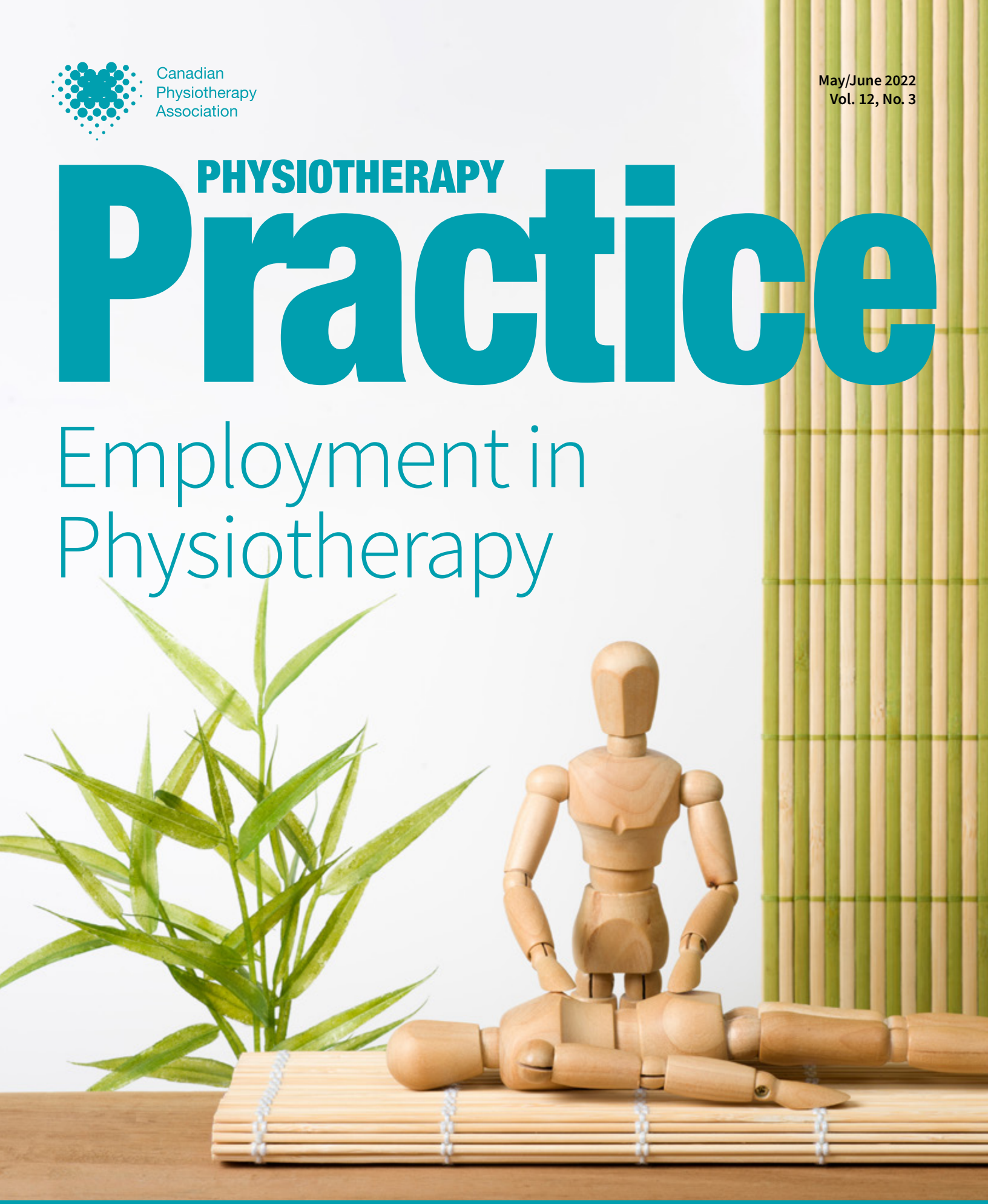
Canadian Physiotherapy Association

May/June 2022
Vol. 12, No. 3

PHYSIOTHERAPY Practice

Employment in Physiotherapy



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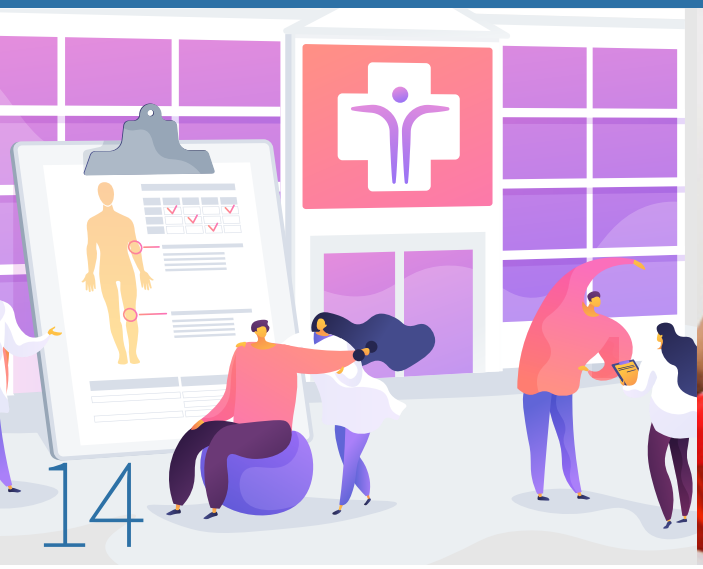

5 Celebrating National Physiotherapy Month 2022 with a new Partnership: Long COVID Physio

7 National Physiotherapy Month

10 Responding to the Study of Labour Shortages, Working Condidions, and the Care Economy

13 Responding to the Study of Canada's Health Workforce

16 Necessity for professional debate to be informed by evidence

20 Understanding our Membership

21 An Interview with Enid Graham Award Winner 2021 Carol Kennedy

24 Advanced Practice Physiotherapy in Neurology in Canada

27 ACE Report- Mapping the impacts of the COVID-19 Pandemic on Physiotherapy

Employment in Physiotherapy

May/June 2022 / Vol. 12, No. 3

Canadian Physiotherapy Association

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Celebrating National Physiotherapy Month 2022 with a new Partnership: Long COVID Physio

By Darren Brown

National Physiotherapy month takes place in May 2022. This year the Canadian Physiotherapy Association will focus on Long COVID, and in recognition of this event a new partnership has been established between Long COVID Physio and Canadian Physiotherapy Association.

Long COVID Physio is an international peer support, education and advocacy, patient-led association of Physiotherapists living with Long COVID and allies. Long COVID Physio partners with key and strategic allies for the purpose of connecting to create change in peer support, education, advocacy, research, policy, and other activities. The Chair of Long COVID Physio, Darren Brown says of this new partnership:

"*Partnerships are critical to connect and create change. Long COVID Physio is proud to officially partner with the Canadian Physiotherapy Association. We will build on our established foundations to evolve our partnership and forge new opportunities for change, in response to Long COVID in Canada and around the world.*"

Long COVID Physio has been a critical response to Long COVID, disability and rehabilitation through the dual perspectives of being Physiotherapists (Physical Therapists), and being people with lived experiences of Long COVID and episodic disability. Our executive board includes allies, many from Canada, and our constitution has been shaped by international collaborations and partnerships.

Dr Kelly O'Brien, Long COVID Physio Disability and Rehabilitation Co-Director, University of Toronto said "*the partnership between Long COVID Physio and CPA will provide an opportunity to bridge partnerships with the international Long COVID rehabilitation community, and specifically foster rapid knowledge transfer and exchange related to emerging priorities and evidence-informed safe rehabilitation approaches and interventions in the context of Long COVID rehabilitation*"

The work of Long COVID Physio crosses a wide range of areas including education, knowledge translation, advocacy, research, guidelines, and standards. Prof Simon Décary, Long COVID Physio Research Co-Director, Université de Sherbrooke, said "*In Canada, the SPOR Evidence Alliance and COVID-END knowledge synthesis networks are studying the emerging care models for Long COVID across provinces. Physiotherapists have been identified as key healthcare providers. The crux of Long COVID care is the initial multi-systemic assessment to orientate patients on the right pathways for diagnostic tests, treatments, and rehabilitation. We envision a unique primary care role for physiotherapists in complex chronic diseases and post-infectious conditions. The Long COVID Physio platform will help us reach this vision through rapid scale-up of evidence-based tools and practices in Canada.*"

An international partnership between Long COVID Physio and Fisiocamera (Italy) recently produced an educational Long COVID video series. Education and knowledge mobilisation are core pillars of Long COVID Physio. Alyssa Minor, Long COVID Physio Open Executive Member, Calgary, said "*Long COVID presents Physiotherapists in Canada an opportunity to learn about safe rehabilitation and illness management in post infectious illnesses like Long COVID and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS). For many with Long COVID, the illnesses are one and the same. Most Physiotherapists are unaware of* Post Exertional Symptom Exacerbation/Malaise *(PESE/PEM) and the harm we can cause by encouraging exertion in those presenting with this hallmark symptom. The Long COVID Physio and CPA partnership offers opportunity to support learning needs and knowledge translation for Canadian Physiotherapists, and improve standards of care for those experiencing post infectious illness like Long COVID.*"

Long COVID Physio proudly partners with World Physiotherapy and delivered the World Physiotherapy briefing paper on safe Long COVID rehabilitation, which contributes to shaping the Physiotherapy professions global response to Long COVID, and was a foundation for the World Physio Day 2021 information resources.

Jessica DeMars, Long COVID Physio Advocacy Co-Director, Breathe Well Physio Alberta, said "*Long COVID may seem new to many. Post-viral illnesses are not new, but now COVID-19 and Long COVID on our radars. We may have previously assumed that symptoms were due to "deconditioning", but it's not possible for deconditioning to explain how an athlete before COVID-19, can then in days struggle with daily activities with Long COVID, lasting for prolonged durations. Long COVID has thrust post-viral illnesses into the spotlight, and we as Physiotherapists have a vital role, if not a duty, to provide* safe Long COVID rehabilitation. ***The partnership between Long COVID Physio and CPA provides a platform to amplify knowledge and evidence-based practice regarding-post viral illnesses, Long COVID, ME/CFS, and orthostatic intolerances including POTS or dysautonomia.*** *It will be important to disseminate not only to Physiotherapists, but also the wider public, the role Physiotherapists can play in supporting and advocating for people living with Long COVID.*"

It will be important to disseminate not only to Physiotherapists, but also the wider public, the role Physiotherapists can play in supporting and advocating for people living with Long COVID

Peer support was the founding objective of Long COVID Physio, providing safe spaces for Physiotherapists, allied health and rehabilitation professionals, and students living with Long COVID, to connect, share and support each other. Cara Kaup, Long COVID Physio Peer Support Co-Director, Edmonton, said "*the partnership between Long COVID Physio and the CPA will support Physical Therapists across the country to access the latest research, education, knowledge, practical experience and peer support, that comes from living with Long COVID. Living with an invisible illness that causes* episodic disability *is extremely challenging. Physical Therapists can help patients advocate for the services they need and validate their experiences. As a paediatric physical therapist and former co-chair of the Paediatric Division of CPA, my hope is that we can provide peer-support for physical therapists in Canada living with Long COVID, share knowledge that supports the hundreds of thousands of adults in Canada living with Long COVID, and also provide education that supports children and their families who are on this journey as well.*"

If you are a Physiotherapist, allied health or rehabilitation professional, support worker or student living with Long COVID, peer support is available for you through Long COVID Physio. Long Covid Kids provides peer support for children, young adults and their families living with or affected by Long COVID. Peer support for anybody living with Long COVID is available through COVID-Long Haulers Canada and Long Covid Support.

Join us at the Long COVID Physio International Forum from September 9th-10th. The two day online forum will bring the lived experience to Long COVID, disability and rehabilitation. Learn more at https://longcovid.physio/forum

Check out CPA's 2022 Long Covid Resources here.

Darren Brown is a cis-gendered (pronouns he/him), gay, white man, of mixed English and Irish heritage, living in London UK. Darren is a clinical academic Physiotherapist specialising in HIV, disability and rehabilitation. Darren contracted COVID-19 in March 2020 with reinfection April 2022, and has experience of living with Long COVID and episodic disability. Darren is a co-founder and inaugural Chair of Long COVID Physio.

Physiotherapy, a key component to Long COVID recovery and optimal care

NATIONAL PHYSIOTHERAPY MONTH

MAY 2022

Canadian Physiotherapy Association
Association canadienne de physiothérapie

Long COVID & Physiotherapy

THINGS YOU SHOULD KNOW

What is the prevalence of Long COVID worldwide?[1]

World Health Organization estimates that approximately

10-20%

of people who develop COVID-19 will experience various mid and long-term effects as they recover

AT LEAST

10-30%

OF CLIENTS WILL CONTINUE TO HAVE SYMPTOMS

12
WEEKS

AFTER THEIR ACUTE INFECTION[2]

Long COVID symptoms[3]

Some common Long COVID symptoms include:

- extreme exhaustion or fatigue
- memory problem or difficulty concentrating
- shortness of breath
- pain in muscles, joints or the chest
- changes to smell and taste
- delayed worsening of symptoms after exertion or exercise
- sleep disturbance
- headaches, symptoms like dizziness after sitting up or standing, skin rashes, and others

What does Long COVID affect?[4]

Long COVID can affect:

- multiple body systems
- respiratory
- cardiac
- renal
- endocrine
- neurological systems

1. *World Health Organization. (2021, December). Coronavirus disease (COVID-19): Post COVID-19 Condition. Retrieved online: https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-(covid-19)-post-covid-19-condition.*
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Canadian Physiotherapy Association

Association canadienne de physiothérapie

What should physiotherapists screen for with Long COVID?[5]

Physiotherapists should screen for:

1. Post exertional symptom exacerbation
2. Cardiac impairment
3. Oxygen desaturation
4. Dysautonomia
5. Functional cognition & cognitive communication
6. Voice & swallowing
7. Hearing & Tinnitus
8. Psychological, social & spiritual considerations

How can physiotherapy help with Long COVID?[6]

Physiotherapists can support with Long COVID specific with:

1. Acute rehabilitation phase
2. Post-acute COVID-19 rehabilitation phase
3. Support for people with disabilities and or those who need immediate and episodic rehabilitation
4. Short term rehabilitation where routine care is suspended

Physiotherapists are vital to the rehabilitation efforts in intensive care units (ICUs), hospital wards, stepdown facilitates and in the community (Pan American Health Organization, 2020, Thomas et al., 2020). (p. 5)

Physiotherapy expertise is a critical partner in Long COVID support and recovery. Research has shown that their clinical expertise is vital in rehab, intensive care units, hospital wards, step-down facilities, and community care . Their care can help facilitate safe, timely hospital discharge, which may alleviate current health care system pressures.

Why are physiotherapists important to those experiencing Long COVID?[7]

Physiotherapists can help to:

- support
- empower
- Assist with self-management of rehabilitation (p.5)

How can physiotherapists help with health system planning to mitigate Long COVID?[8]

Physiotherapists can help support to strengthen the health system with pandemic recovery efforts and Long COVID care by:

Supporting rehabilitation efforts in acute phase of COVID-19 (p.1)

Being involved in the planning of service delivery at a strategic and operational level (p.1)

6 - 8 *https://world.physio/sites/default/files/2021-06/*

Canadian Physiotherapy Association

Association canadienne de physiothérapie

Responding to the Study of Labour Shortages, Working Conditions, and the Care Economy

Submission to the House of Commons Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities

The Canadian Physiotherapy Association

Summary

Over the next ten years, the growth in demand for physiotherapists in Canada will outstrip the number of new job seekers entering the profession. The labour shortage in the industry will continue to persist at a national level, and the aging population, coupled with longer life expectancy, means the demand for health professionals, including physiotherapists, physiotherapy technologists and physiotherapist assistants will sharply increase. This will result in a reduced availability of physiotherapy services, for a profession that is already experiencing burnout and exhaustion. Unfortunately, this experience for those working in the industry has been compounded by the impact of COVID-19 on the Canadian healthcare system.

The Canadian Physiotherapy Association (CPA) recommends the following:

1. **Design a targeted and comprehensive strategy** for investments in rural, remote, and northern areas to increase access to physiotherapy in under-serviced communities and people.

2. **Adopt a targeted and focused approach** to improve access to physiotherapy services, including:
   - Incentivizing physiotherapists to be recruited and retained in rural and remote areas of Canada by extending Canada Student Loan forgiveness to physiotherapy practitioners.
   - Making permanent the temporary removal of the referral requirement for coverage of physiotherapy services from the Public Service Health Care Plan (PSHCP).
   - Making strategic investments to broaden Tele-rehabilitation services in disconnected Indigenous communities and improve access and coordination of rehabilitation services for those residing in Canada's rural, remote, and northern areas.

3. **Better integrate physiotherapists** into the broader Federal health policy planning framework as a critical health system partner. This can help address current health human resource challenges caused by COVID-19 and help design a more effective and efficient inter-professional patient care solution.

About

The Canadian Physiotherapy Association (CPA) represents 17,000 physiotherapy professionals and students across Canada. The CPA's members are rehabilitation professionals dedicated to Canadians' health, mobility, and treatment of injury and disease. In partnership with provincial and territorial Branches and practice Divisions, the CPA enables members to learn, share knowledge and enhance practice. The CPA provides resources, education, ideas, and advocacy to enable our professional community to serve Canadians better.

Recommendations

As part of the CPA's mission to ensure equitable access to physiotherapy in Canada and support our members, we are committed to working with the government to address these issues in our sector. We ask the committee to consider the following recommendations.

1. **Design a targeted and comprehensive strategy** for investments in rural, remote, and northern areas to increase access to physiotherapy in underserviced communities and people.

    a. Urban areas comprise just 3.6 percent of Canada's geography and about 82 percent of the population but employ almost 90 percent of all Canada's physiotherapists. The remaining 10 percent service 90 percent of the country's landmass, and recruiting physiotherapists to these non-urban centers poses a significant challenge.[1]

    As a result, patients in these areas have reduced access to the resources necessary to meet their physical therapy needs. The trend has worsened in the wake of COVID-19, which has magnified access to care issues and existing labour shortages in rural and northern communities – particularly Indigenous populations – which have been disproportionately impacted by the ongoing pandemic.[2]

    b. Indigenous communities, especially those based in remote northern areas, have experienced a staggering increase in the burden and severity of COVID-19 illness; and continue to simultaneously contend with disruptions in health care services, including physiotherapy.[3]

    While telehealth and tele-rehabilitation have been championed as one solution to the widening gap in access to physiotherapy services for Indigenous Peoples during COVID-19, there remain significant infrastructure barriers to efficiently delivering virtual care and persistent labour shortages, which continue to limit equitable access to tele-rehabilitation services.[4]

2. **Adopt a targeted and focused approach** to improving access to physiotherapy services, including:

    a. Incentivizing physiotherapists to be recruited and retained in rural and remote areas of Canada by extending Canada Student Loan forgiveness to physiotherapy candidates. This will allow more qualified physiotherapists to join rural and remote labour markets and actively participate in those local economies while improving access to services for the local population.

    b. Making permanent the temporary removal of the referral requirement for coverage of physiotherapy services from the Public Service Health Care Plan (PSHCP). This will increase access to physiotherapy services as we recover from the pressures of the COVID-19 outbreak without placing additional administrative burdens on the health care system.[5]

    c. Making strategic investments to broaden tele-rehabilitation services in disconnected Indigenous communities and improve access and coordination of rehabilitation services for those residing in Canada's rural, remote, and northern areas.[6]

3. **Better integrate physiotherapists** into the broader Federal health policy planning framework as a critical health system partner. This can help address current health human resource challenges caused by COVID-19 and help design a more effective and efficient inter-professional patient care solution.

    a. Physiotherapists continue to be vital in providing support to Canadians during the recovery phase of the COVID-19 pandemic. As healthcare professionals who provide essential care and treatment to Canadians, enabling them to stay mobile, healthy, and active, physiotherapy professionals will see greater demand for services as Canadians recover from COVID-19 and as the impacts of delayed surgeries/treatments, reduced physical activity due to quarantine, isolation and physical restrictions are realized.[7]

    b. Physiotherapists working in the home and the community sector, including those who work as part of team-based interprofessional care services, are well-positioned to manage the symptoms of both COVID-19 and recovery and rehabilitation from variations like Long COVID. In particular, physiotherapy during COVID-19 recovery is helpful for patients, especially when weaning patients off the ventilator and physical rehabilitation.

    c. Given the critical and essential role physiotherapists continue to play in the management of COVID-19 and post-pandemic symptoms, we are

We believe it is critically important that these issues and our recommended solutions be considered, not just for the physiotherapy industry in Canada but also for Canadians' well-being and to strengthen the current healthcare system.

calling on the government to allocate targeted funding envelopes for research and design policy frameworks that incorporate integrated, interprofessional care services to better manage systems of new and emerging conditions such as long COVID-19 that are on the rise across all jurisdictions in Canada.

d. Our healthcare system is facing a growing human resource crisis with shortages[8] in critical health professions such as physiotherapy. This is especially concerning at a time when Canadians need access to physical rehabilitation services to address many ongoing issues, including the growing impact of delayed surgeries and procedures, increased general pain or discomfort and management of symptoms arising from Long COVID, as well as those who may experience long-term disability and require recovery support from Long-COVID.[9]

e. Currently, no clear or consistent national approach exists for physiotherapy graduates to achieve independent licensure to practice. With the discontinuation of the clinical component of the physiotherapy competency examination, physiotherapy regulators across the country have responded with a variation of interim solutions that have left some candidates with no path to achieving an independent license – causing entry to practice delays, escalating labour shortages and mobility bottlenecks and reducing the flow of skilled and necessary healthcare workforce personnel to rural and northern parts of the country where they are needed most.

f. As a priority, there is an urgent need to explore and implement a national approach to licensure that promotes standardization, transparency and accountability and removes the burdensome requirement of separate provincial and territorial licenses to facilitate better and more accessible delivery of physiotherapy. In addition, such an approach should seek to uphold and enable Chapter 7 provisions of the Canadian Free Trade Agreement (CFTA) and ensure a forward-looking process that commits to facilitating 'the movement of physiotherapists among all Canadian jurisdictions.'

We believe it is critically important that these issues and our recommended solutions be considered, not just for the physiotherapy industry in Canada but also for Canadians' well-being and to strengthen the current healthcare system.

The CPA is pleased to provide these recommendations to the Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities (HUMA) as it prepares recommendations to the federal government on building a robust and accessible workforce that will be better prepared for risks from COVID-19, future pandemics and supporting the care economy professionals. We look forward to continuing engagement with HUMA on these key concerns.

Contact: John-Paul Cody-Cox
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955 Green Valley Crescent, Suite 270, Ottawa, Ontario, K2C 3V4

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Responding to the Study of Canada's Health Workforce

Submission to the House of Commons Standing Committee on Health

The Canadian Physiotherapy Association

In March, the CPA provided a submission to the Standing Committee on Health (HESA) in response to their study on Canada's Health Workforce.

The HESA Committee is undertaking a study in recognition of exhaustion and burnout amongst healthcare professionals. They are exploring how the federal government can facilitate the recruitment and retention of physicians, nurses, nurse practitioners and other health care providers to the public healthcare system, including a focus on rural and northern communities.

To learn more about the work of this committee and their work underway, please see here

Executive Summary:

Recommendation # 1: the government effectively integrate physiotherapists into Canada's wider Federal health policy planning framework as a critical health system partner. This can help address current health human resource challenges caused by COVID-19 and help design a more effective and efficient interprofessional patient care solution.

Recommendation # 2: the government design a targeted and comprehensive strategy for investments in rural, remote, and northern areas to increase access to physiotherapy for underserviced communities and people.

Recommendation #3: the government adopt a targeted and focused approach to improve access to physiotherapy services, including:

- **Incentivizing physiotherapists to be recruited and retained in rural and remote areas of Canada by extending the Canada Student Loan forgiveness to physiotherapy practitioners**. This will allow more qualified physiotherapists to join rural and remote labour markets and actively participate in those local economies while improving access to services for the local population.
- **Making permanent the temporary removal of the referral requirement for coverage of physiotherapy services from the Public Service Health Care Plan (PSHCP)**. This will increase access to physiotherapy services as we recover from the pressures of the COVID-19 outbreak without placing additional administrative burdens on the health care system.
- **Making strategic investments to broaden Tele-rehabilitation services in disconnected Indigenous communities and improve access and coordination of rehabilitation services for those residing in Canada's rural, remote, and northern areas**. This will allow timely and equitable access to in-demand electronic health technologies and improve patient and healthcare outcomes for disproportionately impacted populations – such as our Northern and rural Indigenous communities.

Introduction:

The Canadian Physiotherapy Association (CPA) represents 17,000 physiotherapy professionals and students across Canada. The CPA's members are rehabilitation professionals dedicated to Canadians' health, mobility, and fitness. In partnership with provincial and territorial Branches and practice Divisions, the CPA enables members to learn, share knowledge, and enhance practice. In addition, the CPA provides resources, education, ideas, and advocacy to enable our professional community to serve Canadians better.

The CPA is pleased to provide these recommendations to the House of Commons Standing Committee as it prepares recommendations to the Federal government on building a strong, accessible, and resilient public healthcare system and workforce that will be better prepared for risks from COVID-19 and future health pandemics.

This submission will focus on **why it is important to integrate physiotherapists into the wider Federal Health Policy Framework as a critical health system partner** – and the key steps the government should take to improve access to physiotherapy care services and increase recruitment and retention of physiotherapists across Canada.

Canada's Physiotherapists and the COVID-19 Challenge:

Physiotherapists are highly trained, regulated health care practitioners with expertise in movement and play a significant role in health promotion and treatment of injury and disease. There are approximately 26,000 registered physiotherapists working in Canada in private clinics, general and rehabilitation hospitals, community health centers, residential care, assisted-living facilities, long-term care (LTC) facilities, home visit care agencies, workplaces, and schools. Through evidence-informed practice, physiotherapists prevent, assess, and treat the impacts that injury, pain, disease, and/or disorders have on clients' movement, function, and health status.

Physiotherapists play a vital part in optimizing health system performance through an increased focus on upstream solutions and redirecting patients away from costly acute health care and emergency departments toward timely, accessible, and affordable community services.

During the COVID-19 pandemic, physiotherapists safely provided care across the health system in compliance with all required infection prevention and control measures. In addition, physiotherapy care can be adapted using alternate delivery approaches, such as tele-rehabilitation/virtual rehabilitation, to manage exposure risks during pandemic restrictions and ensure patients can safely continue treatment.

The COVID-19 pandemic continues to present the profession with significant challenges, including:

- professional burnout due to systematic stress from COVID-19,
- labour mobility issues due to barriers to accessing independent licensure; arising from the unavailability of the national Physiotherapy Competency Examination (PCE) clinical component for over two years, followed by the slow adoption and varied application of interim alternative processes by provincial regulators to grant independent licenses to practitioners, a situation which has the potential to be remedied by the application of a reciprocal national licensure framework; and
- limited incentives to service high demand and high priority areas in rural and northern communities.
- prolonged licensure delays due to COVID-19, which included the slow adoption and inconsistent application of interim/alternative processes to license practitioners.

Recommendation # 1: the government better integrate physiotherapists into the wider Federal health policy planning framework as a critical health system partner. This can help address current health human resource challenges caused by COVID-19 and help design a more effective and efficient inter-professional patient care solution.

The extraordinary demands placed on the Canadian healthcare system by the COVID-19 pandemic has had a severe impact on physiotherapists who, just like many others in the healthcare community, have had to deal with severe emotional and financial burnout as they respond to an increase in patient caseloads, backlogs, and system volume pressures. However, according to a CIHI report, as many as 6,000 physiotherapists and occupational therapists recently returned to their practices to help respond to the pandemic with many supporting testing and administration of much-needed vaccines across Canada – as the healthcare community banded together to resolve the ongoing and unprecedented healthcare crisis.

As vaccination rates increase across the country and infection rates continue to decline, many hospitals have resumed non-urgent surgeries and procedures, including hip and knee replacements. This provides physiotherapists with another opportunity to support pre-and post-surgical care and patient recovery, enabling return to home function.

Physiotherapists continue to be key in providing support to Canadians during the recovery phase of the COVID-19 pandemic. As healthcare professionals who provide essential care and treatment to Canadians enabling them to stay mobile, healthy, and active, physiotherapy professionals will see greater demand for services as Canadians recover from COVID-19 and as the impacts of delayed surgeries/treatments, reduced physical activity due to quarantine, isolation and physical restrictions are realized.

Physiotherapists and Long COVID

Physiotherapists working in the home and the community sector, including those who work as part of team-based interprofessional care services, are well-positioned to manage the symptoms of both COVID-19 and recovery and rehabilitation from variations like Long COVID. In particular, physiotherapy during COVID-19 recovery is helpful for patients, especially when weaning patients off the ventilator and physical rehabilitation.

Given the critical and essential role physiotherapists continue to play in the management of COVID-19 and post-pandemic symptoms, we are calling on the government to

allocate targeted funding envelopes for research and design policy frameworks that incorporate integrated, interprofessional care services to better manage systems of new and emerging conditions such as long COVID-19 that are on the rise across all jurisdictions in Canada.

Our healthcare system is facing a growing human resource crisis with shortages in critical health professions such as physiotherapy. This is especially concerning at a time when Canadians need access to physical rehabilitation services to address many ongoing issues, including the growing impact of delayed surgeries and procedures, increased general pain or discomfort and management of symptoms arising from Long COVID, as well as those who may experience long-term disability and require recovery support from Long-COVID.

Currently, there is no clear or consistent national approach in place for physiotherapy graduates to achieve independent licensure to practice. With the discontinuation of the clinical component of the physiotherapy competency examination, physiotherapy regulators across the country have responded with a variation of interim solutions that have left some candidates with no path to achieving an independent license – causing entry to practice delays, escalating labour shortages and mobility bottlenecks and reducing the flow of skilled and necessary healthcare workforce personnel to rural and northern parts of the country where they are needed most.

As a priority, there is an urgent need to explore and implement a national approach to licensure that promotes standardization, transparency and accountability and removes the burdensome requirement of separate provincial and territorial licenses to facilitate better and more accessible delivery of physiotherapy. In addition, such an approach should seek to uphold and enable Chapter 7 provisions of the Canadian Free Trade Agreement (CFTA) and ensure a forward-looking process that commits to facilitating 'the movement of physiotherapists among all Canadian jurisdictions.'

Recommendation # 2: the government design a targeted and comprehensive strategy for investments in rural, remote, and northern areas to increase access to physiotherapy in underserviced communities and people.

Urban areas comprise just 3.6 percent of Canada's geography and about 82 percent of the population but employ almost 90 percent of all Canada's physiotherapists. The remaining 10 percent service 90 percent of the country's landmass, and recruiting physiotherapists to these non-urban centers poses a significant challenge. As a result, patients in these areas have reduced access to the resources necessary to meet their physical therapy needs. The trend has worsened in the wake of COVID-19, which has magnified access to care issues and existing labour shortages in rural and northern communities – particularly Indigenous populations - which have been disproportionately impacted by the ongoing pandemic.

Indigenous communities, especially those based in remote northern areas, have experienced a staggering increase in burden and severity of COVID-19 illness; and continue to simultaneously contend with disruptions in health care services, including physiotherapy. While telehealth and tele-rehabilitation have been championed as one solution to the widening gap in access to physiotherapy services for Indigenous Peoples during COVID-19, there remain significant infrastructure barriers to efficiently delivering virtual care and persistent labour shortages, which continue to limit equitable access to tele-rehabilitation services.

Recommendation # 3 the government should adopt a targeted and focused approach to improve access to physiotherapy services, including:

- **Incentivizing physiotherapists to be recruited and retained in rural and remote areas of Canada by extending Canada Student Loan forgiveness to physiotherapy practitioners**. This will allow more qualified physiotherapists to join rural and remote labour markets and actively participate in those local economies while improving access to services for the local population.

- **Making permanent the temporary removal of the referral requirement for coverage of physiotherapy services from the Public Service Health Care Plan (PSHCP).** This will increase access to physiotherapy services as we recover from the pressures of the COVID-19 outbreak without placing additional administrative burdens on the health care system.

- **Making strategic investments to broaden Tele-rehabilitation services in disconnected Indigenous communities and improve access and coordination of rehabilitation services for those residing in Canada's rural, remote, and northern areas**. This will allow for timely and equitable access to in-demand electronic health technologies and improve patient and healthcare outcomes for the disproportionately impacted populations – such as our Northern and rural Indigenous communities.

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Necessity for professional debate to be informed by evidence

Dr Alison Rushton
Dr Joy C. MacDermid

During the COVID-19 pandemic, Canadian physiotherapy (PT) practice and licensure processes have been challenged to re-evaluate how we do things so we can adapt to public health directives. The failure to deliver a licensure objective structured clinical examination (OSCE) during the pandemic illustrates the need for evidence-informed policy and highlights the complexities to achieve this in unstable times. In response to that challenge, we conducted a systematic review and meta-analysis that was published in PLOS ONE[2] and summarized the studies addressing the measurement properties of licensure OSCE in PT and the licensure practices of other countries. The response to the review has, both in academic (PLOS ONE commentaries) and social media (e.g. Twitter) illustrated varied perspectives, barriers to the use of evidence and the culture of scientific discourse. This editorial addresses two issues. First, we argue that the processes and content of the critiques of our systematic review and meta-analysis were flawed. Second, we argue that the nature of the discourse surrounding our research is negative for the profession, and instead should be seeking evidence to inform policy rather than systematically undermining it.

We cannot argue in 2021 that evidence-informed policy and practice are new. Twenty-five years ago, it was argued that research evidence was essential to the credibility, validation, and growth of PT as a profession.[11] It was beyond the scope of our review to dictate policy, and over the course of conducting our review, we presumed that regulators use evidence and processes of consultation to inform decisions. The purpose of our review was solely to provide the evidence to contribute to evidence-informed professional debate and decision-making.

Flawed critiques of our published systematic review and meta-analysis

We will focus on two major critiques of our systematic review which form the basis of the response from key players in licensure, noting that our publication and these two formal critiques had many reverberations in

social media and public forums. One response posted on the PLOS ONE website in response to our publication provided a long discussion of licensure but chose not to address the science of study, so its purpose, relevance and contributions to scientific discourse were unclear. Key stakeholders seemed to misinterpret our intention of conducting a systematic review stating that we were 'opposing the OSCE requirements set by provincial/territorial regulators in Canada'. This was not the premise of why we reviewed the measurement studies or the standard practices from regulators outside of Canada. This criticism infers bias in the review which is unfounded. More importantly, tangential issues can deflect attention from the scientific findings. A study cannot be criticized for not doing something that it did not intend to do. This highlights the importance of clear research objectives and evaluation of research based on those objectives. In fact, the purpose of a systematic review process is to remove bias from the literature synthesis. Our review concluded that the evidence was insufficient to support the reliability and validity of the licensure OSCE, and that Canada (except Quebec) was an outlier in requiring this since other countries do not require an OCSE for PT licensure.

A consultant was requested by a provincial regulator to provide an "independent assessment" of our review.[5] This was posted on college websites, tweeted by regulators, and posted at PLOS ONE to question the validity of our review. Recruiting expert opinion (lowest level of evidence in the hierarchy of evidence[1] to critique a peer-reviewed systematic review and meta-analysis (highest level of evidence) is not logical and indicates resistance to evidence-based practice. Moreover, the nature of the issues raised in the report suggested the appraisal was either ill-informed or biased. The consultant employed 10 simple rules used for carrying out and writing a meta-analysis[6] as a framework for their critique and an outdated text[15], rather than the AMSTAR-2 checklist; the gold standard for evaluating systematic reviews.[13] While our meta-analysis fully adhered to the 10 rules (not acknowledged) our study adhered to the more rigorous guidelines for reporting systematic reviews[10], central to AMSTAR-2. The consultant suggested ignoring the six published studies that met eligibility criteria as they do not pertain to the Canadian licensing exam and advocated reliance solely on a non-peer-reviewed report. This critique is contrary to systematic review methods, where the inclusion of published peer-reviewed evidence is fundamental.

Probably the most difficult to comprehend critique of our review was the consultant's identification of the limitations in the included body of literature, for example, sample sizes. In the review, we acknowledged this and other limitations of included studies, and their implications for interpreting the body of evidence, for example, the implications of low sample sizes on precision of estimates illustrated by reported 95% confidence intervals. Most importantly, it was not acknowledged by the consultant that the lack of precision did not undermine the review's conclusion of insufficient evidence to support the use of the OSCE; with the results of our sensitivity analysis supporting the robustness of the results. In the absence of a large contradictory low risk of bias peer-reviewed study, any problems with the existing literature only strengthens our conclusions; highlighting that the existing evidence is insufficient. In addition, the consultant did not acknowledge at any point in their critique that licensure as a high-stakes decision, requires a higher level of reliability and classification accuracy than examinations used in combination with a range of other assessment methods to assess student performance within educational programs. The fact that after decades of using the Canadian Alliance of Physiotherapy Regulators (CAPR) OSCE for high-stakes decisions, the evidence was so sparse and unsupportive is concerning since during this time independent assessment of examination tools, specifically independent of their developers, could have been implemented; and if published, this evidence would have been available for inclusion in our review. We invite readers to see MacDermid et al (2021) for a full response to the requested critique of our review which outlines how all of the points raised by the consultant were either flawed or did not undermine our conclusions. The critique does not advance our understanding and combined with negatively fuelled social media, is not beneficial to PT in Canada. The nature of a requested critique to undermine the highest level of evidence is fundamentally flawed and quite atypical.

Evidence should underpin policy and decisions

As researchers we were surprised to be accused of conflict of interest and to have organized efforts to undermine a peer-reviewed paper. This organized attack on research evidence does nothing to support the quality of PT evidence to underpin policy and decisions. Further, the poor quality of the scientific discourse on our paper generated negative social media responses from within and outside the profession that also undermines confidence in PT as an evidence-informed profession; and we are concerned that this may discourage young researchers to engage in research careers. Sadly, it was recently acknowledged[12] that decisions (policy and patient management) rarely reflect the evidence from research. In particular, the consultant's critique of our infographic for lay format communication of the review's results was disappointing, considering that a knowledge translation approach is essential. An infographic should not be a 'surprise…and quite outside of scholarly research practices.' The consultant suggested 'that the authors may be conducting an advocacy campaign to discontinue the CAPR OSCE as a licensure requirement.' This has no basis and is untrue. Our intention was to benefit the profession in providing evidence on a timely topic. An infographic

is a common and contemporary lay format to disseminate research findings to enable the use of evidence,[8] and not an indication of bias. Our choice to publish in an open access well-regarded journal with an impact factor of 3.24 was for efficient review and to enable easy access to findings to inform policy and decisions. However, the consultant critique devoted a section questioning publication in an open access journal rather than a 'traditional journal', to undermine the work by attempting to discredit the journal it was published in. The assertion that our adherence to requirements from many funding bodies and universities to use open access journals to improve accessibility of results, illustrates a lack of knowledge of contemporary publication standards.

We welcome critique and discussion of our review to inform academic debate. Evidence should be a starting point for informing policy decisions. Therefore, we did not state any opinions or recommendations about what future licensure should look like. We simply reported the data that current practices were not well-supported. However, the fact that some key leaders in our PT community requested a seemingly unbalanced report to counter a systematic review is not positive for the profession, nor does it support evidence-informed policy. Rather it is reminiscent of previous examples of ad hominem - the public attack on the credibility of researchers to discredit research findings perceived as inconvenient[4] and distract attention (with a concerning negative social media focus on the lead author who is an early career researcher). It is widely accepted that decision-making and policy should be based on evidence,[3] but discourse on our study has highlighted that having good research evidence available, with a clear message that has undergone peer-review does not ensure that it will be discussed and acted upon. Positively, multiple critiques and a commissioned report have not challenged our review's conclusions which we hope will now inform purposeful discussion to consider the implications of our evidence synthesis for future decisions. The mobilization of the PT profession around this licensure debate is critical and this discourse illustrates the complexity of knowledge translation,[14,7] to determine how to improve evidence-informed decision-making[12] and policy for PT in Canada. As the profession moves to resolve the OSCE issue, we reflect on the role of our systematic review. We believe it stimulated discussions and served as a call to action on the specific topic of evidence-informed licensure policies. However, we also believe it revealed challenges in how we can more efficiently implement evidence informed policy and engage in appropriate evidence-informed discourse on social media and in other communication channels.

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Alison is a physical therapist, musculoskeletal specialist and researcher in musculoskeletal rehabilitation sciences; and a Professor and the Director of the School of Physical Therapy at Western University. She has published > 200 peer-reviewed publications (H-index=34;>3500 citations). She is Co-Director of Precision Spine Rehabilitation research at Western University, Lead for Educational Research within the School of Physical Therapy, past Chair of the Standards Committee for the International Federation of Orthopaedic Manipulative Physical Therapists (2004-2020), and on the Editorial Board of the Musculoskeletal Science and Practice journal.

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Joy is a physical therapist, hand therapist and epidemiologist; and a Professor and The Dr James Roth Chair in Musculoskeletal Measurement and Knowledge Translation (KT) appointed in Physical Therapy and Surgery at Western University. She has published > 500 peer-reviewed publications (H-index=88; >30K citations). She is the Editor-in Chief for the Journal of Hand Therapy, Co-director of Clinical Research at The Hand and Upper Limb Centre in London Ontario and a Lifetime member of the Canadian and American Hand Therapy societies.

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Understanding Our Membership

2022 is a year of getting to understand our membership. Like many organizations, the CPA has acquired a data-driven mindset, to gain valuable member insights allowing us to serve you better.

Why are we collecting your feedback and tracking analytic trends? The CPA uses your feedback from surveys to add CPA member benefits and to lobby and equip the federal government with key data to guide operations. We also monitor analytic data from our communications, which allows us to understand what information is important to the members, without the need to survey. The data collected is fundamental to our planning and delivery. You can learn more about how your survey data was used to guide decision-making from this webinar, presented at the CPA Virtual Summit in 2021.

The CPA Membership Survey Each year in January the CPA undertakes the CPA Membership Survey, this is the members best chance to feedback on the CPA's performance, benefits and future plans. This year, we had a sample size that represented a 95% confidence to our membership. The survey results are now being compiled and will be shared by the fall.

What we currently know about the CPA Membership We know that over 70% of CPA members are female with an average age of 39 years. When comparing our members to other medical professionals such as doctors we have a significantly younger audience and that we are much less gender diverse. Our audience is largely representative of the Canadian population in diversity and location, with a large majority of members living in Ontario, Quebec and British Columbia. We've seen a growth in our French speaking audience over the last year and are expanding our services to ensure we are more inclusive to all audiences. This includes simultaneously translating our CPA Congress 2021 and 2022 sessions as well as putting on educational webinars in French.

CPA Member Locations

AB	**13%**	NU	**0.04%**
BC	**18%**	ON	**36%**
MB	**4%**	PEI	**1%**
NB	**2%**	QC	**15%**
NL	**2%**	SK	**4%**
NS	**4%**	YT	**0.28%**
NT	**0.10%**	Outside of Canada	**0.34%**

Respondent Sex

(Survey vs Membership vs Physicians)

	Survey	CPA Membership
Female	75.22	71.7%
Male	23.42	27.14%
Other/Prefer Not to say	1.36%	1.16%

Average Age of the CPA Member
39 years

Average Age of a Canadian Physician
49 years

	CPA Membership	Physicians in Canada*
Female	71.7%	44%
Male	27.14%	56%

*CIHI Data 2020: A profile of a physician in Canada 2020

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Thank you to our partners Johnson Insurance for their sponsorship of this year's membership survey and for their gifts to four lucky winners.

An Interview with Enid Graham Award Winner 2021 Carol Kennedy

The CPA is honoured to announce Carol Kennedy as the recipient of the 2021 Enid Graham Memorial Lecture Award. The Enid Graham Memorial Lecture Award is the most prestigious award that the CPA bestows on a member. Established in 1980 to honour Enid Graham, the founder of the CPA (formerly known as the Canadian Association of Massage and Remedial Gymnastics), the award honours a member of the CPA who has provided outstanding leadership and made a distinguished contribution to the profession. Ms. Kennedy's years of dedication to furthering the field of manual therapy nationally and internationally with the development of standards, courses and graduate programs and the mentoring of hundreds of physical therapists have made her the perfect recipient for this prestigious award.

We had the opportunity to ask Carol some questions about her impactful career as a Physiotherapist. Here is what she had to say:

What is your proudest accomplishment? My proudest accomplishment was getting the Graduate Certificate of Orthopaedic Musculoskeletal Physical Therapy (GCOMPT) program up and running at UBC. GCOMPT is an advanced musculoskeletal post-professional program that is accredited to the standard of the International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT). This was a very long process, and the program went through several iterations before we settled on something that we thought would work for UBC and be distinct from other similar programs across Canada. I had a lot of help in this process, particularly from Jan Lowcock and Alex Scott, but also the support of the National Orthopaedic Division (NOD), Canadian Academy of Manipulative Physiotherapy (CAMPT), UBC and the amazing instructors that I have drawn on to teach in their area of expertise. We are currently seeing the third cohort enter their research project phase and will be admitting the fourth cohort this fall. I am so proud of this group of learners who have excelled in this intensive program and are now thriving as credentialed FCAMPT physiotherapists.

What is your favourite memory in this profession? This will sound odd, but I am going to say the Treloar Physiotherapy Clinic explosion. It isn't a 'favourite' memory, far from it, but certainly the most memorable event in my career.

In the middle of the night on February 13, 2008, an arsonist broke into the restaurant on the ground floor of the building where our clinic was located. He covered everything with accelerant and the match he lit created a huge explosion and fire. The whole first floor was destroyed, the elevator doors buckled and the furniture from the Starbucks was blown across the street. Some glass windows in the hotel across the street were shattered.

A couple of days later, we donned hazmat suits and gas masks and climbed five flights to retrieve the computers and charts we needed to set up a satellite clinic. For the next three months, the clinic headquarters was in the Treloar's dining room, and we provided treatment at more than 15 locations throughout the city.

It was such a challenging time for me, both as a clinic partner and a clinician. I was inspired by the resilience

The building where Carol's clinic was located, which suffered an explosion in 2008.

of everyone in our organization and by the generosity and compassion of our competitors who lent us space and equipment so we could continue to operate. Many people were astonished by our competitors' support, but I believe it reflects the strength of our local physiotherapy community. I like to think that we had supported the community over the years and so they stepped up for us when we needed it. It was wonderful to experience the reciprocity of community support.

The clinic survived, we survived, and we were able to keep our staff working so they could pay their rents/mortgages! I think we were a step ahead when years later we faced a new challenge with Covid!

Do you have a motto? Early in the Pandemic Dr. Bonnie Henry became a bit of a hero in BC and for me personally. At that time, I adopted her motto, "be kind, be calm, be safe". I used this motto to sign off many of the clinic emails sent to our staff during the early days of the pandemic. I also modified it as: "be kind, be calm, be strong", when the pandemic dragged on, and I wanted to encourage our team to continue to provide excellent care even in very tough times!

What do you love most about the physiotherapy profession? Being a physiotherapist provides you with a multitude of options with many different pathways along which to progress and develop. Also, you can have a rewarding career and still maintain a healthy work-life balance. The physiotherapy profession offers both the opportunity and obligation to help patients to realize their optimal functional potential and achieve a higher quality of life.

I personally had great difficulty choosing a single path, but I found there was room and opportunity to work in several areas and I was able to continue to treat patients, be an entrepreneur, teach continuing education courses, instruct in entry-level and post-professional university-based programs, participate in research projects, and still drive my kids to field trips at school! I believe that this diversity kept my interest and is why I love my chosen profession to this day.

What are some career highlights?

- Working with football, hockey, and basketball teams as a new grad sport physio
- Moving to BC to attend the first 'Three Month Course' (full-time course leading to FCAMPT credentialing) what I learned, mentors I developed, friends I made … all of these things shaped the course of my physiotherapy career
- Being the IFOMPT representative for Canada – I was young, and this was an amazing opportunity!
- Instructing: Advanced Integrated Musculoskeletal (AIM) Program (NOD), speciality cervical spine courses, UBC entry-level program, GCOMPT
- Being chief examiner and later chair for the AIM Program
- Clinic owner/partner – Treloar Physiotherapy Clinic, Vancouver
- Participating in Research (mostly Knowledge Translation): e.g., C Spine Rule Project 2011-2017. Belot M, . Hoens A, Kennedy C, Li L; Does Every Patient Require Imaging after Cervical Spine Trauma? A Knowledge Translation Project to Support Evidence-Informed Practice for Physiotherapists. Physiotherapy Canada 2017; 69(4):280-289. Received the Silver Quill Award
- Developing Tendinopathy Toolkits
- Receiving: Physiotherapy Association of BC (PABC) Award of Excellence: Clinical Contribution (Cervical Spine) / 'Golden Hands' Award / CAMPT Lifetime Membership / PABC Lifetime Accomplishment
- Enid Graham Lecturer

There are some things that just aren't available in books or on a webinar, things that you must see in action, so you need someone that you can go to with questions that come up during your shift where you would benefit from a viewpoint of someone with experience.

What is the biggest challenge you see in this industry?
Currently, I feel that an important challenge for this profession is determining how to balance the art and science of physiotherapy. Certainly, it is important to integrate the evidence as best we can, and I have attempted to do this throughout my career. But we need to accomplish this without losing sight of the gaps in the available science that demand that we be more innovative and view the patient as a unique and complex person not a simple subject in a very controlled RCT.

We need to develop comprehensive clinical reasoning frameworks in which we can use our clinical expertise to apply the current best evidence to determine the best approach for managing the patient before us with their specific context of beliefs and preferences.

A quote from Gwen Jull at IFOMPT in 2012 stated: "The advantage of a clinical reasoning approach is that it is responsive to new knowledge and evidence, is flexible and allows for change and growth." Things do not need to be so black and white. Instead, we can finesse the approach to fit the patient with all the influences (e.g., psychosocial aspects) and co-morbidities that are part of their clinical picture and constantly draw from the everchanging evidence and utilize clinical experience where there is no or inconsistent evidence to follow.

What is your advice for new therapists?
1. Get involved. This can take several forms: small committee volunteer work, Teaching Assistant at the university, a physio association committee, or an in-clinic committee (education, social). You will gain as much from the experience as others will gain from your work. Small or large in terms of the number of volunteer hours doesn't really matter, it is more about the experience.

2. Find a good mentor. This may require several people for different aspects of your development – clinical skills acquisition, skills needed to develop a therapeutic alliance, clinical reasoning, business acumen. There are some things that just aren't available in books or on a webinar, things that you must see in action, so you need someone that you can go to with questions that come up during your shift where you would benefit from a viewpoint of someone with experience. If possible, cultivate mentors in your workplace so they are easily accessible, but for very specific aspects you may need to look further afield. Then turn around and give back as a mentor for others. Return the favour. You will also learn and develop from the questions your mentee asks you.

Carol Kennedy BScPT, MClSc (manip), FCAMPT, Clinical Specialist (MSK), Senior Instructor - Examiner | National Orthopaedic Division (AIM), Clinical Associate Professor | Faculty of Medicine | Department of Physical Therapy, The University of British Columbia | Vancouver Campus

Carol Kennedy graduated with a BScPT from Queen's University in 1979, completed her Advanced Diploma of Orthopaedic and Manipulative Therapy in 1984 and then her Clinical Master of Science in Manipulative Therapy from UWO in 2010. She has practised at Treloar Physiotherapy Clinic since 1984, became a partner in 1989 and retired from that position in 2022.
She has taught extensively in the Canadian Manual Therapy Course System, now referred to as the Advanced Integrated Musculoskeletal (AIM) physiotherapy program, as well as internationally and also developed and teaches specialized courses on cervical spine management. Carol was deeply involved in the establishment of the Graduate Certificate of Orthopaedic Musculoskeletal Physical Therapy (GCOMPT) advanced post-professional program at UBC and has been the Lead Instructor and Program Coordinator from its inception in 2017 until 2021. She has been an Examiner for the National AIM Program since 1990 and served as Chief Examiner and Chair of that committee for 18 years.
In 2005, Carol received an Award of Excellence for Clinical Contribution from the Physiotherapy Association of British Columbia for her work and teaching in the area of the cervical spine and in 2010, the Ruth Byman Award for continuing studies in professional development. In 2012, Carol was one of the first physiotherapists to successfully complete the Specialization Program through the Canadian Physiotherapy Association in the field of Musculoskeletal Physiotherapy and certified as an assessor for that process. In 2015, Carol received the Golden Hands Award, given to "an exceptional orthopaedic physio that exemplifies the commitment to our profession in manual therapy, education, mentorship & research".

Advanced Practice Physiotherapy in Neurology in Canada

Dr. Venkadesan Rajendran and Dr. Deepa Jeevanantham

There is significant disagreement on the definition of "advanced practice"[1] This is primarily due to existing policies surrounding the roles and responsibilities, which were developed based on specific institutional needs[1] and have not been updated to support the advancement of the physiotherapy profession, emerging innovations, or extended scope of practice. Evidence supports the effectiveness of advanced physiotherapy practice (APP) at improving quality of patient care, patient satisfaction, and health care costs in other areas of clinical practice including orthopedics, women's health, and emergency care.[2-4] The roles and responsibilities of APP in neurology are well established in the UK. While APP roles and selection criteria are currently practiced in orthopedics, the roles of APP in other areas including neurology and physiatry, are not currently implemented in Canada. There is a shortage of neurologists and physiatrists in Canada, especially in remote areas. Therefore, we believe APP roles should be extended to neurology when the physiotherapist has advanced education to create greater opportunities for innovation. The objective of this article is to provide our insight into the potential role of APP in neurology and physiatry in Canada.

Four Pillars of APP

The World Confederation of Physical Therapy (WCPT) and the World Physiotherapy European region describes four pillars of advanced physiotherapy practice: clinical practice, professional leadership, education beyond entry-level, and involvement in research.[5] These four domains are highlighted in the clinical specialist certification program developed by the Canadian Physiotherapy Association (CPA).[6]

While APP may be achieved by completing a master's-level university program in England and other countries,[7] a physiotherapy master's program in Canada is a two-year, entry-level program and is not considered an advanced degree in physiotherapy.[10] Alternatively, a clinical specialist certification in neurosciences from the CPA, a graduate certificate in stroke rehabilitation from the University of Alberta, or a research-based master's or doctoral program may be considered for APP in neurology when the APP role involves no role substitution. However, APP in neurology that include role substitution must complete a specialized clinical training program or certification to gain the knowledge needed to perform such roles (e.g., EMG/NCV training, MRI course, etc.) and meet provincial regulatory requirements. Table 1 delineates a few examples of APP roles in neurology.

In the United States, physical therapists (PTs) certified by the American Board of Physical Therapy Specialties in clinical electrophysiology are qualified to provide services involving EMG, nerve conduction velocity (NCV), and sensory evoked potentials (SEP) without physician supervision when these services are permissible by state law.[8] However, no formal education on EMG or NCV is available in Canada for physiotherapists. Therefore, a formal training program is needed to establish the role of APP in EMG and NCV techniques.

APP Roles in Neurology, Physiatry, and Inpatient Stroke

The Saskatchewan Physical Therapy Advisory Committee identified the following areas where APP roles in neurology and physiatry can be established to improve patient care: prescribing and applying orthotics, prosthetics, and advanced mobility aids; ordering diagnostic imaging including ultrasound imaging, radiographs, and bone scans; applying and/or prescribing EMG and nerve conduction studies; and/or referral to specialists.[9]

The roles of APP in inpatient stroke and neurology are well established in the UK.[10] Given the shortage of neurologists and physiatrists in Canada, models of APP in inpatient stroke and neurology that are currently practised in England can be adapted to establish the roles of APP in neurology using the clinical specialist certification framework developed by the CPA.

Table 1: Examples of Advanced Practice Roles in Neurology

	Activities/roles
APP in neurology without role substitution	1. Working in a specialized Neurology unit using advanced skills and critical thinking 2. Active involvement in research and development 3. Active involvement in knowledge translation 4. Triaging acute stroke patients/patients with neurological conditions for rehabilitation
APP in neurology with role substitution	**Working in a specialized clinical environment under medical directives to perform the following:** 1. Ordering and interpreting diagnostic imaging 2. Injecting medication (e.g., Botulinum toxin) 3. Applying EMG and NCV

Advanced physiotherapy practice in neurology roles are emerging

To our knowledge, Health Sciences North (HSN) is the first academic teaching hospital in Canada that considered advancement of the physiotherapy profession and used the WCPT's and CPA's clinical specialty certification framework to establish the roles of APP in neurology without including role substitution but with a focus on research and development. HSN's 2019–2024 strategic plan focuses on five key goals: being patient and family-focused, being digitally enabled, being socially accountable, supporting and developing our community, and strengthening academic and research impact. The roles outlined in HSN's APP job posting align with HSN's strategic plan (namely, strengthening academic and research impact), and the posting addressed the four pillars of APP. For example, the job posting outlined a clinical specialist in neurology certification from the CPA and a research-based master's or PhD as a requirement to meet "education beyond entry-level." The APP in neurology at HSN is required to assume the roles of research and development in addition to the clinical role.[11] This is an appreciable initiative by HSN that aims to strengthen a culture of research into clinical practice, improve knowledge translation activities, and improve overall care for stroke patients.

Call to Action

APP in neurology roles are emerging, and the CPA should take action by collaborating with regulatory bodies to develop models for extended scope of practice in neurology and to assist in the implementation of APP in neurology across Canada

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ACCESSING CENTRE FOR EXPERTISE

Mapping the Impacts of the COVID-19 Pandemic on Physiotherapy: Rapid Review and Targeted Scan Findings

ACCESSING CENTRE FOR EXPERTISE

15 August 2021

About ACE

The mission of the Accessing Centre for Expertise (ACE) is to make it easier for a diverse range of health organizations and stakeholders to connect with academic researchers and graduate students representing multidisciplinary health services, systems and policy expertise. ACE is led by researchers who hold faculty appointments in Canadian universities including the Institute of Health Policy, Management and Evaluation in the Dalla Lana School of Public Health at the University of Toronto.

About this Report

ACE was commissioned by the Canadian Physiotherapy Association to prepare this report on the impacts of the COVID-19 pandemic on the physiotherapy profession in Canada. The views expressed in this report are those of ACE and its authors and do not necessarily reflect those of the Canadian Physiotherapy Association.

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ACCESSING CENTRE FOR EXPERTISE

Mapping the Impacts of the COVID-19 Pandemic on Physiotherapy: Rapid Review and Targeted Scan Findings

Table of Contents

Executive Summary **3**

1. Introduction **4**

2. Approach **4**

3. Findings **5**

3.1 Descriptive Results 5

3.2 Article Mapping 7

3.3 Summary of Findings for Key Populations/Topics 8

3.3.1 Population: Practicing Physiotherapists 8

3.3.2 Population: Physiotherapy Trainees 8

3.3.3 Population: COVID Patients, Long-COVID Patients, and Non-COVID Patients 10

3.3.4 Topic Area: Organization and System Issues 11

4. Conclusion **12**

5. References **13**

Appendix A: Search Strategies **18**

Appendix B: Targeted Scan Organizations **19**

Appendix C1: Rapid Review Results *(Empirical Articles)* **22**

Appendix C2: Rapid Review Results *(Review Articles)* **27**

Appendix C3: Rapid Review Results *(Other Articles)* **30**

ACCESSING CENTRE FOR EXPERTISE

Mapping the Impacts of the COVID-19 Pandemic on Physiotherapy: Rapid Review and Targeted Scan Findings

Executive Summary

The Canadian Physiotherapy Association (CPA) commissioned the Accessing Centre for Expertise (ACE) to conduct (1) a rapid review of research evidence and targeted scan of relevant organizations to map the various impacts of COVID-19 on physiotherapy and (2) a survey of physiotherapy employers across Canada to assess the impacts of the pandemic on physiotherapists. This report focuses on the rapid review and targeted scan findings (the survey findings are reported separately).

- We searched traditional academic databases, as well as structured searches of web search engines, to identify articles on physiotherapy and COVID-19 in high-income countries.
- Our search yielded 817 results (after de-duplication); with 107 articles included in our final review (after title and abstract screening and full text review).
- The targeted scan included 44 organizations, of which 12 contained readily available information regarding physiotherapy training and licensure.
- Of the 107 rapid review articles, there were 45 empirical studies, 28 literature reviews, and 34 commentaries, editorials, and letters published in 19 countries or internationally.
- Articles were coded to five specific populations, including (a) practicing physiotherapists (n=19), (b) physiotherapist trainees (n=11), (c) COVID patients (n=45), (d) long-COVID patients (n=4), and (e) non-COVID patients (n=32).
- Articles were also coded inductively to eight topic areas, including (a) role of physiotherapists in the care of COVID and post-COVID patients (n=43), (b) telehealth/telerehabilitation (n=32), (c) organizational and system issues (n=13), (d) physiotherapy training (n=13), (e) guidelines for physiotherapy care during the pandemic (n=6), (f) future of physiotherapy beyond the pandemic (n=5), (g) access to physiotherapy for non-COVID patients (n=4), and (h) psychosocial and experiential issues for physiotherapists and trainees (n=4).
- Given the project timeline, we targeted our review synthesis on three priority areas determined with CPA:
  - **Practicing physiotherapists and trainees**: Practicing physiotherapists reported a number of psychosocial challenges during the pandemic; another major topic in the literature was physiotherapists' use of and attitudes towards telehealth strategies to deliver care remotely; physiotherapist trainees faced a number of challenges, including fear and worry about the future and a loss of clinical and research opportunities; results of the targeted scan were scant regarding temporary or provisional licensure, clinical experience for trainees, clinical exams, and class and lab considerations.
  - **COVID patients, long-COVID patients, and non-COVID patients**: Many articles discussed the role of physiotherapy in the care of patients with COVID-19 and in recovery; these articles were favourable and suggested an important role for physiotherapists; for non-COVID patients, access to physiotherapy and continuity of care via telehealth was the main topic area.
  - **Organizational and system issues**: A number of organizational or system barriers and challenges were highlighted in the literature; some articles considered the effects of the pandemic on physiotherapy practice beyond COVID; a number of needs and recommendations were highlighted in the literature regarding staffing, workforce planning, safety, and patient discharge.

In a relatively short period of time (~18 months), an impressive amount of research literature on COVID and physiotherapy has been published. ACE has provided a high-level overview of this literature, a navigable annotated bibliographic database (supplementary Excel file) of all articles reviewed (sortable by jurisdiction, population, topic area and study type) as well as PDF copies of each article in a cloud folder.

ACCESSING CENTRE FOR EXPERTISE

Mapping the Impacts of the COVID-19 Pandemic on Physiotherapy: Rapid Review and Targeted Scan Findings

1. Introduction

The Accessing Centre for Expertise (ACE) is pleased to submit this report to the Canadian Physiotherapy Association (CPA) on the assessment of a range of impacts of the COVID-19 pandemic on the physiotherapy profession in Canada. CPA commissioned ACE to conduct (1) a rapid review of research evidence and targeted scan of relevant organizations to map the various impacts of COVID-19 on physiotherapy and (2) a survey of physiotherapy employers across Canada to assess the impacts of the pandemic on physiotherapists. This report focuses on the rapid review and targeted scan findings. The survey findings are reported separately.

2. Approach

ACE provides evidence-informed policy guidance to a range of health sector stakeholder organizations. We focus on policy and system level questions and apply a broad conceptualization of evidence to our work. We conceptualize evidence based on an adaptation of a U.S. Centers for Disease Control and Prevention (CDC) framework, which considers three types of evidence: research evidence, contextual evidence, and experiential evidence.[1] **Research evidence** includes the best available scientifically produced research that is typically published in peer-reviewed academic journals, original research such as surveys or analyses of existing quantitative data sets, and systematic reviews or other types of knowledge synthesis of published research. **Contextual evidence** includes available practice, demographic, geographic and economic data as well as reports and other grey literature produced by a wide range of organizations with particular jurisdictional, practice or policy relevance. **Experiential evidence** includes knowledge and experience gathered from key stakeholders and a range of local and global experts. ACE strongly supports the role of research evidence as a critical and necessary part of most policy processes, but acknowledges that it is, by itself, insufficient to inform policy. We believe our approach to conceptualizing evidence provides a broad and comprehensive overview of areas of impact on the physiotherapy profession due to the COVID-19 pandemic.

Given the tight timelines for this project, traditional forms of evidence review (e.g., systematic review, scoping review) are not feasible. Rather, we used a rapid review methodology[2] to identify and map the scholarly and grey literatures to address the review question: **what are the impacts of the COVID-19 pandemic on the physiotherapy profession?**

We searched two databases, including MEDLINE and CINAHL, as well as structured searches of Google Scholar and Google. The use of broad search terms was employed to capture the range of possible impacts of the pandemic on physiotherapy as documented in the published and grey literatures (see **Appendix A** for detailed search strategies). We included any type of article that reported on empirical studies, literature reviews, or commentaries/editorials, but excluded study protocols, conference abstracts, books, and news articles. We did not limit our search by language or jurisdiction, but prioritized articles published in English or French and high-income countries as defined by the World Bank.[3] Articles were eligible for inclusion if they addressed both physiotherapy and COVID-19.

Search results were exported to and managed in a Microsoft Excel database. Screening and reviewing were conducted by one researcher due to time constraints. Titles and abstracts were screened for

relevance. Full-text of sources flagged for possible inclusion were subsequently collected (where available) and were reviewed. Overall, we identified 938 articles, of which 817 were unique. Of the 817 articles, 170 were flagged and 129 were available for full-text review. Of these, we included a final set of 107 in the rapid review. **Table 1** provides an overview of search results, screening, reviewing, and the final number of included sources.

Table 1. Rapid Review Results

Source	Search Results		Flagged at Title/ Abstract Screen	Full-Text Reviewed	Final Articles Included in Review
MEDLINE	418	623*	129	97	80
CINAHL	270				
Google Scholar	150	94**	37	28	15
Google	100	100	4	4	1
Targeted Scan	NA	NA	NA	NA	11
Total	**938**	**817**	**170**	**129**	**107**

*65 duplicates removed; **56 duplicates removed across 3 different searches

Complementing the rapid review, we also conducted a targeted scan of physiotherapy regulatory bodies in Canada, Canadian university programs that offer a master's degree in physiotherapy, and relevant international peer organizations from a selection of comparable high-income jurisdictions. The list of organizations included in the targeted scan was developed in consultation with CPA. We scanned organizational websites for readily available information regarding the impact of the pandemic on clinical examinations and licensure issues. If we identified a report or policy document of relevance to the overarching question regarding broad impacts, we included it in the rapid review.

In total, we identified 44 organizations (see **Appendix B** for list of organizations). In order to maximize the likelihood of capturing relevant information expeditiously, we took a two-pronged approach to scanning: first, we used Google's advanced website search function to search for a number of different search terms within each organization's website (e.g., COVID, exams, licensure); then we conducted a manual scan of each website for their COVID information page. Of the 44 organizational websites we identified, only 12 provided readily available information on the impacts of the pandemic on clinical examinations (including training) or licensure. From these 12 organizations, we examined 17 webpages or linked documents. Four websites included links to 11 sources of relevance to the broader rapid review.

3. Findings

The findings are presented in three sections including (1) descriptive results, (2) article mapping, and (3) summary of findings for key populations/topics.

3.1 Descriptive Results

There were 107 articles that met our inclusion criteria (see **Appendix C** for list of included articles). Using qualitative data management software (QSR NVivo, version 12), we coded these studies according to publication and study type, population, and topic area.

Articles focused on the following high-income jurisdictions: US (n=26), UK (n=7), Italy (n=6), Poland (n=5), Australia (n=4), Israel (n=3), Spain (n=3), Switzerland (n=3), New Zealand (n=2), Canada (n=1), Finland

(n=1), France (n=1), Japan (n=1), Kuwait (n=1), Oman (n=1), Portugal (n=1), Qatar (n=1), Singapore (n=1), and Slovenia (n=1), along with 38 articles focused on international or unspecified jurisdictions.

There were 45 articles describing empirical studies, including only one experimental study (a randomized controlled trial) and 44 observational studies. Observational studies included 22 surveys; eight case reports/series and one case control study and one cohort studies; four qualitative studies; three mixed-methods studies; four non-specified retrospective or prospective designs; and one description of a program development. There were 28 literature review studies. Of these, 11 did not specify a methodology; the remaining reviews included rapid reviews (n=4), narrative reviews (n=4), scoping reviews (n=2), umbrella mapping review (n=1), and other review types (n=6). Finally, there were 34 'other' types of articles, including commentaries (n=22), editorials (n=9), and letters (n=3). **Table 2** summarizes the review articles by study type.

Table 2. Final Review Articles by Study Type

Empirical Studies	45	Literature Reviews	28	Other Types	34
Observational Studies		Rapid reviews	4	Commentaries	22
Surveys	22	Narrative reviews	4	Editorials	9
Case reports/case series	8	Scoping reviews	2	Letters	3
Case control study	1	Umbrella reviews	1		
Cohort studies	1	Other review types	6		
Qualitative studies	4				
Mixed methods studies	3				
Other	4				
Experimental studies (RCT)	1	No methodology specified	11		

Articles were coded based on the primary population focused on. We identified 19 articles that focused on practicing physiotherapists and 11 that focused on physiotherapist trainees. Eighty-one articles focused on patients. This included articles that focused on treatment of patients with COVID (n=45) and post-COVID syndrome/long COVID (n=4), along with 32 articles that focused on treatment of non-COVID patients during the pandemic. Note that some articles were coded to multiple populations.

In addition to coding articles by population, we also coded articles by topic areas identified (again, note that some articles were coded to multiple topic areas). The most popular topics included the role of physiotherapists in the care of COVID and post-COVID patients (n=43) and telehealth/telerehabilitation (n=32). Other topics included organizational and system issues (n=13); physiotherapy training (n=13); guidelines for physiotherapy care during the pandemic (n=6); future of physiotherapy beyond the pandemic (n=5); access to physiotherapy for non-COVID patients (n=4; note that this topic overlaps significantly with 'telehealth'); and psychosocial and experiential issues for physiotherapists and trainees (n=4). The population and topic coding is summarized in **Table 3**.

Table 3. Final Review Articles by Population and Topic Area

Populations		Topics	
Physiotherapist – Practicing	19	Clinical care of COVID patients	43
Physiotherapist – Trainees	11	Telehealth/ telerehabilitation	32
Patients – COVID	45	Organizational/system issues	13
Patients – Post-COVID	5	Physiotherapy training	13
Patients – Non-COVID	32	Pandemic guidelines for physiotherapy care	6
		Future of physiotherapy post-pandemic	5
		Access to physiotherapy for non-COVID patients	4
		Psychosocial/experiential issues for physiotherapists/trainees	4

3.2 Article Mapping

Given the tight timelines for this project, it was not possible to conduct a thorough synthesis of all included studies. Consistent with rapid review methodology, and in order to quickly and efficiently identify areas of greatest impact, we ran coding cross-tabulations of study type, population, and topic area to assess the areas of coverage and methodological quality of the articles identified in this review (see **Tables 4, 5, 6**). Please note that we have also provided an annotated bibliographic database (in a sortable Microsoft Excel) for the included articles organized by jurisdiction, population, and topic (see **Supplemental File**). Additionally, we have provided access to PDF copies of all available included articles in a separate cloud-based folder.

Table 4. Cross-Tabulation of Coded Articles by Population and Study Type

Population	Study Type		
	A: Empirical	B: Review	C: Other
1: Physiotherapist	14	1	4
2: Trainee	9	0	2
3: COVID patient	14	20	11
4: Post-COVID patient	1	2	1
5: Non-COVID patient	10	6	16

Table 5. Cross-Tabulation of Coded Articles by Topic Area and Study Type

Topic Area	Study Type		
	A: Empirical	B: Review	C: Other
1: Access to physiotherapist for non-COVID patients	2	1	1
2: Beyond covid	0	0	5
3: Guidelines	0	5	1
4: Organization and system	4	4	5
5: Psychosocial and experiential	4	0	0
6: Role of physiotherapists in care of COVID and post-COVID patients	14	16	13
7: Telehealth	14	5	13
8: Training	10	0	3

Table 6. Cross-Tabulation of Coded Articles by Topic Area and Population

Topic Area	Population				
	A: Physio-therapist	B: Trainee	C: COVID patient	D: Post-COVID patient	E: Non-COVID patient
1: Access to physiotherapist for non-COVID patients	0	0	0	0	4
2: Beyond COVID	1	0	0	0	4
3: Guidelines	0	0	6	0	0
4: Organization and system	8	0	4	0	2
5: Psychosocial and experiential	4	0	0	0	0
6: Role of physiotherapists in care of COVID and post-COVID patients	1	0	35	4	5
7: Telehealth	5	0	4	0	24
8: Training	2	11	1	0	0

It is important to first note that within 18 months of COVID being clearly on the global research radar, the amount of published research literature focused on both COVID and physiotherapy is impressive. The cross-tabulations provide additional insight on the nature of the available research literature. Of the five distinct populations () that we identified research literature on, there was considerable empirical studies for all but post-COVID patients, with 20 reviews published on COVID patients and a number of other articles (e.g., expert opinions/commentaries) on both COVID and non-COVID patients in relation to physiotherapy (**Table 4**).

When examining the articles included in this review by topic area and study type, it was notable that the most commonly focused on topic areas were on the role of physiotherapists in the are of COVID and post-COVID patients, with an impressive mix of empirical articles (n=14), reviews (n=16) and other articles (n=13). The telehealth topic area was, not surprisingly, a popular topic area in the research literature with a number of published empirical studies, reviews, and other article types focusing on the topic in the context of physiotherapy and COVID (**Table 5**).

The cross-tabulation of articles coded by topic area and population revealed a somewhat siloed picture of the research literature, with focus primarily on four topics (role of physiotherapists in care of COVID/post-COVID patients, telehealth, organization/system, and training) with some clear gaps (**Table 6**).

3.3 Summary of Findings for Key Populations/Topics

Below are summaries of the review findings for the key populations and topic areas.

3.3.1 Population: Practicing Physiotherapists

Practicing physiotherapists faced a number of **psychosocial challenges** during the COVID-19 pandemic. These issues were explored mostly through qualitative studies of practicing physiotherapists' experiences. Psychosocial challenges included burnout,[4] fear of contracting COVID-19,[5] negative impacts on personal relationships with friends and family,[6] and uncertainty for the future.[7] In one study, participants described their experiences working through the pandemic as "warlike".[6] However, one study found that participants reported an increased sense of "togetherness" amongst their colleagues.[8] Several studies highlighted the need for better and continued psychosocial support for practicing physiotherapists.[5–7]

Several studies explored practicing physiotherapists' experiences with and attitudes towards the use of **telehealth/telerehabilitation** strategies to deliver care remotely. Unsurprisingly, the use of telehealth increased during the pandemic.[9,10] Musculoskeletal care was the most common area supported by telehealth, but other areas of growth included cardiorespiratory, pediatric, and chronic care.[11] Telehealth strategies were generally seen as a viable solution to ensure continuity of care,[11,12] and satisfaction with telehealth was generally high.[13] A number of barriers or challenges to telehealth were identified, including safety concerns due to potential falls,[13] lack of access to required technology or digital literacy,[11–13] potential for privacy and security issues,[12] and issues with insurance reimbursement.[11] Further, there appears to be some equivocation in the literature as to whether practicing physiotherapists intend to continue using telehealth strategies at all or to the same degree as during the pandemic.[9,10,13]

3.3.2 Population: Physiotherapy Trainees

Physiotherapist trainees faced a number of challenges during the pandemic. Trainees experienced a range of negative emotions,[14,15] including worry about the future.[16] For many, clinical experience[17,18] and research opportunities[19] were disrupted, causing delays in graduation due to the inability to meet

program requirements.[20] Trainees reported that they valued face-to-face training[14] and that they need coping support and advice/help navigating the job market.[21] However, trainees also reported feeling satisfied with communication from their educational institutions throughout the pandemic,[16] and they felt that virtual clinical placements were enablers to their progress.[22] Some trainees even felt that their experiences during the pandemic developed their resilience and contributed positively to their development as health care practitioners.[23] While uncertainty surrounding the pandemic raised challenges for educators and regulators,[18] recommendations included being flexible with program requirements without jeopardizing professional and clinical standards[20] by using a blended learning model.[14]

Of the 44 organizational websites included in the **targeted scan**, only 12 provided readily available information on the impacts of the pandemic on clinical training, examinations, or licensure (see **Table 7**). Seventeen relevant webpages or linked documents were organized and coded from these 12 organizations. Of these organizations, there were four national-level regulatory bodies Canada[c], Australia[b], US[e], and UK[f], and one sub-national regulatory body in Canada[h]. There were two national-level accreditation bodies in Canada[i] and the US[a] and two Canadian educational organizations[d,g], and three educational programs[j,k,l] at two academic institutions in Canada. The Canadian Alliance of Physiotherapy Regulators and the American Council of Academic Physical Therapy contained the most amount of potentially relevant information, but due to time constraints it was not possible to provide a comprehensive inventory of their website content.

Two organizations included information about **temporary or provisional licensure**[f,h]. Physiotherapy Alberta appears to have granted provisional licensure, whereas the Health and Care Professions Council in the UK does not. Five organizations provided some information regarding **clinical experience**[a,d,i,j,l]. Sub-topics included requirements for clinical experience[a,i], clinical education recommendations[a], postponement of clinical activities or placements[d,j,l]. Two organizations provided information on **clinical exams**[c,e], including the move to online examinations[c]. Two organizations provided information on **class and lab** considerations[a,i]. Finally, three organizations provided notes on operations[b,g,k], including resuming operations[b,k], rescheduling assessments[b], and an overview of accommodations[g].

Table 7. Summary of Targeted Scan Results

Organization	Category	Jurisdiction Level	Topic	URL
[a]American Council of Academic Physical Therapy	Accreditation	National (USA)	Clinical Experience	https://acapt.org/docs/default-source/default-document-library/capte-communication-4-14-20-re-covid-19-revised.pdf?sfvrsn=1e558fd8_2
				https://acapt.org/docs/default-source/public-docs/guidance-on-participation-in-ce-experiences_final3.pdf?sfvrsn=badb8cd8_2
				https://acapt.org/news/2020/04/07/clinical-education-recommendations
			Class and Lab	https://acapt.org/docs/default-source/public-docs/acapt-classroom-and-lab-guidelines-work-plan---version-1-may-18-2020.pdf?sfvrsn=49a08cd8_2
				https://acapt.org/docs/default-source/covid19/acapt---lab-best-practices---tim-miller.pdf?sfvrsn=da08cd8_0
[b]Australian Physiotherapy Council	Regulatory Body	National (Australia)	Operations	https://physiocouncil.com.au/the-councils-covid-19-response/

[c]Canadian Alliance of Physiotherapy Regulators	Regulatory Body	National (Canada)	Clinical Exams	https://www.alliancept.org/announcement/clinical-component-update-week-of-august-2/ https://www.alliancept.org/announcement/faq-revisions-to-the-2021-clinical-component-schedule-and-strategy/
[d]Canadian Council of Physiotherapy University Programs	Education	National (Canada)	Clinical Experience	https://www.physiotherapyeducation.ca/c_education.php
[e]Federation of State Boards of Physical Therapy	Regulatory Body	National (USA)	Clinical Exams	https://www.fsbpt.org/News-Events/News/COVID-19-Updates/FAQs-for-Candidates
[f]Health and Care Professions Council	Regulatory Body	National (UK)	Provisional/ Temporary Licensure	https://www.hcpc-uk.org/covid-19/temporary-register/our-approach-to-closing-the-covid-19-temporary-registers/
[g]National Physiotherapy Advisory Group	Collaborative Organization	National (Canada)	Operations	http://npag.ca/PDFs/About/NPAG%20and%20COVID-19.pdf
[h]Physiotherapy Alberta	Regulatory Body	Sub-national (Canada)	Provisional/ Temporary Licensure	https://www.physiotherapyalberta.ca/physiotherapists/news/faq_regarding_the_pce_cancellation
[i]Physiotherapy Education Accreditation Canada	Accreditation	National (Canada)	Clinical Experience	https://www.peac-aepc.ca/pdfs/AboutUs/News/PEAC%20COVID-19%20Guidance%20to%20Education%20Programs%20March%2026,%202020.pdf
[j]University of British Columbia (Master's degree program)	Academic Institution	Sub-national (Canada)	Clinical Experience	https://covid19.med.ubc.ca/students-learners/#i-am-a-health-professional-stu-4
[k]University of Toronto (Master's degree program)	Academic Institution	Sub-national (Canada)	Operations	https://www.physicaltherapy.utoronto.ca/about/our-progams/
[l]University of Toronto, Ontario Internationally Educated Physical Therapy Bridging Program	Academic Institution	Sub-national (Canada)	Clinical Experience	https://oiepb.utoronto.ca/exam-skills-preparation-workshops/

3.3.3 Population: COVID Patients, Long-COVID Patients, and Non-COVID Patients

Many articles discussed the **role of physiotherapy** in the care of **patients with COVID-19** and in **recovery from COVID-19**. Fourteen observational studies reported on patient outcomes for those who received physiotherapy. The majority of these observational studies were case reports/series[24–30], case control,[31] or cohort studies.[32] There were 20 literature reviews on physiotherapy care for COVID-19 patients, including narrative reviews,[33–36] expert consensus,[37–39] rapid reviews,[40,41] systematic review,[38] and three other review types (critical review,[42] integrative review,[43] pragmatic review[44]); nine reviews did not specify a methodology.[43,45–51] In addition, there were 11 commentaries,[52–59] editorials,[60] and letters[61,62] arguing for the role of physiotherapy in the care of COVID-19 patients. Four studies focused exclusively on the care of patients with post-COVID syndrome, or long-COVID, including one case report,[63] two literature reviews,[33,64] and one editorial.[65] Results of these studies were generally favourable, suggesting that physiotherapy is a key intervention in the treatment and recovery of COVID-19 patients.

Many studies also considered the impacts of the pandemic on **non-COVID patients**. Non-COVID patient **populations** included pediatric,[66–70] musculoskeletal,[71–73] acute care[74] or critically ill,[75] cancer,[76] Duchenne Muscular Dystrophy,[77] non-specified neurological disorders,[78] obstetrics,[79] Parkinson disease,[80] patellofemoral pain syndrome,[81] pelvic floor disfunction,[82] Rett syndrome,[83] rheumatic

diseases,[72] and stroke,[84] or were mixed/non-specified.[13,85–96] **Access to care** and **continuity of care via telehealth** were the main impacts explored in these articles. One study found that the absence of physiotherapy interventions due to COVID-19 restrictions had a significant multidimensional impact on patients.[80] Several empirical studies examined the effectiveness of telehealth interventions using a randomized controlled trial;[81] surveys;[13,66,68,77,80,83] or mixed-methods designs.[67,91] Generally, studies found that a telehealth model of home-based physical therapy interventions are feasible and patients are satisfied with it.

3.3.4 Topic Area: Organization and System Issues

As noted above, a number of topics were identified in this review. Given the time constraints, we have limited our focus to a high priority topic identified by CPA that explored organizational and system issues of relevance to the practice and profession of physiotherapy. Organizational/system **barriers** included lack of adequate personal protective equipment (PPE),[8,97,98] regulations and policies restricting care of "non-urgent" patients[99,100] and mandates to cease hands on care,[98] and broader social isolation policies affecting safe and effective discharge planning [1018, 1480].[8,98]

Further, several studies highlighted **challenges** to physiotherapy practices, including maintaining productivity standards in light of PPE requirements,[8] implementation of screening protocols,[97] political insecurity and social restriction policies impacting clinical decisions about care provision,[98] rapid role changes,[8] and adequate staffing, training, and staff and patient safety.[97] One rapid review from Canada framed the results of their study as being useful for facility-based and regional planning efforts to ensure that physical therapy departments are able to respond to the fullest scope of practice during pandemic or disaster situations.[97] Barriers and challenges notwithstanding, physiotherapists were lauded for expeditiously adopting prevention and control measures within institutional settings.[101]

Critical commentators debated the future of physiotherapy beyond COVID. One commentator, in particular, questioned whether the myriad restrictions placed on physiotherapists may ultimately undermine the role of manual therapy within the profession **beyond COVID**.[102] While some commentators were concerned about the potential long-term implications of telehealth,[100] others saw opportunities for the profession to evolve.[71,72,85,86] Some of these opportunities included re-designing physiotherapy services to better support personalized care and patient self-management[71,72] to improve access, high quality, and safe physiotherapy services[85] with the aim of co-designing remote care pathways with all stakeholders.[86]

Our review identified a number of **needs and recommendations** for the physiotherapy profession going forward. Should a similar situation arise in the future, a number of articles emphasized the importance of maintaining outpatient therapy for non-COVID patients[97] and support for interprofessional collaboration within organizational settings.[103] Several articles also noted the importance of involving physiotherapists in service delivery planning at strategic and operational levels within health care organizations and health systems more broadly.[95] A few studies made specific recommendations regarding staffing, workforce planning, safety, and patient discharge, which are summarized in **Table 8**.

Table 8. Selection of Specific Physiotherapy Recommendations

Recommendation category	Specific recommendations
Staffing	Deploy physiotherapists with sufficient skills, knowledge, and self-confidence in care for patients who are severely ill at a COVID ward or in the ICU[44]
	Provide psychosocial support for hospital-based physiotherapists[37,44]
	Service managers need to support staff being redeployed to unfamiliar practice settings with appropriate education and support[95]

Workforce planning	Local context, resources, and expertise should be considered in resource planning[37]
	Physiotherapists should be involved in the planning of service delivery at strategic and operational levels[95]
Safety	Minimize contact with patients with COVID; always consider benefits of hands-on physiotherapy versus the risks of virus transmission and the use of scarce PPE[44]
	Make optimal use of digital and/or written information for the instruction of patients[44]
Patient discharge	Initiate, refer, and transition patients to physiotherapists in primary care practices, rehabilitation clinics, nursing homes, or recovery centres to continue physiotherapist management, if required[44]

4. Conclusion

ACE conducted a rapid review of published and grey literatures, and a targeted scan of relevant organizational websites, to address the review question: what are the impacts of the COVID-19 pandemic on the physiotherapy profession? We mapped impacts by population (practicing physiotherapists and trainees, COVID patients, long-COVID patients, and non-COVID patients) and topic areas. Given the tight timelines for this project, it was not feasible to conduct a thorough analysis of a broad range of impacts. Rather, our goal was to assist CPA in identifying and navigating the breadth of available literature. To that end, ACE has provided a high-level overview of the literature, a navigable annotated bibliographic database (supplementary Excel file) of all articles reviewed (sortable by jurisdiction, population, topic area and study type) as well as PDF copies of each article in a cloud folder.

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Appendix A: Search Strategies

MEDLINE (July 27, 2021)

#	Searches	Results
1	Physiotherapy.mp.	21697
2	Exp physical therapy modalities/	162557
3	Physical therapy.mp.	53879
4	Exp COVID-19/	94197
5	Exp coronavirus/	85774
6	Exp SARS-CoV-2/	73209
7	1 or 2 or 3	187155
8	4 or 5 or 6	107572
9	7 and 8	418

CINAHL (July 27, 2021)

#	Searches	Results
1	(MH "Physical Therapy")	36499
2	"physiotherapy"	19114
3	(MH "SARS-CoV-2")	434
4	(MH "COVID-19")	17546
5	(MH "Coronavirus")	991
6	(MH "COVID-19 pandemic")	16313
7	1 or 2	48545
8	3 or 4 or 5 or 6	32257
9	7 and 8	270

Google Scholar (July 27, 2021)

1. Physiotherapy or physical therapy and covid-19 (50)
2. Impacts of covid-19 on physiotherapy or physical therapy (50)
3. Physical therapy rehabilitation covid-19 (50)

Google (July 27, 2021)

1. Physiotherapy or physical therapy and covid-19 (50)
2. Impacts of covid-19 on physiotherapy (50)

A note about the search strategies:

We tested the use of "rehabilitation" as a keyword and determined not to include it. We ran a search with "rehabilitation" as a key word, which more than doubled the output. However, we reviewed a sub-set of the output, but few appeared to be relevant (e.g., studies included drug rehabilitation, which is beyond scope). Further, we tested the overlap between "physiotherapy" and "rehabilitation" searches and found that more than half of the output overlapped, suggesting that our final search strategies caught physiotherapy-relevant rehabilitation.

Appendix B: Targeted Scan Organizations

Organization	Category	Jurisdiction Level	URL
American Council of Academic Physical Therapy	Accreditation	National (USA)	https://acapt.org/
Australian Physiotherapy Council	Regulatory body	National (Australia)	https://physiocouncil.com.au/
Canadian Alliance of Physiotherapy Regulators	Regulatory body	National (Canada)	https://www.alliancept.org/
Canadian Council of Physiotherapy University Programs (CCPUP)	Education	National (Canada)	https://www.physiotherapyeducation.ca/index.php
College of Physical Therapists of BC	Regulatory body	Sub-national (Canada)	https://cptbc.org/
College of Physiotherapists of Manitoba	Regulatory body	Sub-national (Canada)	https://www.manitobaphysio.com/
College of Physiotherapists of New Brunswick	Regulatory body	Sub-national (Canada)	http://cptnb.ca/language/en/welcome/
College of Physiotherapists of Ontario	Regulatory body	Sub-national (Canada)	https://www.collegept.org/
Dalhousie University - Master of Science (Physiotherapy)	Academic Institution	Sub-national (Canada)	https://www.dal.ca/faculty/health/school-of-physiotherapy/about/awards-and-accreditation.html
Executive Council of Physical Therapy and Occupational Therapy Examiners	Regulatory body	Sub-national (USA)	https://www.ptot.texas.gov/page/home
Federation of State Boards of Physical Therapy	Regulatory body	National (USA)	https://www.fsbpt.org/
Government of Yukon	Regulatory body	Sub-national (Canada)	https://yukon.ca/en/chiropractor-optometrist-physiotherapist-and-physician
Health and Care Professions Council (UK)	Regulatory body	National (UK)	https://www.hcpc-uk.org/
Internationally Educated Physiotherapists Exam Preparation at the University of BC	Academic Institution	Sub-national (Canada)	https://physiorefresh.med.ubc.ca/
Laval University	Academic Institution	Sub-national (Canada)	https://www.fmed.ulaval.ca/programmes-detudes/programmes-de-baccalaureat/continuum-baccalaureat-maitrise-en-physiotherapie/presentation/
McGill University - Master of Science (Applied) in Physical Therapy	Academic Institution	Sub-national (Canada)	https://www.mcgill.ca/spot/programs/pt
McMaster University - Master of Science (Physiotherapy)	Academic Institution	Sub-national (Canada)	https://healthsci.mcmaster.ca/srs-pt/about-us/accreditation
National Physiotherapy Advisory Group	Collaborative Organization	National (Canada)	http://npag.ca/English/index.html

New York State Education Department - Office of the Professions (Physical Therapy)	Regulatory body	Sub-national (USA)	http://www.op.nysed.gov/prof/pt/
Newfoundland and Labrador College of Physiotherapists	Regulatory body	Sub-national (Canada)	https://nlcpt.com/
Nova Scotia College of Physiotherapists	Regulatory body	Sub-national (Canada)	https://nsphysio.com/
Ontario Internationally Educated Physical Therapy Bridging Program University of Toronto	Academic Institution	Sub-national (Canada)	https://oiepb.utoronto.ca/
Ordre professionnel de la physiotherapie du Quebec	Regulatory body	Sub-national (Canada)	https://oppq.qc.ca/en/
Physical Therapy Board of California	Regulatory body	Sub-national (USA)	https://www.ptbc.ca.gov/
Physical Therapy Bridging Certificate at the University of Alberta	Academic Institution	Sub-national (Canada)	https://www.ualberta.ca/rehabilitation/professional-development/certificate-programs/physical-therapy-bridging-certificate-program/index.html
Physiopedia	Charity	International	https://www.physio-pedia.com/home/
Physiotherapy Alberta - College and Association	Regulatory body	Sub-national (Canada)	https://www.physiotherapyalberta.ca/
Physiotherapy Board of New Zealand	Regulatory body	National (New Zealand)	https://www.physioboard.org.nz/
Physiotherapy Education Accreditation Canada	Accreditation	National (Canada)	https://www.peac-aepc.ca/english/accreditation/programs-with-accreditation-status.php
Physiotherapy Equivalency Program at McGill University	Academic Institution	Sub-national (Canada)	https://www.mcgill.ca/spot/programs/pt/pt-equivalency
Programme de qualification professionnelle en physiotherapie at the Universite de Montreal	Academic Institution	Sub-national (Canada)	https://readaptation.umontreal.ca/etudes/formation-en-physiotherapie/programme-de-qualification-pour-physiotherapeutes-qpp/
Queen's University - Master of Science in Physical Therapy	Academic Institution	Sub-national (Canada)	https://rehab.queensu.ca/academic-programs/mscpt
Saskatchewan College of Physical Therapists	Regulatory body	Sub-national (Canada)	https://www.scpt.org/index.html
Sherbrooke University	Academic Institution	Sub-national (Canada)	https://www.usherbrooke.ca/readaptation/programmes/maitrise-en-physiotherapie/statut-dagrement/
UBC - Master of Physical Therapy	Academic Institution	Sub-national (Canada)	https://physicaltherapy.med.ubc.ca/programs/mpt-entry-level-program-3/mpt-program-accreditation-status/
University of Alberta - Master of Science in Physical Therapy	Academic Institution	Sub-national (Canada)	https://www.ualberta.ca/physical-therapy/programs/msc-in-physical-therapy/index.html
University of Manitoba - Master of Physical Therapy	Academic Institution	Sub-national (Canada)	https://umanitoba.ca/rehabsciences/pt/pt_accreditation.html
University of Montreal	Academic Institution	Sub-national (Canada)	https://readaptation.umontreal.ca/etudes/formation-en-physiotherapie/le-continuum-baccalaureat-maitrise/

University of Ottawa	Academic Institution	Sub-national (Canada)	https://sante.uottawa.ca/readaptation/programmes/physio/agrement-du-programme
University of Quebec at Chicoutimi	Academic Institution	Sub-national (Canada)	https://programmes.uqac.ca/1821/officiel/
University of Saskatchewan - Master of Physical Therapy	Academic Institution	Sub-national (Canada)	https://rehabscience.usask.ca/programs/MPTprogram.php
University of Toronto - Master of Science in Physical Therapy	Academic Institution	Sub-national (Canada)	https://www.physicaltherapy.utoronto.ca/about/our-progams/
Western University - Master of Physical Therapy	Academic Institution	Sub-national (Canada)	https://www.uwo.ca/fhs/pt/programs/mpt/status.html
World Physiotherapy	Charity	International	https://world.physio/

Appendix C1: Rapid Review Results *(Empirical Articles)*

ID	Author	Title	Year	Location	Study Type	Population	Topic
1405	Albornoz-Cabello, Manuel et al. [81]	Effectiveness of Tele-Prescription of Therapeutic Physical Exercise in Patellofemoral Pain Syndrome during the COVID-19 Pandemic.	2021	Spain	Experimental - RCT	Non-covid (patellofemoral pain syndrome)	Telehealth
1298	Morri, Mattia et al. [31]	The tolerance of physiotherapy treatment in patients with COVID-19 and undergoing surgery for fragility hip fracture: An observational study.	2021	Italy	Observational - Case control	COVID patient	Role of PT
1020	Mayer, Kirby P et al. [63]	Physical Therapy Management of an Individual with Post-COVID Syndrome: A Case Report.	2021	US	Observational - Case Report	Post-COVID	Role of PT
1075	Mark, Alex et al. [24]	Maintaining Mobility in a Patient Who Is Pregnant and Has COVID-19 Requiring Extracorporeal Membrane Oxygenation: A Case Report.	2021	US	Observational - Case Report	COVID patient	Role of PT
1116	Saeki, Takuya et al. [26]	Rehabilitation Therapy for a COVID-19 Patient Who Received Mechanical Ventilation in Japan.	2020	Japan	Observational - Case Report	COVID patient	Role of PT
1415	Livingston, Tara et al. [28]	Innovative Care Delivery of Acute Rehabilitation for Patients With COVID-19: A Case Report.	2021	US	Observational - Case Report	COVID patient	Telehealth
2010	Sweeney, Greg et al. [29]	Acute Rehabilitation in the COVID-19 Pandemic: A Case Report of Physical Therapy Perspectives from the Front Line	2021	US	Observational - Case Report	COVID patient	Role of PT
3081	Al Waheibi, S et al.[30]	Effect of physiotherapy intervention on COVID-19 patient with comorbidities	2021	Oman	Observational - Case Report	COVID patient	Role of PT
1348	Eggmann, Sabrina et al.[27]	Early Physical Therapist Interventions for Patients With COVID-19 in the Acute Care Hospital: A Case Report Series.	2021	Switzerland	Observational - Case Report Series	COVID patient	Role of PT
1099	Lee, Audrey Jia Yi et al.[25]	Clinical course and physiotherapy intervention in 9 patients with COVID-19.	2020	Singapore	Observational - Case Series	COVID patient	Role of PT
1104	Negrini, Stefano et al.[32]	Feasibility and Acceptability of Telemedicine to Substitute Outpatient Rehabilitation Services in the COVID-19 Emergency in Italy: An Observational Everyday Clinical-Life Study.	2020	Italy	Observational - Cohort Study with Historical Control	Non-COVID patient (spinal disorders)	Telehealth

1253	Gefen, Naomi et al.[67]	Lessons Learned during a Naturalistic Study of Online Treatment for Pediatric Rehabilitation.	2021	Israel	Observational - Mixed Methods	Non-COVID patient (pediatric)	Telehealth
1350	Miller, Matthew J et al.[91]	Evaluation of Pragmatic Telehealth Physical Therapy Implementation During the COVID-19 Pandemic.	2021	US	Observational - Mixed Methods	Non-COVID patient (mixed)	Telehealth
1369	Albahrouh, Sarah Ibraheem et al.[12]	Physiotherapists' perceptions of and willingness to use telerehabilitation in Kuwait during the COVID-19 pandemic.	2021	Kuwait	Observational - Mixed Methods	Physiotherapists	Telehealth
2087	Battaglini, Denise et al.[48]	An Experimental Pre-Post Study on the Efficacy of Respiratory Physiotherapy in Severe Critically III COVID-19 Patients	2021	Italy	Observational - Pre-post design	COVID patient	Role of PT
1549	Twogood, Rory et al.[22]	Rapid implementation and improvement of a virtual student placement model in response to the COVID-19 pandemic.	2020	UK	Observational - Program development	Trainees	Training
1338	Betschart, Martina et al.[104]	Feasibility of an Outpatient Training Program after COVID-19.	2021	Switzerland	Observational - Prospective	COVID patient	Role of PT
1334	Ng, Leo et al.[14]	eLearning in Physical Therapy: Lessons Learned from Transitioning a Professional Education Program to Full eLearning During the COVID-19 Pandemic.	2021	Australia	Observational - Qualitative	Trainees	Training
1335	Palacios-Cena, Domingo et al.[6]	Working on the Frontlines of the COVID-19 Pandemic: A Qualitative Study of Physical Therapists' Experience in Spain.	2021	Spain	Observational - Qualitative	Physiotherapists	Psychosocial and Experiential
1445	Palacios-Cena, Domingo et al.[5]	Emotional Experience and Feelings during First COVID-19 Outbreak Perceived by Physical Therapists: A Qualitative Study in Madrid, Spain.	2020	Spain	Observational - Qualitative	Physiotherapists	Psychosocial and Experiential
2046	Ditwiler, Rebecca E et al.[7]	Professional and Ethical Issues in United States Acute Care Physical Therapists Treating Patients With COVID-19: Stress, Walls, and Uncertainty	2021	US	Observational - Qualitative	Physiotherapists	Psychosocial and Experiential
1074	Johnson, Joshua K et al.[105]	Frequency of Physical Therapist Intervention Is Associated With Mobility Status and Disposition at Hospital Discharge for Patients With COVID-19.	2021	US	Observational - Retrospective	COVID patient	Role of PT
2044	Debeaumont, David et al.[106]	Cardiopulmonary Exercise Testing to Assess Persistent Symptoms at 6 Months in People With COVID-19 Who	2021	France	Observational - retrospective	COVID patient	Role of PT

		Survived Hospitalization–A Pilot Study					
1001	Lotan, Meir et al.[83]	A Pilot Study Delivering Physiotherapy Support for Rett Syndrome Using a Telehealth Framework Suitable for COVID-19 Lockdown.	2021	Israel	Observational - Survey	Non-COVID patient (Rett Syndrome)	Multiple: Telehealth; Access to care
1006	Bennell, Kim L et al.[13]	Physiotherapists and patients report positive experiences overall with telehealth during the COVID-19 pandemic: a mixed-methods study.	2021	Australia	Observational - Survey	Multiple: Non-COVID patient (Mixed); Physiotherapist	Telehealth
1032	Kloze, Anna et al.[66]	Assessment of online physiotherapy consultation for children - parents' opinions.	2021	Poland	Observational - Survey	Non-COVID patient (pediatric)	Telehealth
1078	Kapel, Alen et al.[80]	Impact of Physiotherapy Absence in COVID-19 Pandemic on Neurological State of Patients With Parkinson Disease.	2021	Slovenia	Observational - Survey	Non-COVID patient (Parkinson disease)	Access to care
1252	Galczyk, Monika et al.[15]	Chronic Back Condition and the Level of Physical Activity as Well as Internet Addiction among Physiotherapy Students during the COVID-19 Pandemic in Poland.	2021	Poland	Observational - Survey	Trainees	Training
1262	Sobierajska-Rek, Agnieszka et al.[77]	Respiratory Telerehabilitation of Boys and Young Men with Duchenne Muscular Dystrophy in the COVID-19 Pandemic.	2021	Poland	Observational - Survey	Non-COVID patient (DMD)	Telehealth
1264	Hall, Jamie B et al.[68]	Pediatric Physical Therapy Telehealth and COVID-19: Factors, Facilitators, and Barriers Influencing Effectiveness-a Survey Study.	2021	US	Observational - Survey	Non-COVID patient (pediatric)	Telehealth
1285	Al Attar, Wesam Saleh A et al.[101]	Physiotherapists' knowledge and the implementation of COVID-19 infection prevention and control measures.	2021	International	Observational - Survey	Physiotherapists	Organization and System
1293	Haire, Ellen et al.[107]	"Compassion Outside of the Box": The Role of Allied Healthcare Professionals in Providing a Companion Service for Patients at the End of Life During the COVID-19 Pandemic.	2021	UK	Observational - Survey	Physiotherapists	Role of PT
1337	Heiskanen, Tuija et al.[10]	Uptake of Tele-Rehabilitation in Finland amongst Rehabilitation Professionals during the COVID-19 Pandemic.	2021	Finland	Observational - Survey	Physiotherapists	Telehealth
1401	Pniak, Bogumila et al.[4]	Occupational burnout among active physiotherapists working in clinical hospitals during the COVID-19 pandemic in south-eastern Poland.	2021	Poland	Observational - Survey	Physiotherapists	Psychosocial and Experiential

1479	MacDonald, C W et al.[98]	COVID 19 and manual therapy: international lessons and perspectives on current and future clinical practice and education.	2020	Australia	Observational - Survey	Physiotherapists	Multiple: Organization and System; Training
2072	Rausch, Anne-Kathrin et al. [9]	Physiotherapists' use and perceptions of digital remote physiotherapy during COVID-19 lockdown in Switzerland: an online cross-sectional survey	2021	Switzerland	Observational - Survey	Physiotherapists	Telehealth
6001	World Physiotherapy[17]	World Physiotherapy Response to COVID-19: Briefing paper 1 - Immediate impact on the higher education sector and response to delivering physiotherapist entry level education	2020	NA	Observational - Survey	Trainees	Training
6002	World Physiotherapy[95]	World Physiotherapy Response to COVID-19: Briefing paper 2 - Rehabilitation and the vital role of physiotherapy	2020	NA	Observational - Survey	Multiple: COVID patient; non-COVID patient (mixed); physiotherapist	Multiple: Organization and System; Role of PT
6003	World Physiotherapy[16]	World Physiotherapy Response to COVID-19: Briefing paper 3 - Immediate impact on students and the response to delivering physiotherapist entry level educaiton	2020	NA	Observational - Survey	Trainees	Training
6004	World Physiotherapy[18]	World Physiotherapy Response to COVID-19: Briefing paper 4 - Impact on entry level education and responses of regulators	2020	NA	Observational - Survey	Multiple: Trainee; Regulators	Training
6006	World Physiotherapy[11]	World Physiotherapy Response to COVID-19: Briefing paper 6 - physiotherapy digital practice experiences and insights during COVID-19	2021	NA	Observational - Survey	Physiotherapists	Telehealth
6008	American Council of Academic Physical Therapy National Consortium of Clinical Educators[20]	COVID-19 survey results	2020	US	Observational - Survey	Trainees	Training
6010	American Council of Academic Physical Therapy [21]	ACAPT Task Force on the Needs of the DPT Class of 2020	2020	US	Observational - Survey	Trainees	Training
6011	Health Care and Professions Council[108]	Survey of the Temporary Register(s)	2020	UK	Observational - Survey	Trainees	Training

1018	Tiwari, Devashish et al.[8]	Exploratory Analysis of Physical Therapy Process of Care and Psychosocial Impact of the COVID-19 Pandemic on Physical Therapists.	2021	US	Observational - Survey	Physiotherapists	Organization and System

Appendix C2: Rapid Review Results *(Review Articles)*

ID	Author	Title	Year	Location	Study Type	Population	Topic
2108	Vitacca, Michele et al.[39]	Joint statement on the role of respiratory rehabilitation in the COVID-19 crisis: the Italian position paper	2020	Italy	Multiple: Other - specified; Other - not specified	COVID patient	Organization and System
2089	Ajimsha, MS et al.[38]	Acute care physiotherapy management of COVID-19 patients in Qatar: consensus-based recommendations	2020	Qatar	Multiple: Systematic review; Other - specified	COVID patient	Organization and System
1021	Sedighimehr, Najmeh et al.[33]	Rehabilitation, a necessity in hospitalized and discharged people infected with COVID-19: a narrative review.	2021	NA	Narrative review	Multiple: COVID patient; Post-COVID patient	Role of PT
1022	Cetisli-Korkmaz, Nilufer et al.[34]	Rehabilitation strategies and neurological consequences in patients with COVID-19: part I.	2021	NA	Narrative review	COVID patient	Role of PT
1023	Cetisli-Korkmaz, Nilufer et al.[35]	Rehabilitation strategies and neurological consequences in patients with COVID-19: part II.	2021	NA	Narrative review	COVID patient	Role of PT
2114	Kalirathinam, Deivendran et al.[36]	Comprehensive physiotherapy management in COVID-19–a narrative review	2020	NA	Narrative review	COVID patient	Role of PT
1071	AGOSTINI, Francesco et al.[45]	Rehabilitation settings during and after COVID-19: an overview of recommendations.	2021	NA	Other - not specified	COVID patient	Role of PT
1390	Shakerian, Narges et al.[46]	Potential Prophylactic and Therapeutic Effects of Respiratory Physiotherapy for COVID-19.	2020	NA	Other - not specified	COVID patient	Role of PT
1478	Sun, Tiantian et al.[47]	Rehabilitation of patients with COVID-19.	2020	NA	Other - not specified	COVID patient	Role of PT
1530	Battaglini, Denise et al.[109]	Chest physiotherapy: An important adjuvant in critically ill mechanically ventilated patients with COVID-19.	2020	NA	Other - not specified	COVID patient	Role of PT
1601	Candan, Sevim Acaroz et al.[49]	Consideration of prevention and management of long-term consequences of post-acute respiratory distress syndrome in patients with COVID-19.	2020	NA	Other - not specified	COVID patient	Role of PT

2067	Zhu, Yuetong et al.[50]	Summary of respiratory rehabilitation and physical therapy guidelines for patients with COVID-19 based on recommendations of World Confederation for Physical Therapy and National Association of Physical Therapy	2020	NA	Other - not specified	COVID patient	Organization and System
2103	Cieloszczyk, Aleksandra et al.[110]	Recommendations for physiotherapy of adult patients with COVID-19	2020	Poland	Other - not specified	COVID patient	Organization and System
6005	World Physiotherapy[96]	World Physiotherapy Response to COVID-19: Briefing paper 5 - impact of COVID-19 on fragile health systems and vulnerable communities, and the role of physiotherapists in the delivery of rehabilitation	2020	NA	Other - not specified	non-COVID patient (mixed)	Role of PT
6007	World Physiotherapy[64]	World Physiotherapy Response to COVID-19: Briefing paper 9 - safe rehabilitation approaches for people living with long COVID: physical activity and exercise	2020	NA	Other - not specified	COVID patient	Role of PT
6009	Lowe, R[111]	Role of the Physiotherapist in COVID-19	2020	US	Other - not specified	COVID patient	Role of PT
1229	Thomas, Peter et al.[37]	Physiotherapy management for COVID-19 in the acute hospital setting: clinical practice recommendations.	2020	NA	Other - specified	COVID patient	Multiple: Organization and System; Guidelines
1488	Felten-Barentsz, Karin M et al.[44]	Recommendations for Hospital-Based Physical Therapists Managing Patients With COVID-19.	2020	NA	Other - specified	COVID patient	Organization and System
2116	Abdullahi, Auwal[42]	Safety and efficacy of chest physiotherapy in patients with COVID-19: a critical review	2020	NA	Other - specified	COVID patient	Role of PT
2118	Andrade, Aline do Nascimento et al.[43]	Evidence-based Physiotherapy and Functionality in Adult and Pediatric patients with COVID-19	2020	NA	Other - specified	COVID patient	Role of PT
1114	Wittmeier, Kristy et al.[97]	Operational Considerations for Physical Therapy During	2020	NA	Rapid review	Physiotherapists	Organization and System

		COVID-19: A Rapid Review.					
1275	Seron, Pamela et al.[89]	Effectiveness of Telerehabilitation in Physical Therapy: A Rapid Overview.	2021	NA	Rapid Review	Non-COVID patient (mixed)	Telehealth
1320	Goodwin, Victoria A et al.[40]	Rehabilitation to enable recovery from COVID-19: a rapid systematic review.	2021	NA	Rapid review	COVID patient	Role of PT
1608	Ceravolo, Maria G et al.[41]	Systematic rapid "living" review on rehabilitation needs due to COVID-19: update to March 31st, 2020.	2020	NA	Rapid review	COVID patient	Organization and System
1019	Ramage, Emily R et al.[84]	Look Before You Leap: Interventions Supervised via Telehealth Involving Activities in Weight-Bearing or Standing Positions for People After Stroke—A Scoping Review.	2021	NA	Scoping Review	Non-COVID patient (Stroke)	Telehealth
1402	Bernal-Utrera, Carlos et al.[75]	Could Physical Therapy Interventions Be Adopted in the Management of Critically Ill Patients with COVID-19? A Scoping Review.	2021	NA	Scoping Review	Non-COVID patient (critically ill)	Organization and System
1333	da Mata, Kyannie Risame Ueda et al.[82]	Telehealth in the rehabilitation of female pelvic floor dysfunction: a systematic literature review.	2021	NA	Systematic review	Non-COVID patient (pelvic floor dysfunction)	Telehealth
1313	Suso-Marti, Luis et al.[90]	Effectiveness of Telerehabilitation in Physical Therapist Practice: An Umbrella and Mapping Review with Meta-Meta-Analysis.	2021	NA	Umbrella and mapping review with meta-meta-analysis	Non-COVID patient (mixed)	Telehealth

Appendix C3: Rapid Review Results *(Other Articles)*

ID	Author	Title	Year	Location	Study Type	Pop'n	Topic
1053	Tack, Christopher et al.[86]	"Physio anywhere": digitally-enhanced outpatient care as a legacy of coronavirus 2020.	2021	UK	Commentary	Non-COVID patient (mixed)	Telehealth
1056	Pedersini, Paolo et al.[52]	COVID-19 Pandemic: A Physiotherapy Update.	2021	NA	Commentary	COVID patient	Role of PT
1089	Adhikari, Shambhu P et al.[53]	Alternatives to routinely used physiotherapy interventions for achieving maximum patients' benefits and minimising therapists' exposure in treatment of COVID-19 – a commentary.	2020	NA	Commentary	COVID patient	Multiple: Role of PT; Telehealth
1112	Signal, Nada et al.[78]	Implementation of Telerehabilitation in Response to COVID-19: Lessons Learnt from Neurorehabilitation Clinical Practice and Education.	2020	New Zealand	Commentary	Non-COVID patient (neuro)	Telehealth
1131	Barnes, Christopher A et al.[76]	Using the Lessons of COVID-19 to Improve Access to Physical Therapists for People with Cancer.	2020	US	Commentary	Non-COVID patient (cancer)	Multiple: Telerehab; Access to care
1149	Dean, Elizabeth et al.[54]	Translating COVID-19 Evidence to Maximize Physical Therapists' Impact and Public Health Response.	2020	US	Commentary	COVID patient	Role of PT
1167	Turolla, Andrea et al.[73]	Musculoskeletal Physical Therapy During the COVID-19 Pandemic: Is Telerehabilitation the Answer?	2020	Italy	Commentary	Non-COVID patient (MSK)	Telehealth
1168	Keeney, Tamra[74]	Physical Therapy in the COVID-19 Pandemic: Forging a Paradigm Shift for Rehabilitation in Acute Care.	2020	US	Commentary	Non-COVID patient (acute care)	Role of PT
1194	Pedersini, Paolo et al.[55]	Italian Physical Therapists' Response to the Novel COVID-19 Emergency.	2020	Italy	Commentary	COVID patient	Role of PT
1195	Lee, Alan C[88]	COVID-19 and the Advancement of Digital Physical Therapist Practice and Telehealth.	2020	US	Commentary	Non-COVID patient (mixed)	Telehealth

1210	Landry, Michel D et al.[56]	Early reflection on the global impact of COVID19, and implications for physiotherapy.	2020	NA	Commentary	COVID patient	Role of PT
1255	Segraves, Rebeca L et al.[79]	Reducing Maternal Morbidity on the Frontline: Acute Care Physical Therapy After Cesarean Section During and Beyond the COVID-19 Pandemic.	2021	US	Commentary	Non-COVID patient (OB)	Role of PT
1292	Rynearson, Elissa et al.[69]	Commentary on "Pediatric Physical Therapy Telehealth and COVID-19: Factors, Facilitators, and Barriers Influencing Effectiveness-a Survey Study".	2021	US	Commentary	Non-COVID patient (pediatric)	Telehealth
1436	Loweke, Rachel[23]	A Doctor of Physical Therapy Student's Experience During the COVID-19 Pandemic.	2021	US	Commentary	Trainees	Training
1464	Rao, Pratiksha Tilak[70]	A Paradigm Shift in the Delivery of Physical Therapy Services for Children with Disabilities in the Time of the COVID-19 Pandemic.	2021	US	Commentary	Non-COVID (pediatric)	Organization and System
1474	Lukaszewicz, Kathleen et al.[57]	Clinical Update for Physical Therapists: Coagulopathy and COVID-19.	2020	US	Commentary	COVID patient	Organization and System
1484	Smith, James M et al.[58]	Home and Community-Based Physical Therapist Management of Adults with Post-Intensive Care Syndrome.	2020	US	Commentary	COVID patient	Role of PT
1490	Falvey, Jason R et al.[92]	The Essential Role of Home- and Community-Based Physical Therapists During the COVID-19 Pandemic.	2020	US	Commentary	Non-COVID patient (mixed)	Role of PT
1582	Levi, Netanel et al.[59]	Decision-Making: Physical Therapist Intervention for Patients With COVID-19 in a Geriatric Setting.	2020	Israel	Commentary	COVID patient	Role of PT
1610	Alpalhao, Vanessa et al.[99]	Impact of COVID-19 on Physical Therapist Practice in Portugal.	2020	Portugal	Commentary	Physiotherapists	Organization and System

2003	Prvu Bettger, Janet et al.[93]	Telerehabilitation in the age of COVID-19: an opportunity for learning health system research	2020	US	Commentary	Non-COVID patient (mixed)	Telehealth
2066	Quek, Niklaus et al.[100]	Physiotherapy in a Post-COVID World	2020	NA	Commentary	Physiotherapists	Organization and System
1044	Bearne, Lindsay M et al.[72]	Remotely delivered physiotherapy: can we capture the benefits beyond COVID-19?	2021	UK	Editorial	Non-COVID patient (rheumatic and MSK diseases)	Telehealth
1052	Jette, Alan M[85]	The Promise and Potential of Telerehabilitation in Physical Therapy.	2021	US	Editorial	Non-COVID patient (mixed)	Telehealth
1077	Quigley, Adria et al.[87]	Transforming the Provision of Physiotherapy in the Time of COVID-19: A Call to Action for Telerehabilitation.	2021	Canada	Editorial	Non-COVID patient (mixed)	Telehealth
1127	Calder, Allyson et al.[19]	Physiotherapy student research projects during the COVID19 lockdown.	2020	New Zealand	Editorial	Trainees	Training
1193	Jette, Alan M[60]	Responding to the Coronavirus Pandemic.	2020	US	Editorial	COVID patient	Role of PT
1329	Decary, Simon et al.[65]	Humility and Acceptance: Working Within Our Limits with Long COVID and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome.	2021	NA	Editorial	COVID patient	Role of PT
1480	MacDonald, Cameron W et al.[102]	COVID-19 wash your hands but don't erase them from our profession - considerations on manual therapy past and present.	2020	NA	Editorial	Physiotherapists	Organization and System
1541	Haines, Kimberley J et al.[103]	Physiotherapists during COVID-19: usual business, in unusual times.	2020	Australia	Editorial	Physiotherapists	Organization and System
1150	Abdullahi, Auwal[61]	COVID-19 pandemic experience: can it serve as a clarion call to establish or revamp a specialty known as 'Infectious Diseases Physiotherapy'?	2020	UK	Letter	COVID patient	Training
1174	Jangra, Mandeep et al.[62]	Significance of physiotherapy in "SARS-CoV-2/COVID-19: An Epidemic".	2020	NA	Letter	COVID patient	Role of PT

2102	Flannery, Thuvia et al.[94]	Physiotherapy after COVID-19—"Zoom or room"	2020	UK	Letter	Non-COVID patient (mixed)	Telehealth
1024	Rawlinson, Gillian et al.[71]	Out-patient physiotherapy service delivery post COVID-19: opportunity for a re-set and a new normal?	2021	NA	Editorial	Non-COVID patient (MSK)	Telehealth

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