants des patients.

Les principaux travaux en cours portent sur l'examen complet de la portée, dont la publication sur le site Web est attendue le mois prochain. L'examen permettra de présenter la structuration des données probantes, de recenser les connaissances et de relever les lacunes dans les données en un même endroit, en plus d'indiquer les autres possibilités de synthèse de données probantes. À la lumière des constatations dégagées et des observations de la clientèle (dont vous faites partie), nous serons en mesure de poursuivre les travaux sur certains aspects au moyen d'examens rapides ou d'autres types d'évaluations. Voici un lien vers le protocole de l'examen de la portée (en anglais).

En outre, nous envisageons de tenir un sommet pancanadien sur le syndrome post-COVID-19 qui aura vraisemblablement pour thème l'élaboration de lignes directrices pour le syndrome post-COVID-19 et les modèles de soins.

Nous reconnaissons que le syndrome post-COVID-19 est une affection en évolution et que les besoins en matière de données probantes à son sujet varient ou se transforment selon la région ou le moment. **Assurément, nous accueillons les requêtes de données probantes particulières dont vous pourriez avoir besoin. De plus, nous espérons avoir votre avis sur ce projet au fil de son évolution.** N'hésitez pas à communiquer avec nous si vous avez des questions, des suggestions ou des demandes de renseignements.

Cordialement,
21(1)

Ressources de l'ACMTS sur le syndrome post-COVID-19

- Page d'accueil : La COVID-19 de longue durée : examen global d'une maladie
- Analyse prospective, septembre 2021 : Vue d'ensemble du syndrome post-COVID-19 (COVID-19 de longue durée) (en anglais)
- Résumé d'examen de la portée, septembre 2021 : Résumé d'examen de la portée – La COVID de longue durée : examen global d'une maladie (en anglais)
- Examen de la portée – Protocole : La classification et les interventions cliniques en contexte de syndrome post-COVID-19 : examen de la portée - Protocole (en anglais)
- Webinaire de l'ACMTS, octobre 2021 : Les répercussions de la COVID-19 de longue durée
- Communiqué de l'ACMTS, décembre 2021 : Un nouvel examen de l'ACMTS vient aider les systèmes de santé à comprendre et à prendre en charge les effets à long terme du syndrome post-COVID-19
- Article dans la revue *Hospital News*, janvier 2022 : Long COVID and what it means for a struggling health care system (en anglais)

21(1) [redacted]

CADTH / ACMTS

CADTH endeavours to provide credible sources of information, in particular available evidence from recognized Health Technology Assessment (HTA) organizations, where available, as an added support to our customers. No official endorsement of this information by CADTH is intended as a result of this message.

L'ACMTS s'efforce de fournir des sources fiables et crédibles d'information, particulièrement en ce qui a trait aux preuves produites par des organismes reconnus d'évaluation des technologies de la santé (ETS), lorsque disponibles, pour offrir un meilleur appui à ses clients. Cet avis ne signifie pas que l'ACMTS endosse officiellement l'information fournie et n'engage aucunement sa responsabilité.