

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."

thebmj Visual summary

"Long covid" in primary care

Assessment and initial management of patients with continuing symptoms

Post-acute covid-19 appears to be a multi-system disease, sometimes occurring after a relatively mild acute illness. Clinical management requires a whole-patient perspective. This graphic summarises the assessment and initial management of patients with delayed recovery from an episode of covid-19 that was managed in the community or in a standard hospital ward.

An uncertain picture



The long term course of covid-19 is unknown. This graphic presents an approach based on evidence available at the time of publication.

However, caution is advised, as patients may present atypically, and new treatments are likely to emerge

Managing comorbidities

Many patients have comorbidities including diabetes, hypertension, kidney disease or ischaemic heart disease. These need to be managed in conjunction with covid-19 treatment. Refer to condition specific guidance, available in the associated article by Greenhalgh and colleagues

Safety netting and referral

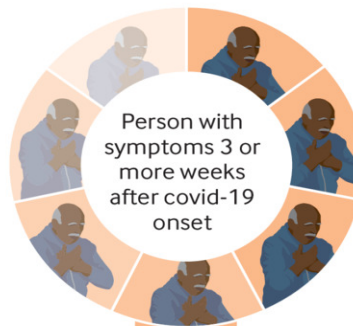
The patient should seek medical advice if concerned, for example:

Worsening breathlessness
 $\text{PaO}_2 < 96\%$ Unexplained chest pain
 New confusion Focal weakness

Specialist referral may be indicated, based on clinical findings, for example:

- ➔ **Respiratory** if suspected pulmonary embolism, severe pneumonia
- ➔ **Cardiology** if suspected myocardial infarction, pericarditis, myocarditis or new heart failure
- ➔ **Neurology** if suspected neurovascular or acute neurological event

Pulmonary rehabilitation may be indicated if patient has persistent breathlessness following review



Person with symptoms 3 or more weeks after covid-19 onset

Clinical assessment

Full history
From date of first symptom

Current symptoms
Nature and severity

Examination, for example:

Temperature Heart rate and rhythm Blood pressure Respiratory examination
 Functional status Pulse oximetry Clinical testing

If indicated

Assess comorbidities

Social and financial circumstances

Investigations

Clinical testing is not always needed, but can help to pinpoint causes of continuing symptoms, and to exclude conditions like pulmonary embolism or myocarditis. Examples are provided below:

Blood tests

Full blood count Electrolytes
 Liver and renal function Troponin
 C reactive protein Creatine kinase
 D-dimer Brain natriuretic peptides
 Ferritin — to assess inflammatory and prothrombotic states

Other investigations

Chest x ray Urine tests
 12 lead electrocardiogram

Social, financial, and cultural support

Prolonged covid-19 may limit the ability to engage in work and family activities. Patients may have experienced family bereavements as well as job losses and consequent financial stress and food poverty. See the associated article by Greenhalgh and colleagues for a list of external resources to help with these problems

Medical management

Symptomatic, such as treating fever with paracetamol
 Optimise control of long term conditions
 Listening and empathy
 Consider antibiotics for secondary infection
 Treat specific complications as indicated

Self management

Daily pulse oximetry
 Attention to general health
 Rest and relaxation
 Self pacing and gradual increase in exercise if tolerated
 Set achievable targets

Diet
 Sleep
 Quitting smoking
 Limiting alcohol
 Limiting caffeine

Mental health

In the consultation:

Continuity of care
 Avoid inappropriate medicalisation
 Longer appointments for patients with complex needs (face to face if needed)

In the community:

Community linkworker
 Patient peer support groups
 Attached mental health support service
 Cross-sector partnerships with social care, community services, faith groups

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, & QC 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 <i>Nature</i>)	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 <i>Biomedicines</i>)	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 pain/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 <i>Infection</i>)	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 <i>NCCMT</i>)	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 <i>NCCMT</i>)	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)	<i>Microorganisms</i>	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)	<i>JCI Insight</i>	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)	<i>Research Square prepub</i>	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)	<i>Am J Med Qual</i>	A post-COVID Care center was established to identify patients with disease sequelae and deliver early multidisciplinary rehabilitation services. After 6-month period, 278 unique referrals were made to address symptoms reported by 114 patients in specialties 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)	<i>medRxiv</i>	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)	<i>Lancet</i>	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)	<i>medRxiv</i>	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)	<i>medRxiv</i>	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)	<i>medRxiv</i>	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)	<i>medRxiv</i>	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)	<i>Br J Med Pract</i>	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.
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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:

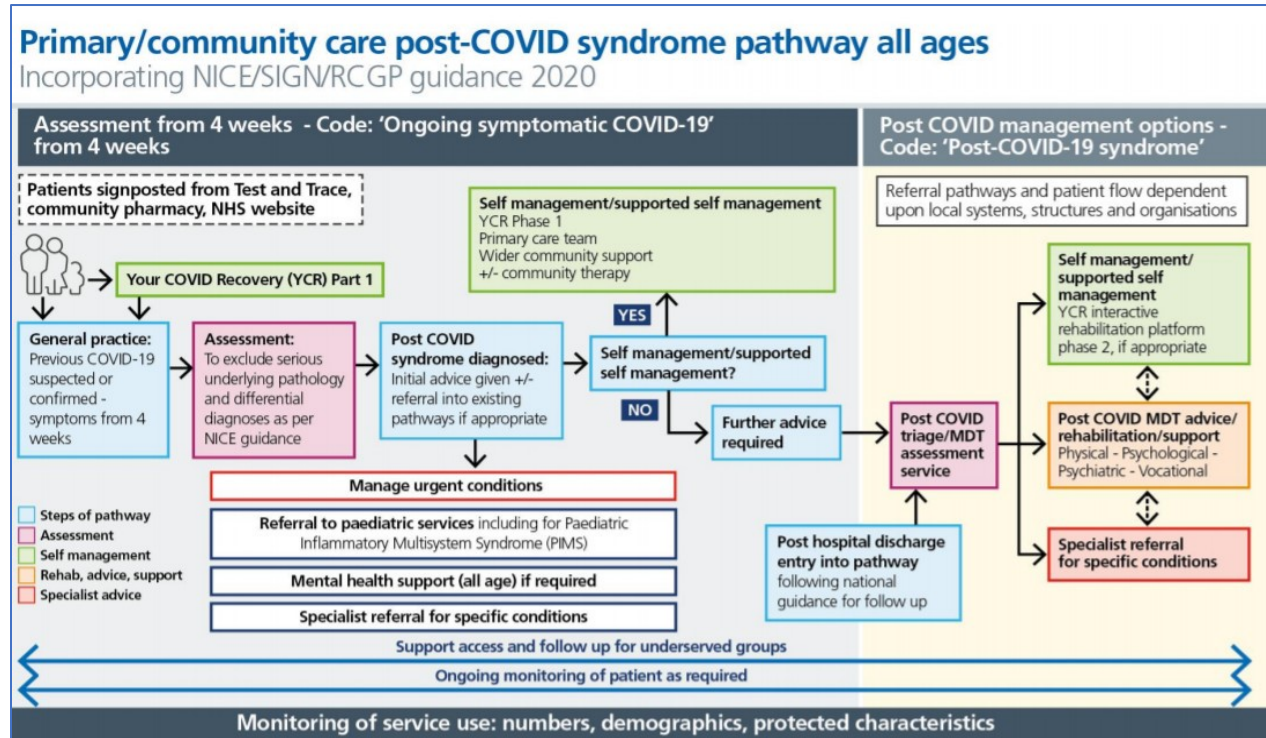
- [BC ECHO for Post-COVID-19 Recovery \(Canada\)](#): Based on the [global ECHO model](#), the BC ECHO for Post-COVID-19 Recovery is a virtual learning community of specialists and community health-care providers who use instructive and case-based learning to improve care for patients recovering from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

Over 10 projects directly examining long-term implications of SARS-CoV-2 infection

- Other large funded networks/projects may also be able to examine long-term impacts

Cohort Studies	Clinical Management & Rehabilitation	Long-term Impact on Organ Systems	Predictive Markers
<ul style="list-style-type: none"> Capture data & biologics to enable population-level surveillance Up to 1 year of follow-up (CanCOV) Patients with suspected or confirmed COVID-19 (Emergency Department Rapid Response Network) Use of AI technologies to track outcomes (CovidFree@home) Pregnancy cohorts to understand impact on mother & infant health (CHILD; COPE) 	<ul style="list-style-type: none"> Study the functional recovery & need for targeted rehabilitative treatments Large platform (COREG) to collect outpatient case data for up to 9 months (collaboration with WHO) 	<ul style="list-style-type: none"> Imaging systems to determine impact on lungs & other organs (MOIST) Imaging systems to examine neuroinflammation & associated development of mental illnesses Measure impact on cognitive function, brain structure, and brain function in elderly (CLSA) 	<ul style="list-style-type: none"> Link serological, genomic and patient characteristics to long-term disease outcomes

Source: CIHR Knowledge Mobilization Forum. June 10, 2021