LONG COVID WEB

2025 YEAR IN REVIEW

CONSOLIDATING COMMUNITY AND EMERGING RESULTS

MARCH 2026

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A Message from the Executive

Welcome to our 2025 Year In Review! On behalf of the Long COVID Web (LCW) core team and leadership, we are delighted to share our third report highlighting activities, achievements and next steps for 2026. It's been an exceptional year focused on maintaining the network and building community at national and local levels. But first, a brief recap on the status of Long COVID in Canada.

Contrary to popular belief of some, Long COVID remains prevalent across Canada as a chronic, debilitating, complex, multi-system condition. If the COVID-19 virus is in circulation, Long COVID will continue along with the many challenges it brings for people living with this condition, treating healthcare professionals, and the broader economic and health systems.

Despite research around the world, there remains no definitive diagnostic tool and no cure. Symptom management is recommended, often under the guidance of a healthcare professional. But we know there are still major barriers to accessing care by knowledgeable healthcare providers for many of the more than 3.5 million Canadians (as per data gathered up to 2022 and reported by Statistics Canada in 2023) living with Long COVID and their families. There have been advances in understanding underlying mechanisms, in managing symptoms, and in rehabilitation approaches. We have seen Canadian clinical guidelines (led by CAN-PCC), the launch of a major educational initiative for healthcare professionals (LCW ECHO), and development of models of care. Efforts to understand any new disease require time, dedication, and sustained efforts across all 'pillars' of science, working in collaboration. We saw steady and meaningful advances in 2025.

Globally, LCW is one of the only, if not the only, dedicated national research networks for Long COVID. Activities focus on foundational, clinical, health services and population health research to gain a better understanding of the causes, implications and potential treatments. Made possible through CIHR funding and other forms of financial and in-kind support, Long COVID Web has contributed to novel national collaborations across scientists, disciplines, and partnerships with people with lived experience. This has been a remarkable and humbling journey together. Read on!

We are grateful to funders and partners who provide essential infrastructure and funding support (both cash and in-kind) for the network and its activities. Thanks also to our network members and collaborating organizations across Canada. Your support, encouragement and insights keep our network strong and relevant to the needs of people living with Long COVID and those who care for them.

Sincerely,
Drs. Angela Cheung, Simon Décary, Adeera Levin, and Doug Gross (LCW Executive Committee)

Dr. Angela Cheung
Professor of Medicine,
University Health Network
University of Toronto

Dr. Simon Décary
Assistant Professor
of Rehabilitation,
Université de Sherbrooke

Dr. Adeera Levin
Professor, Nephrology and
Internal Medicine, University
of British Columbia

Dr. Doug Gross
Professor, Physical Therapy,
University of Alberta

Mission & Vision

Our mission is to advance Canadian-led Long COVID research, foster a patient-centred learning health system, accelerate equitable access to optimal care and rigorously monitor the impact of Long COVID, also known as Post-COVID-19 Condition (PCC).

VISION
Canada without PCC

ACCELERATE
the discovery & validation of Canadian-led sciences in PCC

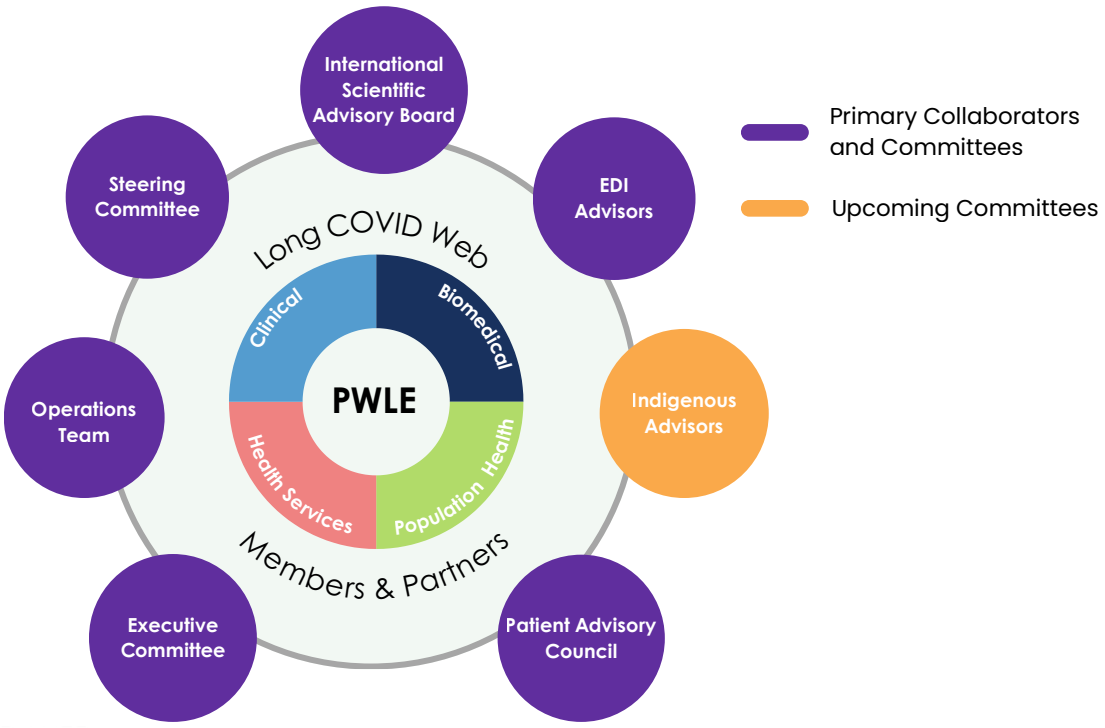
ACTIVATE
a learning health system that prioritizes the needs of individuals with PCC and family members

IDENTIFY
the best therapeutics & practices, & accelerate equitable access to PCC care

MAINTAIN
rigorous surveillance of the impact of PCC

Organizational Structure

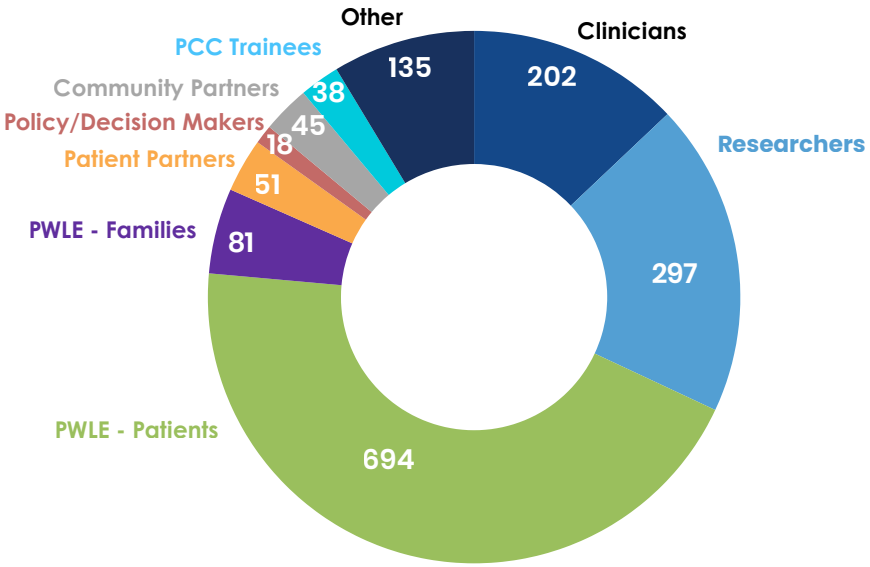
Within LCW governance structures, we have prioritized equity, diversity, and inclusion (EDI) within our Operations Team, Steering Committee, and Patient Advisory Council. Our network membership is diverse in gender and sexual orientation, Indigenous representation, age, ethnicity, spoken language, and abilities, as well as spanning geographic regions in Canada. We value the diversity of roles and perspectives, and engagement of researchers, clinicians, People with Lived Experience (PWLE), decision-makers, and other system partners. This inclusive governance approach strengthens our decision-making, accountability, and relevance to the communities we serve.



2025 Membership Reach

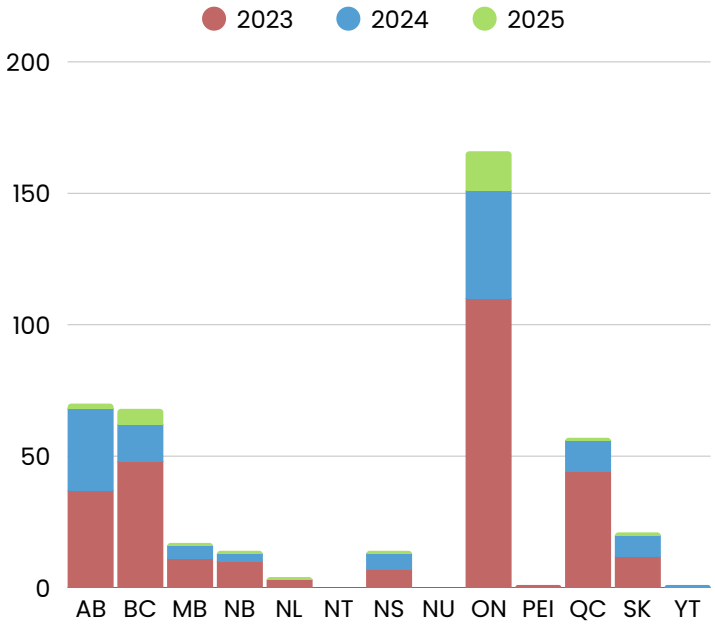
LCW's growing membership reflects our commitment to engaging diverse communities across Canada. LCW's total membership has reached **1,252**, including **239 new members** who joined in 2025. The graphs below illustrate where our members reside, the key groups they represent, and whether they belong to communities that have experienced inequities.

Network Groups

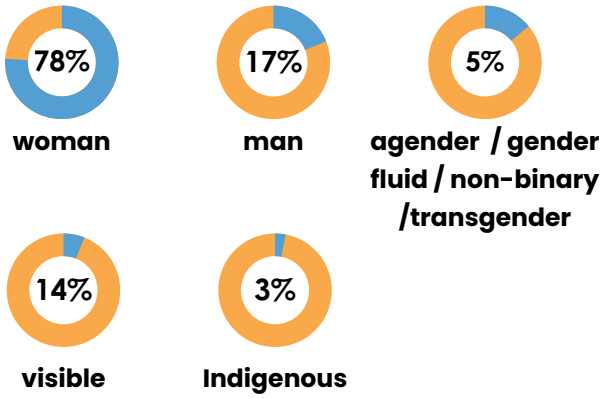


The descriptions below are based on member responses to EDI survey questions conducted in 2025. Twenty-nine new members completed the survey in 2025.

Provincial Representation



Diversity



Engaged People with Lived Experience

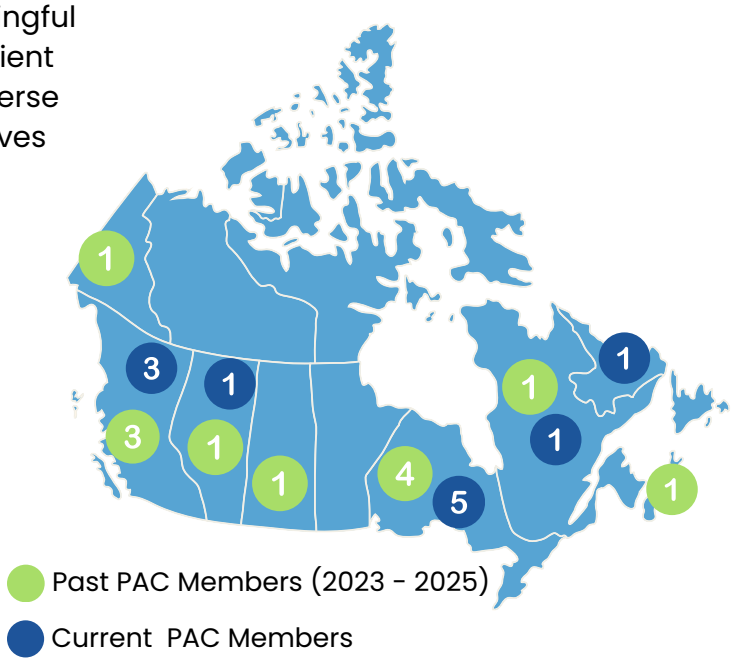
In 2025, LCW reaffirmed its dedication to meaningful patient engagement through an expanded Patient Advisory Council (PAC), greater inclusion of diverse voices, and the integration of patient perspectives throughout its core activities.

Enhanced PAC Recruitment

To support consistent, equitable onboarding of new members, the PAC helped develop tools for the engagement and recruitment process. PAC participation spans into a new province – Newfoundland and Labrador.

Other PAC Activities

Ongoing key activities include Seed Funding review and Symposium planning and abstract review. New PAC activities include:



Developed a matrix to strengthen PAC member engagement and streamline recruitment

Delivered an oral presentation at the Pandemic Evidence Collaboration 2025 Conference

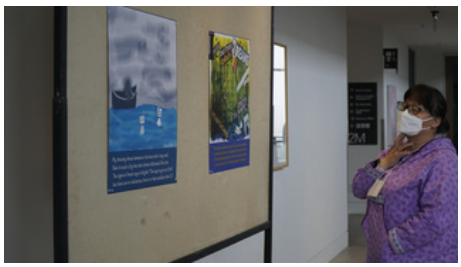
PAC supported the development of a dedicated webpage highlighting membership and activity

Key PWLE Activities - New and Ongoing in 2025

The Atlantic meet-up in St. John's brought together PWLE, caregivers, and PAC members for a highly engaged event of networking, relationship-building, and knowledge exchange. Read more about the Atlantic meet up here.

LCW's patient community continued to play a vital role in strengthening connections and community throughout the 2025 Symposium. Their leadership in coordinating and contributing to story-sharing videos fostered powerful moments of representation and collective reflection, helping build a stronger sense of belonging across participants.

Video contribuitions by PWLE: **Charli & Julie** | **Nancy & Bob** | **Nikkie**


Images from the 2025 Art Gallery in St. John's, Newfoundland.

Strengthened Research Capacity

2025 Seed Funding

LCW continued to build a foundation for sustained progress in Long COVID research by providing seed funding for research, supporting members funding applications and championing trainees. LCW awarded **$1.25M CAD** in 2025 to support **22** cross-pillar projects. These projects, funded in amounts of $25,000, $50,000 and $100,000, address all 12 LCW research sub-priorities, ensuring continued progress in key areas of Long COVID research. This year, **42.8%** of the seed funding recipients are **Early Career Researchers (ECR)**. Details of the awarded projects can be found here.

Supporting the Next Generation of Researchers

In 2025 LCW directly supported trainees by:

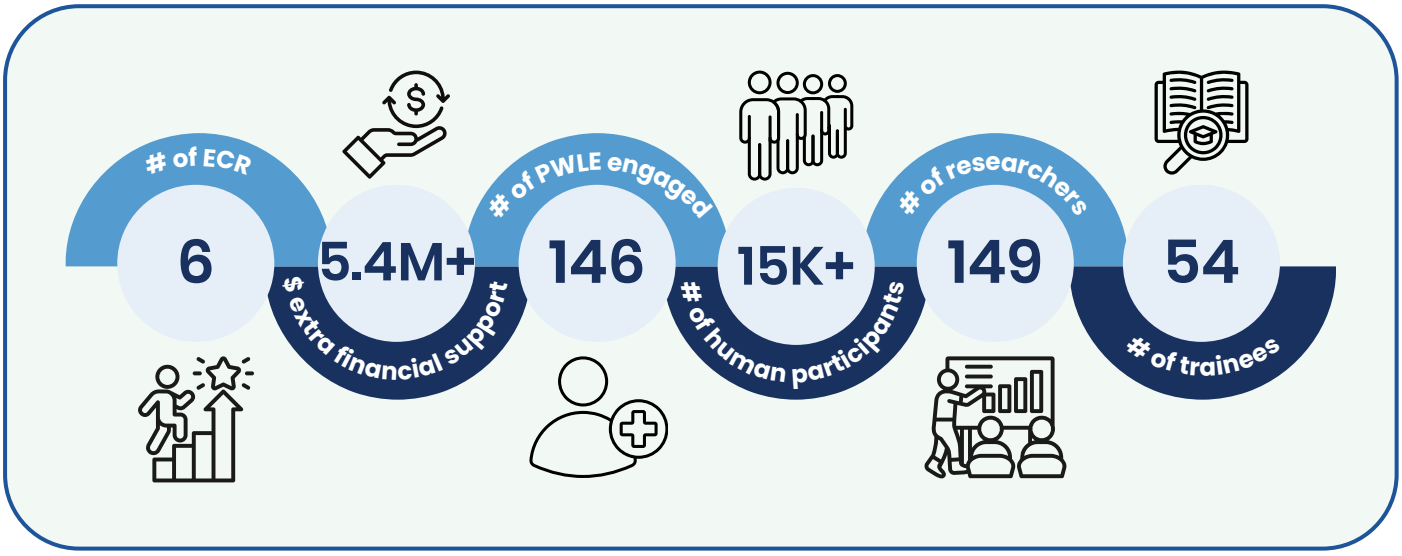
Building Scholarly Capacity
We awarded **2** categories of abstract prizes and featured **24 trainee posters** at the 2025 Symposium.
(See Appendix A for Poster Awards)

Providing Financial Support
23 trainees were supported by **$552,970** within **Seed Funding**.

Respondents to the Network Research Contribution Survey identified **7 trainees engaged in Long COVID research** in addition to those supported by LCW Seed Funding.

Foundational and 2023 Seed Funding - By the Numbers

Results are coming in from our Foundational Funding and the first round of Seed Funding (2023). This is what we know, to date.



Advanced Long COVID Knowledge

LCW Funded Research – Contributions to Knowledge

Research funded by LCW's Foundational Funding and 2023 Seed Funding to date have directly contributed to advancing Long COVID knowledge.

15 Publications	69 Presentations	61 Media Appearances

Our funded researchers have demonstrated global leadership, with **five** of the publications (2x2025, 2x2024, 1x2023) having outperformed international benchmarks for scientific influence. The publications are found in Appendix B.

Summaries of study results are found in Appendix C.

Additional Member Contributions to Knowledge in 2025

In addition to outputs from research funded by LCW, network members have contributed **79 articles** (9% influenced by LCW) and **62 presentations** (30.6% influenced by LCW, 74% at non-LCW events, and 27% at international events) to advance our knowledge of Long COVID.

LCW Contributions to Clinical Trial Research

LCW Foundational Funding and Seed Funding have contributed to advancing clinical trials.

Seed Funding

Angela Cheung, PI

Title: Using a combination of oxygen and carbon dioxide for treatment of post COVID brain fog – RECLAIM-Hi-OxSR

(Seed Funding $100,000)

Contributed to

A Randomized Phase II/III Dose Ranging, Active Control Trial of Using a Sequential Rebreathing Oxygen Mask (Hi-OxSR) to Increase Oxygen and Carbon Dioxide for the Treatment of Post COVID Cognitive Dysfunction (RECLAIM-Hi-OxSR)

Funding Source: CIHR - $905,000

Phase II/III Randomized controlled trial

Goal: To determine the best dose and safety of dose using a combination of oxygen and carbon dioxide therapy to treat brain fog

Recruiting 120 adult patients, considering sex and gender as risk factors

Seed & Foundational Funding

Gavin Oudit, PI

Title: Targeting Taurine as a Potential Therapy for Long COVID: Use of a Validation Biomarker Cohort (Foundational Funding $100,00)

Title: Targeting Taurine as a Potential Therapy for Long COVID: Use of a Validation Biomarker Cohort (Seed Funding $50,000)

Contributed to

Taurine Supplementation as a Novel Therapeutic Approach for Neurocognitive Symptoms in the REcovering From COVID-19 Lingering Symptoms Adaptive Integrative Medicine (RECLAIM)

Funding Source: CIHR - $2,850,669

Adaptive Platform Clinical Trial

Goal: To test the feasibility of treatment of Long COVID with taurine.

Recruiting 300-400 patients over 5 sites in BC, Alberta, Ontario and Quebec

Knowledge Mobilization

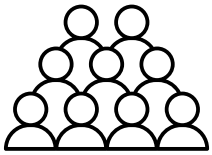
Accelerated Dissemination

LCW strives to provide PWLE, families and caregivers, clinicians, researchers, and health system decision-makers with easy access to current and trusted information about Long COVID. LCW shares research and resources through its webinars, website, newsletter, and YouTube channel.

2025 LCW Webinars

9 Webinars

14 Speakers



549 Attendees

4050 views of Webinars on YouTube

The majority of webinar survey respondents rated the webinars as high or medium-high in terms of contributing to advancing Long COVID science, contributing to their own knowledge of Long COVID. About half anticipated an impact on day-to-day decisions.

LCW Trusted Resources Webpage

A section of our website is dedicated to sharing trusted resources (vetted by our PAC, scientists, and clinical experts) with PWLE, families, researchers, and clinicians. Some of the most visited pages were related to **symptom checklists** and **resources**.

In 2025, this section had:

3700+ page views

2000+ unique visitors

3000+ site sessions

LCW Monthly Newsletter

In 2025, the LCW Monthly Newsletter achieved an average **open rate of 43.5%**, exceeding the industry benchmark of 35.6%.

YouTube Channel

From 2023 through December 31, 2025, the LCW YouTube channel recorded a total of 9,711 views, with **168 new subscribers** joining in 2025.

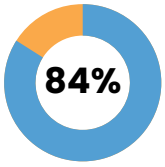
Knowledge Mobilization

Accelerated Uptake & Use

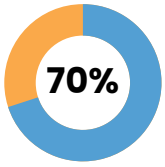
Influenced Awareness and Use of Long COVID Research and Knowledge

The 3rd Canadian Symposium on Long COVID provided a national forum to share Long COVID research and knowledge. The total attendance was 452 people (111 in-person attendees and 341 virtual attendees). The Symposium evaluation revealed that respondents:

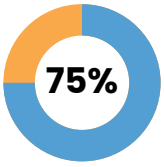
- **Improved their awareness of Long COVID with respect to:**



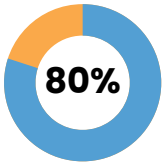
General Evidence



Tools and/ or Resources

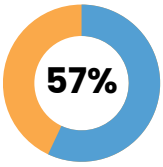


Best Practices

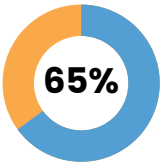


Related to People who have Experienced Inequities

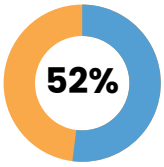
- **Used/planned to use knowledge to inform:**



Personal Health

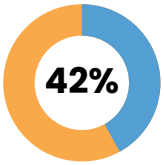


Practice

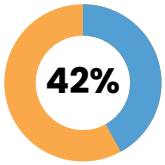


Policy

- **Organizations used/planned to use knowledge to:**

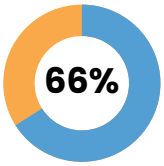


Inform Practice



Inform Policy

- **Individuals shared knowledge from the Symposium with others:**



LCW Members Informed Decisions in Long COVID Research, Policy & Practice

Developed **1 policy brief**

28% of respondents to our annual **Network Research Contribution Survey**, including researchers, PWLE, clinicians, and community partners, acted in roles to inform decisions in research, clinical practice, and policy. They served as leaders, reviewers, and advisors.

Published **28** (2023, 2024, 2025) articles that were cited **178x** in **26** policy documents, in **14** countries by **governments, think tanks, international governing organizations** and **legislative bodies**

Knowledge Mobilization

Built Confidence to Improve Quality of Care

Health care professionals need to feel confident in their knowledge and abilities to provide the best care possible to PWLE. Limited experience treating Long COVID and the complexity of the disease can pose a challenge to providing the care patients need. Hosted by LCW, the Long COVID Web ECHO addresses gaps in clinician confidence and knowledge in managing Long COVID.

> ***"The Long COVID Web ECHO is a safe place, a community of practice which levels the ground for open discussion."*** **— ECHO participant**

What is Long COVID Web ECHO?

Long COVID Web ECHO is a virtual community of practice that began in March 2025 to support healthcare professionals. It is based on the Extension for Community Healthcare Outcomes (ECHO) model.

Dr. Iram Anees (Clinical Assistant Professor of Medicine, Memorial University of Newfoundland) and Dr. R. Jane McKay (Clinical Associate Professor, UBC General Internal Medicine), along with a pan-Canadian interdisciplinary faculty, lead monthly 1.5-hour sessions consisting of:

- Lectures on the latest evidence and 'hot topics' in the diagnosis and treatment of Long COVID
- Expert and peer mentorship through discussion of real-life de-identified cases.
- An "all teach, all learn" approach is taken.

Iram Anees
MD, FRCPC

Jane McKay
BSP, MD, FRCPC, FACP

Feedback Since Launch

- 130 clinicians across Canada participate, including family physicians, general internal medicine specialists, physiotherapists, occupational therapists and other health care professionals.
- Nearly all participants would recommend Long COVID Web ECHO to their colleagues and reported many of their learning goals are being met.
- Interdisciplinary education is valued
- Areas to work on: mentorship element, faculty diversity, practical case relevance, and community-member engagement

> ***"Faculty and peer interaction are invaluable."*** **— ECHO participant**

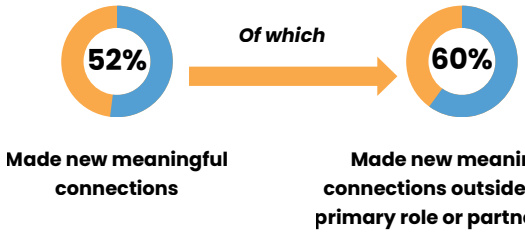
> ***"The level of support for clinicians is low — ECHO fills a critical gap."***
> **- ECHO participant**

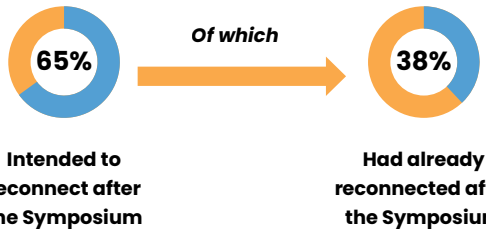
Engaged, Collaborated & Partnered

2025 Symposium Provides Opportunities to Engage

The 2025 Symposium helped catalyze and strengthen connections between research pillars and interest-holders.

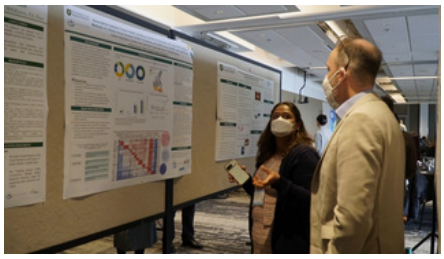
Feedback from Symposium survey respondents showed:





Top reasons to reconnect were:

- Knowledge exchange/sharing information
- Collaboration opportunities
- Research projects
- Expanding their social network

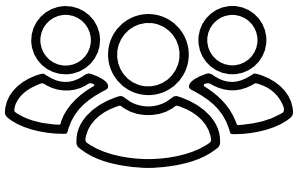


The Symposium helped develop far-reaching and resilient relationships:

- Connections were established across regions in Canada (84%) and strengthened across research areas, roles, and partners (44%).
- 41% maintained connections established at previous Symposia.

Reach of Relationships

LCW's four research pillar-oriented Foundational Funding projects extended the reach and strength of the network through collaborations spanning interest-holders, provinces and countries.



8 types of interest-holder groups.

6 countries—Austria, Greece, Jordan, Russia, Scotland, England, and United States.

Within and between **5** provinces—AB, BC, ON, QC, and SK.

To date, LCW's 2023 Seed Funding has **helped foster international relationships and collaborations** between researchers, community organizations, and networks spanning 6 countries (UK, Ireland, US, Australia, Norway, Brazil).

Engaged, Collaborated & Partnered

Building Long COVID Community at Home and Abroad

Atlantic Meet up

The Long COVID Web's Atlantic Meet-Up brought together 25 in-person participants and over 30 virtual attendees (via targeted and open invitations), with the purpose of strengthening networking, knowledge sharing, engagement, and connection across roles and the Atlantic regions. The impact has extended beyond the event itself, as conversations, collaborations, and new relationships continued to unfold afterward among clinicians, scientists, and PWLE. This sustained engagement reinforced the value of convening diverse voices to advance collective understanding and action. Building on this momentum and format, a Pacific Meet-Up has been planned at our Symposium in October 2026.

International Networks

International research connections are critical for finding the best Long COVID treatments in the shortest time possible. Regular meetings strengthen the international research community, synergizing efforts to advance clinical trials for post-acute infection syndromes. ***LCW participates in several international research networks, linking the world to Canadian research and Canadian research to the world.*** Key networks include:

Post-acute Infection Syndromes (PAIS) Research Consortia Meeting on Clinical Trials

- Hosted by Long COVID Europe (LCE) & ME/CFS Research Foundation, brings research networks and groups from the Netherlands, Germany, Canada, and the United States together to strengthen global connections and fast-track knowledge exchange. LCW has participated in the annual meeting in the last 2 years.

Long COVID International Conference

- Alternating between Europe and North America, the conference promotes dialogue and education among key interest-holders to address the clinical, therapeutic, and public health challenges of Long COVID. LCW members have done presentations and helped organize past conferences.

Clinical Trials Networks

- LCW is active in the Clinical Adaptive Platform Trials Network and the Integrative Medicine Trials Network.
- LCW frequently communicates with various Long COVID clinical trials networks spanning North America (Long COVID Research Consortium, RECOVER, Open Medicine Foundation), Europe (RECLAIM, RAPID, Nationale Klinische Studiengruppe/National Clinical Studies Group), Africa, and Asia.

Moving Forward

Initiatives Leading Into 2026

- Planning for the **4th Canadian Symposium on Long COVID** is well underway, with support and guidance from local planning and scientific committees, to be hosted in Vancouver, British Columbia, October 15-16th, 2026.

- To help guide the remaining programming for research Seed Funding and knowledge mobilization efforts, the LCW Operations Team is consulting with a number of Indigenous leaders, communities, researchers and PWLE to identify strategies for ensuring the **relevance for Indigenous peoples** of research proposals and of efforts to promote the uptake and use of new or existing knowledge about Long COVID.

- LCW is gathering feedback from a broad range of researchers, PWLE, trainees, and clinicians as part of a **mid-term assessment** of perspectives on the value of our work, achievements and challenges, as well as guidance for the way forward with our programs and sustainability in the longer-term.

- The LCW Patient Advisory Council (PAC) has taken on a **writing project** with interested members. They are developing a manuscript for publication that will focus on the achievements, contributions and lessons from members' perspectives.

- The PAC will continue to assess and renew its **membership** as current terms expire and new members are recruited to ensure diversity of voices and experiences to advise and engage with LCW activities.

- LCW leadership and Operations Team members have been engaged and contributed (via interviews with evaluators) to CIHR's evaluation of the **Centre for Research on Pandemic Preparedness and Health Emergencies** (see: https://cihr-irsc.gc.ca/e/52397.html); results to be released in 2026.

In closing, this past year reflects a period of strengthening our community and advancing shared priorities, while also beginning to see emerging results from our collective efforts. We thank our collaborators, advisors, and community members for their ongoing trust and contributions, and we look forward to building on this momentum together in the year ahead.



Appendix A - Symposium Abstract Awards

Top 3 Trainee Lightning Round Presentations

- 1st place: **Kelly C. Hall**, University of Saskatchewan

  Title: Testing a Program Theory for Self-Care Strategies Impacting Mental Health in Persons with Long COVID Fatigue: A Realist Evaluation Approach

- 2nd place: **Marianne Balem**, University of Sherbrooke

  Title: Impact of Long COVID on Work Functioning: A Cross-Sectional Study Among Quebec Healthcare Workers

- 3rd place: **Sylvie Rheault**, University of Montreal

  Title: Cognitive Changes in Long COVID and Neurodegenerative Diseases: Understanding Cellular Mechanisms Using A Simplified Biological Theoretical Model and the Concept of Infectious Load

Long COVID Web Impact Poster Awards

- **Mark Ungrin**, University of Calgary,
  Title: Trust but verify: building public confidence in science through self-correction
- **Kayli Jamieson**, Simon Fraser University
  Title: An Intersectional Analysis of Access to Virtual Health for Longhaulers
- **Kriti Agarwal**, Research Institute McGill University Health Center (MUHC)
  Title: Understanding outcomes of virtual rehabilitation in long COVID: post-hoc analysis of a randomized controlled trial (RCT)
- **Meera Premnazeer**, University of Toronto
  Title: Exploring the Cultural Safety of Rehabilitation Interventions for Indigenous Peoples living with Chronic Conditions: A Scoping Review

Appendix B - High Performing Publications

We have used Field-weighted Citation Impact (FWCI) as an indicator of how publications are performing. FWCI measures research influence by comparing an article's citations to the global average for its specific field and year. A score of 1.0 represents the world average, meaning any score higher indicates that the research is outperforming international benchmarks.

The following are peer-reviewed publications from LCW-funded projects.

- Khoramjoo M, Wang K, Srinivasan K, Gheblawi M, Mandal R, Rousseau S, et al. Plasma taurine level is linked to symptom burden and clinical outcomes in post-COVID condition. PLoS ONE. 2024;19(6):e0304522. Available from: https://doi.org/10.1371/journal.pone.0304522

- McDuff K, Bhéreur A, Kadakia Z, Corrales-Medina VF, Gross DP, Janaudis-Ferreira T, et al. Establishing a framework of measurement for use in Long COVID research and practice: Protocol for a scoping review involving evidence review and consultation. BMJ Open. 2025;15:e094497. Available from: https://doi.org/10.1136/bmjopen-2024-094497

- Wang K, Khoramjoo M, Srinivasan K, Gordon PMK, Mandal R, Jackson D, et al. Sequential multi-omics analysis identifies clinical phenotypes and predictive biomarkers for long COVID. Cell Rep Med. 2023;4(11):101254. Available from: https://doi.org/10.1016/j.xcrm.2023.101254

- Zeraatkar D, Ling M, Kirsh S, Jassal T, Shahab M, Movahed H, et al. Interventions for the management of long covid (post-covid condition): living systematic review. BMJ. 2024;387:e081318. Available from: https://doi.org/10.1136/bmj-2024-081318

- Zeraatkar D, Ling M, Kirsh S, Jassal T, Pitre T, Chakraborty S, et al. Interventions for the management of post-COVID-19 condition (long COVID): protocol for a living systematic review and network meta-analysis. BMJ Open. 2025;15:e086407. Available from: https://doi.org/10.1136/bmjopen-2024-086407

Appendix C - Summaries of Findings from 2023 Funding

Brief summaries of findings and peer reviewed publications to date from Foundational Funding and 2023 Seed Funding.

Pillar #	Author, title, summary of findings
FOUNDATIONAL FUNDING - $100K	
PILLAR 1	Oudit G, et al. (University of Alberta) **Preclinical Models as a Platform for Discovery and Validation of Biomarkers and Therapeutic Targets for Long COVID** Summary: *Biomarkers associated with LC symptoms were identified in animal models re. sustained inflammation, blood cell changes, gut-bacteria changes, and energy metabolism alterations. A panel of 20 molecules was developed to predict severity of LC symptoms, one of which (taurine) can be a supplement to alleviate LC symptoms. A clinical trial to assess feasibility of treatment with taurine is being set up.* **Publications:** Paterson DI, White JA, Beaulieu C, Sherrington R, Prado CM, Tandon P, et al. Rationale and design of the multi organ inflammation with serial testing study: a comprehensive assessment of functional and structural abnormalities in patients with recovered COVID-19. Front. Med. 2024;11:13921691. Khoramjoo M, Wang K, Srinivasan K, Gheblawi M, Mandal R, Rousseau S, et al. Plasma taurine level is linked to symptom burden and clinical outcomes in post-COVID condition. PLoS ONE. 2024;19(6):e0304522. Khoramjoo M, Srinivasan K, Wang K, Wishart D, Prasad V, Oudit GY. Protocol to identify biomarkers in patients with post-COVID condition using multi-omics and machine learning analysis of human plasma. STAR Protoc. 2024;5:103041. Wang K, Khoramjoo M, Srinivasan K, Gordon PMK, Mandal R, Jackson D, et al. Sequential multi-omics analysis identifies clinical phenotypes and predictive biomarkers for long COVID. Cell Rep Med. 2023;4(11):101254. Lo T, MacMillan A, Oudit GY, Usman H, Cabaj JL, MacDonald J, et al. Long-term health care use and diagnosis after hospitalization for COVID-19: a retrospective matched cohort study. CMAJ Open. 2023;11(4):E706–15.
PILLAR 2	O'Brien K, et al. (University of Toronto) **Establishing a Framework for Measurement for Use in Long COVID Research and Practice** Summary: *A scoping review that involved a review of published evidence and an international consultation to identify outcome measures used in practice and research was conducted; evidence review is still in progress. Consultation highlighted the complexities, challenges and considerations associated with health outcome measurement in research and clinical practice with people with Long COVID.* *A Framework of Measurement will be produced to guide the selection and implementation of outcome measures in Long COVID research and clinical practice.* **Publications:** McDuff K, Bhéreur A, Kadakia Z, Corrales-Medina VF, Gross DP, Janaudis-Ferreira T, et al. Establishing a framework of measurement for use in Long COVID research and practice: Protocol for a scoping review involving evidence review and consultation. BMJ Open. 2025;15:e094497. Bhéreur A, McDuff K, Naye F, Lemay L, Grenier AD, O'Hara ME, et al. Rethinking measurement of health outcomes in Long COVID: complexities, challenges and considerations. Health Qual Life Outcomes. 2026;24(8).

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Pillar #	Author, title, summary of findings
FOUNDATIONAL FUNDING - $100K	
PILLAR 3	Quinn KL, et al. (University of Toronto) **Improving Identification of Canadians Living with Long COVID in Administrative Data** Summary: *A LC National Data Atlas was published illustrating the landscape of Canadian LC cohorts with linkage to administrative data and common datasets in different jurisdictions. This highlights where data assets exist and where gaps remain. PARABOLA is an ongoing qualitative study of physician and pharmacist perspectives on inpatient antiviral prescribing. The DEFEND study (pilot Paxlovid/remdesivir trial) closed due to inadequate recruitment.* **Publications:** Ahmad A, Janjua N, Lix L, Warda N, Fung DLX, Bhéreur A, et al. A national atlas to improve the study of Canadians living with long COVID (post-COVID-19 condition). Can J Public Health. 2025.
PILLAR 4	Groot G, et al. (University of Saskatchewan) **Establishing a Minimum Data Set for Long COVID Survey Questions Across Canada** Summary: *Working with patients, caregivers, clinicians, and researchers, through three survey rounds, 34 key items were identified (including symptoms, quality of life and care access) that are recommended as the minimum data set for LC surveys across Canada. Consistent data collection that includes these items will support research and advocacy in coordinating efforts to better understand and treat LC.* **Publications:** Mazurik K, Amah A, Dumitrescu DI, Ejalonibu H, Chavda B, Kemp D, et al. Developing a minimum dataset for a national patient registry on Long COVID in Canada: a Delphi consensus-based study. BMJ Open. 2025;15:e111474. Amah A, Kumar P, Ejalonibu H, Chavda B, Aburub A, Greene R, et al. Development of a minimum data set for long COVID: a Delphi study protocol. BMJ Open. 2024;14:e090304.

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A brief summary of findings an peer-reviewed publications to date from studies funded by LCW 2023 Seed Funding.

Pillar #	Author, title, summary of findings
SEED FUNDING - $25-50-100K	
PILLAR 1 & 2	Falcone EL, et al. (Montreal Clinical Research Institute/Université de Montréal) - $50K **Evaluation of Leaky Gut and Viral Persistence Associated with Immune Dysregulation in Distinct Cohorts to Identify New Biomarkers of Long COVID** Summary: *The original aim was to validate a LC biomarker panel in additional populations (work that is ongoing), however early results pointing to 'leaky gut' led us to investigate gut microbiota–derived extracellular vesicles (GMEVs) as potential drivers of inflammation. People with LC, especially those with neurological symptoms, had a distinct and persistent gut microbiome pattern. In cell-based experiments, GMEVs from LC donors activated gut lining cells, immune cells, and brain immune cells, triggering inflammatory signaling and weakening gut barrier function. This suggests a gut-to-immune-to-brain mechanism that may contribute to LC symptoms.* **Publications:** *Not yet published.*
PILLAR 1 & 2	Oudit G, et al. (University of Alberta) - $50K **Targeting Taurine as a Potential Therapy for Long COVID: Use of a Validation Biomarker Cohort** Summary: *Biomarkers associated with LC symptoms were identified: sustained inflammation, blood cell changes, gut-bacteria changes, and energy metabolism alterations. A panel of 20 molecules was developed to predict severity of LC symptoms. One of the identified molecules (taurine) can be used as a supplement to alleviate COVID symptoms. We are in the process of setting up a clinical trial to show a feasibility of treatment of long COVID with taurine.* **Publications:** Paterson DI, White JA, Beaulieu C, Sherrington R, Prado CM, Tandon P, et al. Rationale and design of the multi organ inflammation with serial testing study: a comprehensive assessment of functional and structural abnormalities in patients with recovered COVID-19. Front. Med. 2024;11:13921691. Khoramjoo M, Wang K, Srinivasan K, Gheblawi M, Mandal R, Rousseau S, et al. Plasma taurine level is linked to symptom burden and clinical outcomes in post-COVID condition. PLoS ONE. 2024;19(6):e0304522. Khoramjoo M, Srinivasan K, Wang K, Wishart D, Prasad V, Oudit GY. Protocol to identify biomarkers in patients with post-COVID condition using multi-omics and machine learning analysis of human plasma. STAR Protoc. 2024;5:103041. Wang K, Khoramjoo M, Srinivasan K, Gordon PMK, Mandal R, Jackson D, et al. Sequential multi-omics analysis identifies clinical phenotypes and predictive biomarkers for long COVID. Cell Rep Med. 2023;4(11):101254. Lo T, MacMillan A, Oudit GY, Usman H, Cabaj JL, MacDonald J, et al. Long-term health care use and diagnosis after hospitalization for COVID-19: a retrospective matched cohort study. CMAJ Open. 2023;11(4):E706–15.

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Pillar #	Author, title, summary of findings
SEED FUNDING - $25-50-100K	
PILLAR 1	Mukherjee M, et al. (McMaster University) - $100K **Autoimmunity Underlying Long-Term Neurocognitive Symptoms Post-COVID-19 (AINEC)** Summary: *The underlying biological mechanisms for neurocognitive symptoms (e.g. brain fog, headaches, and mental fatigue) remain unclear. In this ongoing study, individuals with LC and neurocognitive symptoms were more likely to show antibodies targeting brain and neuronal proteins compared with people who recovered from COVID-19 or were never infected. Some of these immune markers were associated with worse fatigue and cognitive symptoms. These findings suggest a possible immune-mediated contribution to persistent neurological symptoms after COVID-19 and highlight the potential for developing biomarkers to improve diagnosis and guide future research and treatment approaches.* **Publications:** *Not yet published.*
PILLAR 2	Cheung A, et al. (University Health Network/University of Toronto) - $100K **Using a Combination of Carbon Dioxide and Oxygen for Treatment of Post COVID Brainfog – RECLAIM -- HiOxSR** Summary: *A combination of carbon dioxide and oxygen therapy twice a day for 2 weeks was associated with reports of being well-tolerated, safe and feasible, and improvement in cognitive testing using TestMyBrain digital cognitive tests (even though this was not the primary outcome in this pilot study). Using this pilot data, we were successful in an application for CIHR funding to conduct a 3 arm RCT to explore this intervention as a potential therapy for those with post COVID brain fog, which we just started.* **Publications:** *Not yet published*
PILLAR 2	Zeraatkar D, et al. (McMaster University) - $50K **A Living Systematic Review and Network Meta-Analysis of All Randomized Trial Evidence Addressing the Effectiveness of Pharmacologic and Non-Pharmacologic Interventions for Post COVID-19 Condition (PCC)** Summary: *Initial findings indicate moderate certainty evidence for cognitive behavioral therapy and physical and mental health rehabilitation as probably effective for PCC. Similarly, intermittent aerobic exercise probably improves physical function compared with continuous aerobic exercise. No compelling evidence was found to support the effectiveness of other interventions, including, vortioxetine, leronlimab, a synbiotic (SIM01), coenzyme Q10, amygdala and insula retraining, combined L-arginine and vitamin C, inspiratory muscle training, transcranial direct current stimulation, hyperbaric oxygen, and a mobile application providing education on long covid (telerehabilitation mobile app).* **Publications:** Zeraatkar D, Ling M, Kirsh S, Jassal T, Shahab M, Movahed H, et al. Interventions for the management of long covid (post-covid condition): living systematic review. BMJ. 2024;387:e081318. Zeraatkar D, Ling M, Kirsh S, Jassal T, Pitre T, Chakraborty S, et al. Interventions for the management of post-COVID-19 condition (long COVID): protocol for a living systematic review and network meta-analysis. BMJ Open. 2025;15:e086407.

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Pillar #	Author, title, summary of findings
SEED FUNDING - $25-50-100K	
PILLAR 2	Sasseville M, et al. (Laval University) - $50K **LongPROM Study - Development of a Long COVID Patient-Reported Outcome Measure (PROM) for Clinical Setting** Summary: *A scoping review to map instruments used to diagnose, predict, or monitor LC, (and evidence to support them) was completed. 44 distinct instruments were identified (from 2021 onward), mostly patient reported, with heavy emphasis on symptom burden and functional status; conceptual foundations and validation evidence were often limited. An initial item bank was developed; the team will now use a a Delphi process to develop 'LongPROM' for clinical use and prepare for psychometric validation.* **Publications:** *Not yet published.*
PILLAR 1	Russell J, et al. (University of British Columbia) - $100K **Neuro-Thrombo-Inflammation and Prediction of Long COVID** Summary: *Several simple blood biomarkers were found to be increased at the time of hospital admission for acute COVID that predicted later Long COVID, especially in females. The biomarker panel included 7 cytokines that are indicators of systemic inflammation from COVID. Changes in these bold biomarkers were most closely associated with low scores on quality of life in females at the time of later Long COVID at 3 and 6 months after acute COVID.* **Publications:** *Not yet published.*
PILLAR 2	Quinn KL, et al. (University of Toronto) - $100K **Nirmatrelvir/Ritonavir (Paxlovid) in the Prevention fo Long-Term Cardiovasculate Outcomes: "The paxloviD Effectiveness For the prEvention of loNg coviD (DEFEND) clinical trial"** Summary: *This trial was undertaken to study the effectiveness of Paxlovid or Veklury in preventing cardiovascular sequelae of Long COVID. As a pilot, it was designed to inform a future full-scale multicentre trial by estimating feasible recruitment and planning to validate hospital-based outcomes in administrative data and estimate a 1-year composite event rate (stroke, heart failure, venous thromboembolism, diabetes or death). Approvals included a Health Canada No Objection Letter (Aug 2024) and CTO/Sinai REB (Sept 2024). Over 12 months, 110 were screened, 13 were eligible, 3 enrolled; however, all withdrew (2 became ineligible and 1 was due to inventory expiration). The study was closed due to inadequate recruitment per pre-defined stopping rules.* **Publications:** *Not yet published.*
PILLAR 3	Wasilewski M, et al. (Sunnybrook Research Institute) - $100K **Co-Designing a Pan-Canadian Long COVID Patient Navigation Model (PNM)** Summary: *The navigation of health and social systems remains challenging and disjointed for PWLE; health and social care providers have highlighted the need for LC care guidelines and interdisciplinary team structures. This study highlights the need for a LC PNM to promote timely, appropriate services to address the complex symptomology and needs of PWLE through seamless, coordinated care. Formalized patient navigation structures for future LC care are needed to facilitate the integration and coordination of services, contributing to seamless pathways (or movement) for PWLE across health and social care systems.* **Publications:** *Not yet published.*

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Pillar #	Author, title, summary of findings
SEED FUNDING - $25-50-100K	
PILLAR 1	Boudrias MH, et al. (McGill University) - $25K **Using Electroencephalography to Identify Biomarkers of Post COVID-19 Condition Symptomatology** Summary: *This study examined brain activity patterns during movement and rest to better understand how brain function may differ in individuals experiencing LC symptoms. Findings indicate there are differences in how motor brain areas respond during movement, as well as in how the brain handles information after tasks become more mentally demanding. This helps identify specific brain processes that may be altered, providing a more nuanced understanding of brain function in this population. This knowledge may inform future studies, guide the development of targets rehabilitation strategies, and support clearer communication with patients about underlying mechanisms.* **Publications:** *Not yet published.*
PILLAR 2	Archambault P, et al. (Université Laval) - $100K **Derivation, Validation and User Testing of a Clinical Prediction Rule for the Early Identification of Patients at Risk for Developing Post-COVID-19 Condition in Patients Presenting to Emergency Departments with an Acute SARS-CoV-2 Infection** Summary: *6,070 Canadian emergency patients were studied; 41.4% developed post-COVID-19 Condition (PCC). Key risk factors were identified, including female sex, pre-existing comorbidities, and specific acute symptoms, and one protective factor (South Asian race), however the prediction tool was not accurate enough to guide clinical decisions. Identifying PCC during an initial emergency visit remains a significant challenge using clinical data alone. The definition of PCC is being reviewed to refine the portrait of patient characteristics, which may lead to a more precise clinical prediction rule. Future efforts to support patient recovery and reduce health system strain must integrate such refined criteria alongside biological markers to better predict and manage this complex condition.* **Publications:** *Not yet published.*
PILLAR 2	Damant R, et al. (University of Alberta) - $50K **Developing and Validating a Short-Form of the Post-COVID-19 Stigma Questionnaire in Indigenous and non-Indigenous Communities** Summary: Prior research had led to the development of a reliable and valid tool with which to estimate stigma associated with LC. This work was further developed in this study with the following findings: 1) there is a relative paucity of research on health-related stigma in Indigenous Peoples of Canada; 2) a short 12-item version of our original 40-item instrument retained acceptable psychometric properties; 3) stigma arising from long COVID was associated with worse health outcomes 1.6 years later (adding weight to the claim that stigma is a social determinant of health). **Publications:** Rourke L, Damant R. A short version of the post-COVID-19 condition stigma questionnaire. Public Health in Pract. 2026;11:100696. Rourke L, Damant R, Kung JY, Widney C. Health-related stigma among Indigenous Peoples in Canada: A scoping review. PLoS ONE. 2025;20(4):e0318618. Damant RW, Rourke L, Lam GY, Smith MP, Weatherald J, Laratta CR, et al. Exploring the temporal relationship between stigma, disease manifestations, and health outcomes in post COVID-19 condition: a longitudinal descriptive study. eClinicalMedicine. 2025;89: 103531.

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Pillar #	Author, title, summary of findings
SEED FUNDING - $25-50-100K	
PILLAR 1 & 2	Raj SR, et al. (University of Calgary) - $100K **Cognition and Brain MRI in Long COVID POTS: Effects of Blood Volume Expansion** Summary: *There was a main effect of infusion on the connectivity of the thalamus. Thalamus connectivity was altered with the amygdala, the motor cortices, and the putamen. The effect of lower body pressure was primarily seen in the connectivity of the ventral anterior cingulate cortex and the dorsolateral prefrontal cortex. Specifically, lower body pressure changes had an impact on the functional connectivity of these areas with the amygdala, the motor cortices, and the hippocampus, as well as regions of the basal ganglia. A larger sample is required to be sure about these preliminary findings.* **Publications:** *Not yet published.*
PILLAR 3	Janjua N, et al. (University of British Columbia) - $50K **Improving Identification of People Living with Long COVID** Summary: *This population-based survey in British Columbia addressed gaps and potential biases in clinical data by capturing self-reported information on COVID-19 vaccination, LC diagnosis, symptoms and health status. The findings affect individuals with LC and the broader health system by providing reliable, population-level prevalence estimates that are consistent with administrative data, thereby validating current surveillance approaches. The results have system-wide significance by informing service planning, resource allocation, and targeted care for populations with higher prevalence. They also support refinement of LC identification algorithms, with longitudinal follow-up extending the impact by informing symptom trajectories, recovery patterns, and healthcare utilization over time.* **Publications:** *Not yet published.*
PILLAR 2 & 3	Hwang S, et al. (University of Toronto) - $100K **Investigating Post-COVID Condition Among People Experiencing Homelessness: A Longitudinal Cohort Study Analysis** Summary: *Three longitudinal symptom patterns, among people experiencing homelessness, were identified using latent transition analysis. Although two of these were significantly associated with being at risk of LC following symptomatic infection, this approach had poor performance and was not associated with potential PCC overall, mostly due to high baseline symptoms and numerous asymptomatic infections. Standard symptom-based approaches are suboptimal for this population and alternative, strengths-based methods are recommended to ensure equitable identification of LC in this vulnerable population.* **Publications:** *Not yet published.*