



The Conference Board
of Canada

Le Conference Board
du Canada

The Role of Physiotherapy in Canada.

Contributing to a Stronger Health Care System



The Role of Physiotherapy in Canada: Contributing to a Stronger Health Care System

Novella Martinello, Abhi Bhandari, Jenny Santos, and Thy Dinh

Preface

This report is the first in a series of three that explores the role, value, and potential of physiotherapy services in response to changing population needs and in the context of physiotherapists' scope of practice in Canada. This primer report aims to provide an understanding of the role of physiotherapy in the health care system and provides a review of various areas of practice. Subsequent reports will include a physiotherapy market analysis and a forecast of demand for seniors' physiotherapy rehabilitative services in home and continuing care.

To cite this report: Martinello, Novella, Abhi Bhandari, Jenny Santos, and Thy Dinh. *The Role of Physiotherapy in Canada: Contributing to a Stronger Health Care System*. Ottawa: The Conference Board of Canada, 2017.

©2017 The Conference Board of Canada*

Published in Canada | All rights reserved | Agreement No. 40063028 | *Incorporated as AERIC Inc.

An accessible version of this document for the visually impaired is available upon request.

Accessibility Officer, The Conference Board of Canada

Tel.: 613-526-3280 or 1-866-711-2262 E-mail: accessibility@conferenceboard.ca

©The Conference Board of Canada and the torch logo are registered trademarks of The Conference Board, Inc. Forecasts and research often involve numerous assumptions and data sources, and are subject to inherent risks and uncertainties. This information is not intended as specific investment, accounting, legal, or tax advice. The findings and conclusions of this report do not necessarily reflect the views of the external reviewers, advisors, or investors. Any errors or omissions in fact or interpretation remain the sole responsibility of The Conference Board of Canada.

CONTENTS

i	EXECUTIVE SUMMARY
	Chapter 1
1	Introduction
	Chapter 2
6	The Current State of Physiotherapy in Canada
7	A Snapshot of Physiotherapy in Canada
10	Scope of Practice
12	Funding Models
13	Physiotherapist Assistants
	Chapter 3
15	Evolution of Physiotherapy in Canada
16	Health Promotion and Prevention
17	Healthy Aging
18	The Changing Role of Physiotherapy
	Chapter 4
19	A Review of Physiotherapy Areas of Practice
20	Areas of Physiotherapy Practice in Canada
36	Health Promotion and Injury Prevention Initiatives in Primary Health Care
40	Rehabilitative Services for Seniors
	Chapter 5
43	Conclusion and Next Steps
	Appendix A
45	Bibliography
	Appendix B
64	Methodology

Acknowledgements

This report was researched and written by Novella Martinello, Abhi Bhandari, Jenny Santos, and Thy Dinh of The Conference Board of Canada.

The authors would like to thank Kate O'Connor, Melissa Anderson, and Chantal Lauzon of the Canadian Physiotherapy Association for their guidance, support, and contributions.

We are grateful to Dr. Ivy Lynn Bourgeault, Professor, Telfer School of Management at the University of Ottawa, and Canadian Institutes of Health Research Chair in Gender, Work and Health Human Resources, for her external review, and Carole Stonebridge of The Conference Board of Canada for her internal review.

The Canadian Physiotherapy Association and the Canadian Alliance for Sustainable Health Care provided research funding.

The findings and conclusions of this report do not necessarily reflect the views of the investors or reviewers. Any errors or omissions in fact or interpretation remain the sole responsibility of The Conference Board of Canada.

About the Canadian Alliance for Sustainable Health Care

The Canadian Alliance for Sustainable Health Care (CASHC) was created to provide Canadian business leaders and policy-makers with insightful, forward-looking, quantitative analysis of the sustainability of the Canadian health care system and all of its facets.

The work of the Alliance is to help Canadians better understand the conditions under which Canada's health care system is sustainable—financially and in a broader sense.

These conditions include the financial aspects, institutional and private firm-level performance, and the volunteer sector. CASHC publishes evidence-based, accessible, and timely reports on key health and health care systems issues.

Research is arranged under these three major themes:

- Population Health
- The Structure of the Health Care System
- Workplace Health and Wellness

Launched in May 2011, CASHC actively engages private and public sector leaders from the health and health care sectors in developing its research agenda. Some 33 companies and organizations have invested in the initiative, providing invaluable financial, leadership, and expert support.

For more information about CASHC, and to sign up to receive notification of new releases, visit the CASHC website at www.conferenceboard.ca/CASHC.

CASHC Member Organizations

Champion Level

Ontario Ministry of Health and Long-Term Care

Lead Level

Pfizer Canada Inc.

Partner Level

Alberta Health

British Columbia Ministry of Health

Health Canada

LifeLabs Medical Laboratory
Services

Mercer (Canada) Limited

The Great-West Life
Assurance Company

Workers Compensation
of Nova Scotia

Participant Level

AbbVie Corporation

Canadian Association for
Retired Persons (CARP)

Canadian Dental Association

Canadian Medical Association

Canadian Nurses Association

Centric Health

Consumer Health Products Canada

Deloitte & Touche LLP

HealthPartners

Hoffmann-La Roche Limited

Innovative Medicines Canada

Manitoba Health

Neighbourhood Pharmacy
Association of Canada

Trillium Health Partners

Workplace Safety &
Prevention Services

EXECUTIVE SUMMARY

The Role of Physiotherapy in Canada: Contributing to a Stronger Health Care System

At a Glance

- Demand for physiotherapy services is growing along with the physiotherapy workforce in Canada.
- Population aging and the increasing burden of chronic conditions and injuries boost demand for health human resources and, therefore, increase pressures on health care budgets.
- Physiotherapy has demonstrated effectiveness on health outcomes in all areas of practice, from health promotion to rehabilitation for seniors.
- Physiotherapists may be well positioned to address the changing health and demographic needs in Canada through a shift from costly, acute care to upstream solutions.

PTs have an important role to play in promoting active lifestyles and rehabilitation for seniors.

Executive Summary

Optimizing the roles of health care professionals can help to meet growing health care demands and improve the sustainability of the health care system. Physiotherapy is a key part of all sectors of health care, from health promotion to rehabilitation. The physiotherapy workforce has grown since 2010, along with a demand for physiotherapy services. An understanding of the role of physiotherapy in the Canadian health care system and opportunities to optimize the role of rehabilitation within a changing health and health care landscape is needed.

The scope of practice for physiotherapists (PTs) varies across the country, given that each Canadian provincial/territorial regulatory body of PTs is responsible for developing the scope of practice for its region. However, in all provinces and territories, PTs are given the authority to assess physical function and musculoskeletal, neurological, and cardiorespiratory systems and to provide therapeutic exercise programs. The burden of chronic disease is rising in Canada, driven in part by an aging population. PTs have an important role to play in promoting active lifestyles and rehabilitation for both seniors and the general population, thus contributing to optimizing health system performance. Unfortunately, a major gap in public funding models and compensation for PTs across the country includes a lack of focus on primary care and prevention.

Physiotherapy has demonstrated effectiveness in all areas of practice, including, but not limited to, home-based services, intensive care units, cardiovascular rehabilitation, emergency departments, chronic lung disease, joint arthroplasty, low back pain, musculoskeletal conditions, stroke, chronic disease, falls, urinary incontinence, and neurological conditions. In many areas of practice, physiotherapy can increase quality of life, improve various health outcomes, and decrease hospital length

of stay and future health care use among patients. PTs can contribute to creating a more efficient health care system through a focus on primary care, injury prevention, and rehabilitation. The subsequent reports in this series will provide further analysis of the physiotherapy profession in Canada and an estimate of the demand for physiotherapy rehabilitative services for seniors in home and continuing care.

CHAPTER 1

Introduction

Chapter Summary

- Optimizing the roles of health services providers in an interdisciplinary care environment can help to meet growing health care demands and improve the sustainability of the health care system.
- Physiotherapy is a key part of all sectors of health care, from health promotion to rehabilitation and from primary health care to long-term and continuing care, and the demand for these services is growing.
- This report discusses the role of physiotherapy in the Canadian health care system and opportunities to optimize value in responding to changing health care demands and priorities.

The cost of health care services consumes a large proportion of provincial/territorial budgets. With the aging population and a rise in chronic conditions and injuries, health care system sustainability is a concern for all governments.

Canadians are concerned about their ability to receive effective and high-quality care when they need it. One of the means to ensuring a sustainable health care system is the effective and efficient management of health human resources, including the optimization of interprofessional teams and health services providers.¹ The “Triple Aim” framework developed by the Institute for Healthcare Improvement includes three dimensions that must be pursued simultaneously in order to optimize health system performance. They are improving the patient experience of care (including quality and satisfaction); improving population health; and reducing the per capita health care cost.² The assumption is that if organizations and communities achieve the Triple Aim, the result will be better health outcomes at the same or lowest cost, thus resulting in a sustainable health care system.³

The Role of Physiotherapy in Canada Research Series

This research series includes three reports that aim to address the following objectives:

1. provide a general understanding of the role of physiotherapy within the Canadian health care system and serve as a primer to the subsequent reports;
 2. provide a market analysis of the physiotherapist profession;
 3. identify opportunities for physiotherapists in the context of changing population needs, with a focus on seniors’ services, particularly in home and continuing care.
-

¹ Prada, Grimes, and Slokin, *Defining Health and Health Care Sustainability*.

² Institute for Healthcare Improvement, *The IHI Triple Aim*.

³ Ibid.

Physiotherapy's
scope of practice
is expanding
in response
to population
health demands.

Physiotherapy is an integral part of the health care system, from primary health care to rehabilitation to providing care in the home. It is a health profession that promotes physical activity and overall health; prevents and rehabilitates disease, injury, and disability; and manages and improves acute and chronic conditions, activity limitations, participation restrictions, and physical performance through intervention and education.⁴ Physiotherapy services are performed by physiotherapists (PTs) or by trained assistants directed and supervised by PTs. PTs are trained to use diagnostic and assessment procedures and tools, so that they can develop and implement specific preventive and therapeutic courses of intervention for their patients in a variety of practice settings and in a range of practice areas.⁵

As discussed in Chapter 2, physiotherapy's scope of practice is expanding in response to population health demands. The growing demand for physiotherapy services has also resulted in changes in the number of PTs working in Canada. In 2014, there were more than 20,000 PTs in the Canadian workforce, representing an increase of 3.2 per cent per year since 1987, far outpacing the average annual Canadian employment growth of 1.3 per cent.⁶ However, there is room for the profession to expand further and contribute to creating a more efficient and interdisciplinary health care system.

The aging Canadian population and a shift toward health promotion within the Canadian health system will provide new opportunities for physiotherapy; however, these opportunities will not come without their challenges. When it comes to optimizing the inclusion of physiotherapy in the Canadian health care system, regulation, funding models, capacity issues, and service expansion constraints will all need to be carefully considered.

The primary objective of this first report in a series of three is to provide a snapshot of the current PT landscape within the Canadian health care system and introduce opportunities for optimizing physiotherapists' role, given demographic shifts and changing health care needs. These

4 Canadian Physiotherapy Association (CPA), *Description of Physiotherapy in Canada*.

5 Ibid.

6 Canadian Institute for Health Information (CIHI), Health Workforce Database.

findings were informed by a review of both published research and grey literature. The subsequent reports will provide a market analysis of the profession and estimate the demand for services in the context of changing population needs, with a focus on continuing care.

Methodology Overview

The literature review employed a multi-method, iterative approach to identifying, extracting, and synthesizing best evidence (namely, systematic reviews and randomized controlled trials) on the effectiveness and value of services delivered by PTs. A search strategy was developed using a combination of key search terms and medical subject headings (MeSH). This strategy, which can be found in Table 1 of Appendix B, was applied to Ovid Medline⁷ and the Allied and Complementary Medicine Database (AMED).⁸ When applied to Ovid Medline, the search strategy returned a total of 141 articles, which were classified as clinical trials, meta-analyses, or practice guidelines. After initial title and abstract screening, we retained 52 articles. When applied to AMED, the search strategy returned a total of 1,859 articles, of which 306 articles were classified as clinical trials, meta-analyses, or practice guidelines. After initial title and abstract screening, we retained and assessed 67 articles.

We also searched the Physiotherapy Evidence Database (PEDro)⁹ and the Cumulative Index to Nursing and Allied Health Literature (CINAHL)¹⁰ for additional references to support the major areas of focus identified from the grey literature. This search was limited to systematic reviews published since 2010 to ensure capture of most recent evidence. From these additional searches, we retained and assessed an additional 71 articles.

7 See <http://ovidsp.ovid.com/autologin.html>.

8 See www.ebscohost.com/academic/amed-the-allied-and-complementary-medicine-database.

9 See www.pedro.org.au/.

10 See <https://health.ebsco.com/products/the-cinahl-database>.

In addition to these database searches, we performed branching searches from relevant bibliographies to identify additional studies for analysis. We conducted online searches using a combination of search terms such as “physiotherapy,” “primary care,” “family health team,” and “Canada health care” to locate relevant grey literature.

Two research associates reviewed the full-text version of the retained articles and extracted relevant information into a data extraction table. The relevant information was synthesized and is presented in tables and in narrative discussion within this report.

CHAPTER 2

The Current State of Physiotherapy in Canada

Chapter Summary

- The physiotherapy workforce grew by 13.5 per cent between 2010 and 2014, with 40 per cent working in a hospital setting and the predominant area of practice being related to the musculoskeletal system.
- Scopes of practice for PTs in Canada vary considerably across the country, given that each provincial/territorial college is responsible for developing the scope of practice for its region.
- Regional variations exist in publicly funded PT services across the country, contributing to access challenges.

A Snapshot of Physiotherapy in Canada

According to the Canadian Institute for Health Information (CIHI), there were 20,134 PTs employed in the Canadian workforce in 2014, representing a 13.5 per cent growth since 2010.¹ However, when taking into account registered PTs who are employed in other professions, as well as registered PTs who are unemployed, the total supply of PTs in Canada is estimated at 20,842 in 2014.² These numbers reflect a surplus of just over 700 PTs within Canada. Despite this surplus, very few PTs—approximately 213 according to the most recent estimates from CIHI—are unemployed. This represents an unemployment rate of only 1 per cent. By way of comparison, the 2014 unemployment rate was 1.5 per cent for health occupations and 6.9 per cent for all occupations.³

The Canadian Institute for Health Information Health Workforce Database: Physiotherapists

The Canadian Institute for Health Information (CIHI) collects and reports data on 30 groups of health care providers, including PTs. Data for PTs primarily derive from the provincial and territorial regulatory or licensing bodies of the health profession.⁴ In provinces and territories where the profession is not regulated (i.e., Northwest Territories and Nunavut), PTs register with the college of another province or territory, which may affect the accuracy of the data.

1 CIHI, Health Workforce Database.

2 Ibid.

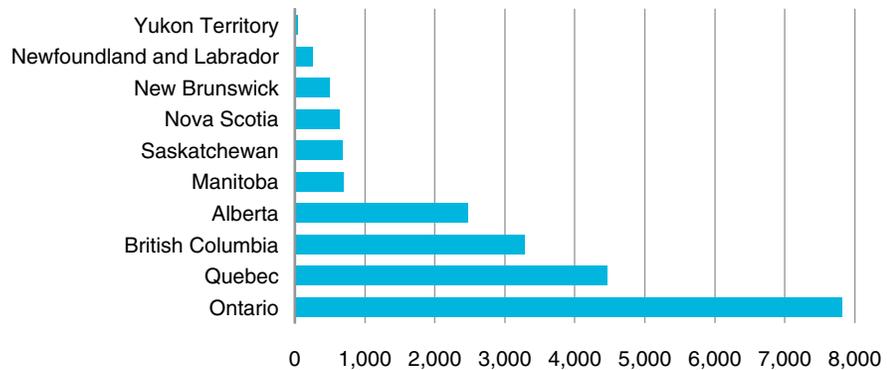
3 Ibid.

4 CIHI, *Health Workforce Database Methodology Guide for Data Tables, 2014*.

The supply, demographics, distribution, and employment characteristics of PTs are collected through record-level data. PT data have been collected for nearly 10 years and the collection period ends on September 1 of each year. There are several limitations to the PT data in this database. Record-level data were not available for the 2014 data year. As well, the College of Physiotherapists of Manitoba does not provide record-level data for year of birth and sex; however, aggregate totals for age group and sex were provided by Manitoba Health for 2010 to 2014. Moreover, between 2010 and 2014, data were not available for the Northwest Territories and Nunavut, as there are no territorial licensing bodies in these territories.⁵

Chart 1 displays the distribution of employed PTs by province or territory in 2014.⁶ Of a total 20,134 employed PTs, almost 67 per cent were permanent employees and 19 per cent were self-employed. The remainder were temporary (4.6 per cent) or casual (4.3 per cent) employees. Almost two-thirds were employed full-time (62 per cent). Most (90 per cent) employers of PTs were located in urban areas (including Whitehorse and Yellowknife in the territories).⁷

Chart 1
Physiotherapists, Employed Population, by Region, 2014
(number)



Sources: The Conference Board of Canada; Statistics Canada.

- 5 Ibid.
- 6 Comparable data were unavailable for Prince Edward Island; data for the Northwest Territories and Nunavut are included in the totals for neighbouring provinces.
- 7 CIHI, *Physiotherapists, 2014*.

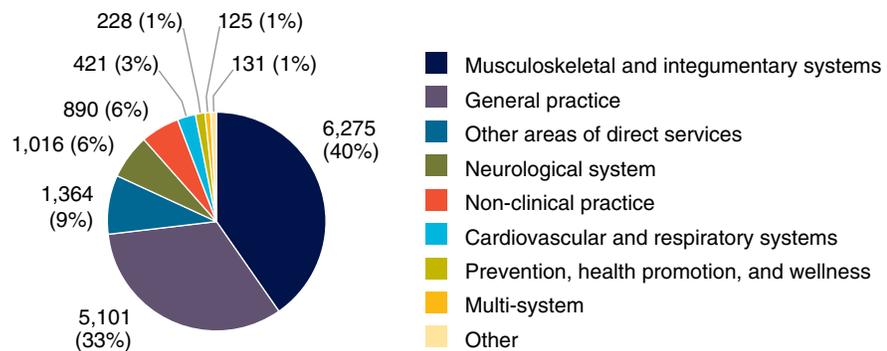
PTs work in a number of different practice settings, such as community health centres, education settings, fitness centres, government/health planning agencies, hospices, hospitals, private practice (clinics or in-home care), nursing homes/long-term care facilities, occupational health centres, out-patient/ambulatory care clinics, prisons, rehabilitation centres, research facilities, seniors' residences, sports clinics, and work sites.⁸ According to CIHI data, 40 per cent of PTs were employed in a hospital setting, 10 per cent in a community setting, and 32 per cent in a private practice setting in 2014.⁹

PTs' area of practice in Canada is predominantly focused on the musculoskeletal system (such as sports medicine, orthopaedics, and rheumatology) and general practice (which focuses on general physical health issues). (See Chart 2.) The proportion of PTs practising in these areas represents 40 and 33 per cent of the labour force, respectively. The remaining areas of practice focus on neurological, cardiovascular, and respiratory systems and other areas of direct services, including health promotion and wellness.

Chart 2

Physiotherapist Workforce, by Area of Practice, 2014

(number of physiotherapists; percentage of area of practice; n = 15,551)



Note: Missing values are excluded (n = 225).
Source: Canadian Institute for Health Information.

8 CPA, *Description of Physiotherapy in Canada*.

9 The remaining values were missing.

Educational Attainment Among PTs

Physiotherapists in Canada require a master's degree for entry to practice. Currently, there are 15 master's-level physiotherapy university programs across Canada.¹⁰ Despite the transition away from an undergraduate education to a post-graduate education, the majority of current PTs (66.9 per cent) held a bachelor's degree in 2014, while just over one-quarter (26.7 per cent) held a master's degree, 5.5 per cent held a diploma, and 0.9 per cent held a doctorate. Of Canadian-educated PTs (excluding Northwest Territories and Nunavut), more than one-third (34.9 per cent) of employed PTs in Canada completed their education in physiotherapy in Ontario, while 28.8 per cent completed their education in Quebec.¹¹

The subsequent reports in this research series will include a greater breakdown and analysis of the physiotherapy market in Canada. This will include a deep dive into how PTs are practising and the estimated current and projected supply and demand for services.

Scope of Practice

A profession's scope of practice can be defined as the services in which its practitioners are “educated, competent and authorized to provide.”¹² The actual scope of practice of individual practitioners is determined by factors such as their continuing professional education, practice settings, workplace requirements, and patient or client needs.¹³ Table 2 of Appendix B visually demonstrates the Canadian physiotherapy scope of practice by skill/activity and province/territory. Each skill/activity is categorized as either “authorized,” “delegated,” “restricted/controlled,” “unauthorized,” or “unknown.”

An *authorized* act gives PTs the “authority” to practise the specified skill or activity within that specific province. For example, in all provinces and territories, PTs are given the authority to assess physical function and musculoskeletal, neurological, and cardiorespiratory systems.

10 CPA, *Description of Physiotherapy in Canada*.

11 CIHI, *Physiotherapists in Canada, 2010*.

12 CPA, *Description of Physiotherapy in Canada*.

13 Ibid.

Each Canadian provincial/territorial college of PTs is responsible for developing the scope of practice for its region.

They are equally authorized to provide therapeutic exercise programs, hydrotherapy, electrotherapeutic modalities, and soft tissue and manual therapy, including massage.¹⁴ However, in provinces where certain skills or activities are not given the same authority, PTs must practise these skills or activities under the authority of another profession. These are known as *delegated* acts.¹⁵ Although delegated acts are uncommon, there are a few instances where skills are delegated to other health professionals—for example, setting/casting a fracture or dislocation in British Columbia and ordering x-rays and lab tests in Manitoba. *Restricted* means that the performance of specific skills or acts may be done only by regulated health professionals who are qualified to perform them.¹⁶ In Ontario, a PT is required to roster,¹⁷ declaring they have the knowledge and skills to perform the restricted act. Rostered activities include tracheal suctioning, spinal manipulation, acupuncture, treating a wound below the dermis, assessing or rehabilitating pelvic musculature, and administering a substance by inhalation.¹⁸ Certain restrictions are in place, including ordering tests such as magnetic resonance imaging (MRI), diagnostic ultrasound, x-rays, and lab tests, depending on the jurisdiction. For example, in Alberta, PTs must initially be supervised by someone who is authorized to perform restricted acts until they complete the requirements to perform the acts independently.¹⁹ The *Essential Competency Profile for Physiotherapists in Canada* provides additional information on physiotherapy scope of practice or competencies in Canada.²⁰

Given that each Canadian provincial/territorial college of PTs is responsible for developing the scope of practice for its region, scopes of practice vary across the country. For example, the ability to provide acupuncture is restricted in Ontario and Alberta, unauthorized in Quebec, and allowed in all other regions except Nunavut and Northwest

14 Ibid.

15 Ibid.

16 Ibid.

17 Rostering requires that PTs complete additional post-graduate training, demonstrate competency, and complete ongoing testing in order to register to perform the act.

18 College of Physiotherapists of Ontario, *Rostering for Authorized Activities/Controlled Acts*.

19 CPA, *Description of Physiotherapy in Canada*.

20 National Physiotherapy Advisory Group, *Essential Competency Profile for Physiotherapist Assistants in Canada*.

Territories, where it is listed as unknown. Similarly, spinal manipulation is restricted in Alberta and Ontario, authorized in Quebec with the approval of the college, authorized in Manitoba through an approved program but within skill level and within college competency statement, and authorized in Saskatchewan if the PT has specialized educational teachings or courses. Spinal manipulation is listed as unknown in Prince Edward Island, Northwest Territories, and Nunavut. Related to this, there are currently gaps in what is known about PT scopes of practice across the country. For example, in Nova Scotia and Yukon, the prescription, manufacture, modification, and application of braces, splints, taping, mobility aids, or seating equipment and ergonomic evaluation, modification, education, and counselling are authorized; however, it is unclear whether PTs are involved in these acts throughout the rest of Canada.

Funding Models

How physiotherapy is publicly funded (how PTs are remunerated by government) varies across the country. For example, Alberta and Ontario are currently the only provinces that have identified physiotherapy in the primary health care model. Similarities across all provinces include the availability of worker's compensation boards and assistance to low-income individuals and seniors through publicly funded and home-care physiotherapy. However, challenges exist in public funding models across Canada, including an overall lack of funding for community care, prevention, and primary health care.

Within privately funded services, physiotherapy insurance claims account for approximately 5.5 per cent of the total of extended health benefits paid in Canada in 2012.²¹ The value of these claims is approximately \$350 million to \$450 million per year. The number of claims for physiotherapy is growing each year, as well as the cost per physiotherapy visit. For claims to be eligible, the service must be provided by a PT registered and in good standing with the provincial college and may require a physician's order. Coverage varies with

21 3D Analytics and Consulting, *The Practice of Physiotherapy in Canadian Extended Health Insurance*.

individual plans. For individuals with limited or no extended health benefits, physiotherapy is paid for out-of-pocket. It is uncertain what proportion of all funding for physiotherapy is paid for out-of-pocket. Claims are usually reimbursed at 80 per cent of the cost and subject to a plan's annual deductible.²² The lack of publicly available information on health plans, claims, and services utilization makes it difficult to fully understand the extent of coverage in Canada, by jurisdiction, and by individual characteristics (e.g., socio-demographic).

Physiotherapist Assistants

Physiotherapist assistants (PTAs) are trained personnel who assist the registered/licensed PT in providing physiotherapy services under the PT's direction and supervision.²³ They assist the PT in ensuring the delivery of safe, effective, and efficient physiotherapy services, while also achieving and maintaining optimal clinical outcomes.²⁴ Tasks and responsibilities of the PTA may vary across Canada. Tasks are assigned to the PTA by the supervising physiotherapist. PTAs' level of education, experience, and exposure to practice settings vary widely.²⁵

Physiotherapy Education Accreditation Canada (PEAC) and the Canadian Association of Occupational Therapists are the accreditation agencies that govern the PTA Education Accreditation Program (EAP) and Occupational Therapist Assistant (OTA) program, respectively.²⁶ The accreditation process involves assessing candidacy status, a letter of intent, preparing self-study reports, on-site and off-site accreditation reviews, editing and reviewing the report, and, finally, recommendation and decision of accreditation.²⁷ There are currently 22 public institutions across Canada (excluding Quebec) that offer occupational/physical therapy assistant, rehabilitation assistant, or physiotherapist assistant programs (or some combination); the specific number of private colleges

22 Ibid.

23 National Physiotherapy Advisory Group, *Essential Competency Profile for Physiotherapy Assistants in Canada*.

24 Ibid.

25 Ibid.

26 Occupational Therapist Assistant and Physiotherapist Assistant Education Accreditation, *Accreditation Process*.

27 Ibid.

offering the program is unknown.²⁸ Accreditation is open to both public and private programs. Accreditation is voluntary; however, it adds credibility to the program and helps to ensure some standardization of competencies. Currently, 17 programs have candidacy status and 14 programs have been accredited.²⁹ A survey of Occupational Therapist Assistant & Physiotherapist Assistant Educators Council (COPEC) members indicated that the 13 programs that responded have graduated approximately 1,418 OTAs/PTAs across Canada in the last five years. Members were asked to give an estimate of the employment rates of these graduates; responses ranged from 65 to 100 per cent.

Physical rehabilitation therapists (PRTs) have a three-year diploma from a college and are regulated health professionals in Quebec, but with a more limited scope than a PT. A PT has previously assessed all patients being treated by a PRT or patients have received a medical diagnosis that is not restricted to symptoms. Section 4 of the *Ordre professionnel de la physiothérapie du Québec's* regulation guide describes the four categories of disorders that a PRT is authorized to treat with physiotherapy: determining or contributing to the development of the list of possible diagnoses; setting treatment objectives and contraindications or precautions for the patient; making decisions about the treatment approach; and applying the treatment to the patient.³⁰

28 Occupational Therapist Assistant & Physiotherapist Assistant Education Accreditation Program, *Affiliated Education Programs*.

29 Ibid.

30 *Ordre professionnel de la physiothérapie du Québec, Section 4 of the regulation respecting.*

CHAPTER 3

Evolution of Physiotherapy in Canada

Chapter Summary

- The burden of chronic conditions and injuries is rising in Canada, partly due to population aging.
- As seniors experience higher rates of chronic illness and multi-morbidity, the demand for health care is high among this group and will continue to grow over time.
- PTs have an important role to play in promoting active lifestyles and rehabilitation for both seniors and the general population, thus contributing to population health and wellness, while improving health system performance.

Health Promotion and Prevention

In Canada, the impact of chronic disease continues to drive health system change. More than half of Canadians (16 million people) live with chronic illness, placing enormous pressures on the health care system.¹

Since 2003, and taking age adjustments into account, we have seen increases in the prevalence of Type 2 diabetes (24 per cent increase), pain or discomfort that prevents activities (34 per cent increase), self-reported mental health issues (35 per cent increase), and obesity (23 per cent increase).² Many of these chronic diseases can be avoided and their symptoms lessened by the implementation of healthy, active lifestyles, including improved physical activity and reduced sedentary behaviour. It is regrettable, therefore, that over this same period of time, the proportion of the population that is physically inactive in leisure time has plateaued at around 45 per cent.³

According to a recent report by CIHI, when it comes to finding ways to make the health system more efficient, health regions must focus on those modifiable risk factors for ill health and their causes.⁴ All of this supports a shift in focus in the health care system from tertiary and “sick” care to health promotion and prevention efforts in order to make the best use of health care dollars. To this end, allocating resources to preventive measures has the potential to produce long-term cost savings through reduced demand on health care services and represents a more effective long-term strategy for spending scarce resources.⁵

1 Statistics Canada, *Canadian Community Health Survey*, 2003 and 2012.

2 Ibid.

3 Dinh, *Moving Ahead*.

4 CIHI, *Measuring the Level and Determinants*.

5 Munro, *Healthy People, Healthy Performance, Healthy Profits*.

Healthy Aging

The composition of the Canadian population is changing. In 2015, nearly one in six Canadians (16.1 per cent) were 65 years and over.⁶ By 2036, the number of seniors is expected to be over 10 million—more than double the number in 2011. This rate of growth is significantly higher than the projected rate of overall population growth, which is expected to increase from approximately 34 million to 44 million. Furthermore, seniors are projected to make up around one-quarter of all Canadians by the middle of the century.⁷

Seniors are the most frequent and intense users of the health care system, as more than three-quarters of them have at least one chronic condition. Seniors suffer from a larger number of chronic diseases, take more prescription and over-the-counter medications than any other age group, and require ongoing treatment and management.⁸

Healthy aging is the process of developing and maintaining functional abilities that enable well-being in older age.⁹ Seniors can increase their well-being by participating in programs and care that encourage a healthy, active lifestyle. Seniors increasingly participate in their own health care, and Canadian communities are beginning to understand the importance of providing age-friendly environments and opportunities for seniors to make healthy decisions. For example, in Ontario, many family health teams offer programs to help seniors, such as aging at home and fall prevention. Family health teams are being developed that are tailored to meet specific local community needs, emphasizing comprehensive chronic disease management and health promotion strategies.¹⁰

6 Statistics Canada, CANSIM table 051-0001.

7 Statistics Canada, *Population Projections for Canada*, 46, 55.

8 Verbeeten, Astles, and Prada, *Understanding Health and Social Services for Seniors in Canada*.

9 World Health Organization, *World Report on Ageing and Health*.

10 Ibid.

The Changing Role of Physiotherapy

The role of physiotherapy within Canada has the potential to change due to the aging population, increased levels of physical inactivity, and the associated burden of chronic conditions and injuries. PTs may be well positioned to address the changing health and population needs within Canada since they have the capacity to assess physical function and prescribe exercise programs and are in a strong position to provide enhanced individualized services and treatment for seniors, including programs aimed at health promotion and injury prevention. As such, PTs have an important role to play in encouraging healthy, active living and maintaining mobility, not only among seniors but also among the overall population. PTs can play a part in optimizing health system performance through an increased focus on upstream solutions and redirecting patients from costly acute health care and emergency departments toward timely, accessible, and affordable community services. This could significantly reduce pressures on provincial health care budgets and improve the patient experience.

CHAPTER 4

A Review of Physiotherapy Areas of Practice

Chapter Summary

- Physiotherapy has demonstrated effectiveness in a wide variety of practice areas.
- Physiotherapy can increase quality of life and improve functionality and other health outcomes while decreasing hospital visits, lengths of stay, and other costly acute and continuing care services.
- The increasing burden of chronic conditions and injuries as a result of population aging warrants a focus on the value of physiotherapy in specific service areas, including primary health care and seniors' health initiatives as promising areas of practice for new graduates.

Areas of Physiotherapy Practice in Canada

This section provides an overview of physiotherapy's areas of practice within Canada as described in a recent CPA report.¹ These areas include pediatrics, home-based services, intensive care units, emergency care, chronic diseases, cardiovascular rehabilitation, chronic lung disease, neurological conditions, stroke, musculoskeletal conditions, low back pain, joint arthroplasty, falls, and urinary incontinence, to name a few. Additionally, this section highlights recent, high-quality evidence (i.e., systematic reviews and randomized controlled trials) of the effectiveness of each of the aforementioned areas.

Pediatrics

Pediatric PTs assess, diagnose, and treat children with neurological, developmental, cardiorespiratory, and orthopaedic conditions to improve their function and independence.² The costs associated with pediatric physiotherapy services are generally higher than for adult treatments. However, these services have been found to result in long-term health benefits and decreased use of future health care services.³ Studies have found effectiveness of physiotherapy for pediatric patients with various conditions. For example, aerobic and strength training and other structured exercise programs have been shown to significantly improve pulmonary function for children with cystic fibrosis;⁴ improve strength of selected muscle groups, gross motor function, endurance,

1 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

2 CPA, *Pediatrics*.

3 Ibid.

4 Van Doorn, "Exercise Programs for Children With Cystic Fibrosis."

and temperospatial measures in children with cerebral palsy;⁵ decrease disability in adulthood, improve quality of life and functional abilities in children with juvenile idiopathic arthritis;⁶ and reduce fatigue and improve strength and quality for children with cancer.⁷ For children with disabilities, pediatric physical therapists can improve day-to-day functioning by measuring and promoting meaningful outcomes in the individual, family, and environment components.⁸ Lastly, for pre-term infants, physical therapy interventions are effective, but they need to be tailored to the infant's age, condition, and individual characteristics.⁹ Other studies found that exercise interventions during childhood increase annual bone mineral content and areal bone mineral density;¹⁰ improve vascular function;¹¹ and reduce waist circumference, percentage of body fat, and visceral fat.¹² More generally, studies on school-based physical activity interventions suggest that short bouts of high-intensity weight-bearing activity can positively affect growing pediatric bone and in some cases also improve lean and fat tissue.¹³ Notably, PTs in pediatric care form a close bond with their patient and the patient's family and play an important role in the transition to adult care, especially within an interprofessional team. For example, PTs can support the management of perinatal conditions, injuries, and other conditions diagnosed in early childhood.¹⁴

Home-Based Services

Home-based physiotherapy services provide assessment and treatment to individuals in their homes for many conditions, including, stroke, heart failure, Parkinson's disease, and recovery from hip-replacement surgery.¹⁵ Home-based physiotherapy has been shown to improve overall physical

5 Martin, Baker, and Harvey, "A Systematic Review of Common Physiotherapy Interventions."

6 Long and Rouster-Stevens, "The Role of Exercise Therapy."

7 Baumann, Bloch, and Buelertz, "Clinical Exercise Interventions in Pediatric Oncology."

8 Carey and Long, "The Pediatric Physical Therapist's Role."

9 Javier, Conesa, and Pérez-López, "Efficacy of Early Physiotherapy Intervention."

10 Specker, Thieux, and Sudhagoni, "Does Exercise Influence Pediatric Bone?"

11 Dias and others, "Exercise and Vascular Function in Child Obesity."

12 Alberga and others, "A Review of Randomized Controlled Trials of Aerobic Exercise Training."

13 Nogueira, Weeks, and Beck, "Exercise to Improve Pediatric Bone and Fat."

14 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

15 Ibid.

Home-based programs are more cost-effective than in-patient treatment.

well-being, decreases social isolation among clients, and reduces the rate of rehospitalization and future health care service utilization.¹⁶

Further, home-based physiotherapy interventions, such as tailored exercise and inspiratory muscle training, have been shown to be effective in improving breathlessness during activities of daily living for patients with severe chronic obstructive pulmonary disease (COPD).¹⁷ There is strong evidence that home-based interventions provide significant relief in dyspnea status and index and improve health-related quality of life, exercise capacity, and pulmonary function.¹⁸ These programs also significantly improve quality of life and systolic blood pressure and decrease smoking and depression among those with more than one main coronary heart disease risk factor, as compared to usual care.¹⁹ Other types of physiotherapy interventions for patients with COPD are highlighted in the section Chronic Lung Disease.

As well, home-based exercise programs can help prevent falls and frailty²⁰ and improve physical activity, balance, mobility, and muscle strength in seniors.²¹ New research has found that physical therapy through an in-home video telerehabilitation program significantly improved functional outcomes and health-related quality of life for a group of veterans.²² Overall, the research supports home-based services provided by PTs to improve functional activities for both seniors living in the community with chronic disease²³ and those who are healthy, with smaller improvements for the latter.²⁴ Although home care can be less available than in-patient treatment due to long wait times and high costs, home-based programs are more cost-effective than in-patient treatment. This is due to decreased future health care use and the provision

16 CPA, *Home-Based Physiotherapy*.

17 Thomas and others, "The Impact of Home-Based Physiotherapy Interventions on Breathlessness."

18 Liu and others, "Effectiveness of Home-Based Pulmonary Rehabilitation."

19 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

20 Clegg and others, "Do Home-Based Exercise Interventions Improve Outcomes for Frail Older People?"

21 Hill and others, "Individualized Home-Based Exercise Programs for Older People to Reduce Falls."

22 Levy and others, "Effects of Physical Therapy Delivery Via Home Video Telerehabilitation."

23 Health Quality Ontario, "In-Home Care for Optimizing Chronic Disease Management in the Community."

24 Thiebaud, Funk, and Abe, "Home-Based Resistance Training for Older Adults."

of seamless care between hospital and home.²⁵ Clearly, this area of practice requires PTs with broad experiences who are comfortable working independently.²⁶

Intensive Care Units

PT treatment in the intensive care unit (ICU) focuses on early mobility of critically ill patients and respiratory management of ventilator-dependent patients.²⁷ In this setting, PTs assess and manage a variety of patient complications affecting the neurological, musculoskeletal, and cardiorespiratory systems.²⁸ As a member of the multidisciplinary team, they assist with patient positioning and mobilization, including through exercises focused on strengthening muscles, increasing balance, and increasing range of motion.²⁹ Physiotherapy in the ICU has been shown to improve outcomes, decrease hospital stay length, and improve quality of life among patients.³⁰ A systematic review of PTs in pediatric ICU supports the use of the expiratory flow increase technique and cardiorespiratory physiotherapy, especially manual hyperinflation and vibrations, for secretion clearance.³¹ There is also evidence that inspiratory muscle training in the ICU facilitates weaning and reduces the length of time on non-invasive ventilation after weaning and length of stay in the ICU and hospital.³² One systematic review showed that the only effective intervention to improve long-term physical functioning among ICU survivors is exercise/physical therapy when compared to other interventions such as nutrition and nurse-led follow-up.³³ Another systematic review showed that early rehabilitation in the pediatric ICU has short- and long-term benefits, and that it's both safe and feasible.³⁴ Specifically, physiotherapy care in the ICU contributed to a reduction in the length of stay, mechanical ventilation support, incidence of

25 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

26 Ibid.

27 CPA, *Intensive Care Unit*.

28 Ibid.

29 Denehy and Berney, "Physiotherapy in the Intensive Care Unit."

30 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

31 Hawkins and Jones, "What Is the Role of the Physiotherapist in Paediatric Intensive Care Units?"

32 Elkins and Dentice, "Inspiratory Muscle Training Facilitates Weaning From Mechanical Ventilation."

33 Calvo-Ayala and others, "Interventions to Improve the Physical Function of ICU Survivors."

34 Wieczorek and others, "Early Mobilization in the Pediatric Intensive Care Unit."

respiratory infection, and risk of mortality.³⁵ Overall, although patients in the ICU do not always receive physical therapy as a standard of care, research shows that early exercise in the ICU helps prevent neuromuscular complications and improves functional status; it is effective, safe, and feasible.^{36,37} Nevertheless, physical rehabilitation must be tailored to the patient's impairment to be effective.³⁸ PTs assist with service collaboration; however, there are challenges reported with high caseloads, staff shortages, patient buy-in, and the need for specialized equipment. Further commitment from hospitals, appropriate funding models, and increased education for clients is needed to address these issues.

Emergency

The main function of PTs in the emergency department (ED) is to assess mobility and function.³⁹ Specifically, they assess, diagnose, triage, and manage patients with musculoskeletal injuries and elderly patients with reduced functionality. Physiotherapy in EDs has high patient satisfaction⁴⁰ and improves the continuum of care through assisting with referrals and discharge planning. Studies have highlighted physiotherapy care in the ED context as one mechanism to improve pain control, reduce short-term disability, and decrease hospital length of stay and wait times.⁴¹ Although there are many interventions that have been reported to improve pain management in EDs, there is not enough evidence to recommend any specific intervention for widespread implementation and adoption.⁴² Additionally, early identification of and support for patients requiring physiotherapy can decrease future burden on health services; however, challenges remain with service expansion—more beds are required, yet many emergency departments already operate at full capacity.⁴³

35 Castro and others, "Chest Physiotherapy Effectiveness to Reduce Hospitalization."

36 Stiller, "Physiotherapy in Intensive Care."

37 Sosnowski and others, "Early Rehabilitation in the Intensive Care Unit."

38 Ibid.

39 CPA, *Emergency Department*.

40 Taylor and others, "Primary Contact Physiotherapy in Emergency Departments Can Reduce Length of Stay."

41 Peiris, Taylor, and Shields, "Extra Physical Therapy Reduces Length of Stay."

42 Sampson, Goodacre, and O'Cathain, "Interventions to Improve the Management of Pain."

43 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

Chronic Diseases

Physiotherapy is effective for the prevention, treatment, management, and education of self-management of chronic disease, including hypertension, emphysema, COPD, Type 2 diabetes, and obesity.⁴⁴ For example, a recent systematic review found that PTs make moderate contributions to self-management interventions that are disease-specific by applying behaviour change theories.⁴⁵ More generally, there is strong evidence that physical activity should be used as a tool in preventing and managing chronic diseases.⁴⁶ Specific evidence on the effectiveness of physiotherapy in patients with COPD is highlighted in the next section, Cardiovascular Rehabilitation.

While more research is needed on cost-effectiveness in the area of physiotherapy and chronic diseases, we do know that physiotherapy requires minimal equipment and that most PTs have expertise in chronic disease prevention/management.⁴⁷ Generally, future use of health care resources is reduced through chronic disease prevention programs that have elements of exercise, education, and self-management strategies.⁴⁸ One Canadian study shows that being physically active reduces a person's lifetime probability of developing Type 2 diabetes by 43 per cent, hypertension by 26 per cent, and osteoporosis by 36 per cent. Physical activity also reduces the risk of developing potentially deadly conditions such as colon cancer (27 per cent), breast cancer (17 per cent), heart disease (30 per cent), and stroke (29 per cent).⁴⁹ Physical inactivity accounts for a significant portion of health care spending in Canada.⁵⁰ Regrettably, referral patterns, lack of resources, and support for lower-income individuals are the main barriers to this area of practice.

44 CPA, *Chronic Disease*.

45 Richardson and others, "Self-Management Interventions for Chronic Disease."

46 Adami and others, "The Role of Physical Activity in the Prevention and Treatment of Chronic Diseases."

47 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

48 CPA, *Chronic Disease*.

49 Janssen, "Health Care Costs of Physical Inactivity in Canadian Adults."

50 Ibid.

Cardiovascular Rehabilitation

Cardiac rehabilitation (CR) is a team-based intervention that has a holistic approach to improving individual outcomes after a cardiac event; it includes physical, psychosocial, and educational components.⁵¹ PTs have a central role in CR programs, including prescribing individualized exercise programs and contributing to education programs on lifestyle changes such as smoking cessation.⁵² Physiotherapy for CR is cost-effective and proven effective in reducing hospitalization rates, improving health outcomes, and changing lifestyle behaviours.⁵³ For example, one large review found that exercise-based CR decreased cardiovascular mortality and hospital admissions and improved quality of life for those with coronary heart disease.⁵⁴

Another study showed evidence that exercise-based CR for those with post-myocardial infarction had a lower risk of a secondary event and all-cause mortality.⁵⁵ Cardiovascular exercise may also be beneficial for stroke survivors during sub-acute stages to improve aerobic capacity and walking distance.⁵⁶ However, participation and adherence to cardiac rehabilitation programs remains a challenge, especially among the elderly. Education and referral strategies can assist with improving uptake and adherence rates.⁵⁷

Chronic Lung Disease

Similarly, pulmonary rehabilitation (PR) for patients with chronic lung disease are comprehensive, multidisciplinary, patient-centred programs that incorporate exercise training and self-management education as well as interventions that focus on psychosocial and nutritional health.⁵⁸ PR has been shown to improve patient outcomes and to decrease ED and physician visits. While there may be some issues in terms of

51 CPA, *Cardiac Rehabilitation*.

52 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

53 Ibid.

54 Anderson and others, "Exercise-Based Cardiac Rehabilitation for Coronary Heart Disease."

55 Lawler, Filion, and Eisenberg, "Efficacy of Exercise-Based Cardiac Rehabilitation Post-Myocardial Infarction."

56 Stoller and others, "Effects of Cardiovascular Exercise Early After Stroke."

57 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

58 CPA, *Chronic Lung Disease*.

Physiotherapy can decrease medication use, which suggests cost-effectiveness.

maintaining effectiveness, studies have shown that exercise therapy improves outcomes for patients with cystic fibrosis and physiotherapy can decrease medication use and number of ICU admissions over time, which suggests cost-effectiveness compared to usual care.⁵⁹ A review showed that an out-patient pulmonary rehabilitation program not only led to significant improvements in dyspnea, exercise capacity, and quality of life,⁶⁰ but also reduced health resources use in those with severe COPD.^{61,62} PR is also safe for people with interstitial lung disease with similar improvements, but its longer-term effects for these patients are yet to be ascertained. Likewise, another review showed that exercise capacity was improved and pulmonary function was maintained following lung resection surgery with pre-operative physiotherapy, but it was not clear whether these benefits led to a reduction in post-operative pulmonary complications.⁶³

As for effectiveness on the specific skills performed by PTs, a very recent systematic review shows evidence that spinal manipulative therapy improves lung function and exercise function for those with COPD; however, more research is needed due to study limitations.⁶⁴ Cardiorespiratory physiotherapy techniques, such as intermittent positive pressure ventilation and positive expiratory pressure, and a walking program are also effective for patients who require assistance with sputum clearance.⁶⁵

Other research indicates that physiotherapy may improve aerobic capacity, disease-specific quality of life,⁶⁶ cardiopulmonary fitness, and inspiratory pressure while reducing symptoms and medication use for patients with asthma.⁶⁷ Likewise, chronic disease management

59 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

60 Nellessen, Hernandez, and Pitta, "Physiotherapy and Rehabilitative Interventions in Patients With Chronic Respiratory Disease."

61 Rubi and others, "Effectiveness of Pulmonary Rehabilitation in Reducing Health Resources Use."

62 Ochmann, Jörres, and Nowak, "Long-Term Efficacy of Pulmonary Rehabilitation."

63 Nagarajan and others, "Is Preoperative Physiotherapy/Pulmonary Rehabilitation Beneficial?"

64 Wearing and others, "The Use of Spinal Manipulative Therapy in the Management of Chronic Obstructive Pulmonary Disease."

65 Tanf, Taylor, and Blackstock, "Chest Physiotherapy for Patients Admitted to Hospital."

66 Crosbie, "The Effect of Physical Training in Children With Asthma."

67 Bruurs, Van der Giessen, and Moed, "The Effectiveness of Physiotherapy in Patients With Asthma."

programs for adults with asthma improve asthma-specific quality of life, asthma severity, and lung function tests.⁶⁸

Despite these potential benefits, challenges exist in physiotherapy uptake and completion rates, as a result of a lack of perceived benefit, poor transportation to service centres, and lack of additional capacity of physiotherapy programs for chronic lung disease.⁶⁹ A holistic approach to identifying the key issues influencing a patient's participation must include environmental, organizational, and individual factors.⁷⁰

Neurological Conditions

Another subpopulation that requires specialized care is those with neurological conditions. Since the incidence of some of the more common neurological conditions increases with age, as our population ages and grows, both the number of individuals facing the challenges associated with neurological conditions and the cost of caring for these individuals are expected to rise. Physiotherapy interventions have shown benefits for individuals with neurological conditions, including for individuals with Parkinson's disease. For example, one review found that physiotherapy improved gait outcomes of velocity, two-or-six-minute walk test, and step length, as well as functional mobility and balance outcomes over the short term more than placebo (control) or no physiotherapy intervention.⁷¹ Other research also supports the use of exercise training to improve balance and gait ability and prevent falls in people with Parkinson's disease.⁷² However, there is not enough evidence to demonstrate the effectiveness of one physiotherapy intervention versus another in this population.⁷³

It was also found that physiotherapy in dementia treatment not only helps to improve functional abilities, but also helps to maintain or improve

68 Peytremann-Bridevaux and others, "Chronic Disease Management Programmes for Adults With Asthma."

69 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

70 Johnston and Grimmer-Somers, "Pulmonary Rehabilitation."

71 Tomlinson and others, "Physiotherapy Versus Placebo or No Intervention in Parkinson's Disease."

72 Shen, Wong-Yu, and Mak, "Effects of Exercise on Falls, Balance, and Gait Ability in Parkinson's Disease."

73 Tomlinson and others, "Physiotherapy for Parkinson's Disease."

Physiotherapy interventions significantly improve functional outcomes.

cognitive abilities.⁷⁴ Exercise programs, in general, may also be effective in preventing falls in community-dwelling seniors with dementia and other cognitive impairment.^{75,76} However, the true benefits and longer-term impact is realized only if and when the patient develops the skills and strategies for long-term adherence to appropriate exercise.⁷⁷

Among people with schizophrenia, another systematic review found that physiotherapy interventions such as aerobic exercises improved psychiatric symptoms and quality of life and reduced patient metabolic risk and weight.⁷⁸ These specialized areas of practice among rehabilitation services for seniors are still lacking evidence and warrant further research.

Stroke

Physiotherapy aims to restore physical function among stroke survivors and is provided in specialized stroke units, in-patient hospital wards and rehabilitation units, and the community.⁷⁹ The need for physiotherapy following stroke is included in the Canadian Heart and Stroke Foundation's Canadian stroke guidelines.⁸⁰ Physiotherapy programs for stroke patients are effective in preventing subsequent acute events, reducing the odds of poor outcomes and rehospitalization, and assisting with patient transition from hospital to home. Research shows that a variety of physiotherapy interventions, including short- and long-distance walking, significantly improve functional outcomes.^{81,82,83} Since one study could not identify any one approach that is more effective in promoting recovery in these patients, the authors recommend that individualized

74 Malak and others, "Dysfunctions Associated With Dementia and Their Treatment."

75 Burton and others, "Effectiveness of Exercise Programs to Reduce Falls in Older People With Dementia."

76 Chan and others, "Efficacy of Physical Exercise in Preventing Falls in Older Adults With Cognitive Impairment."

77 Gisbert and Schenkman, "Physical Therapist Interventions for Parkinson Disease."

78 Vera-Garcia and others, "A Systematic Review of the Benefits of Physical Therapy Within a Multidisciplinary Care Approach for People With Schizophrenia."

79 CPA, *Stroke*.

80 Hebert and others, "Canadian Stroke Best Practice Recommendations."

81 Ferrarello and others, "Efficacy of Physiotherapy Interventions Late After Stroke."

82 Saunders and others, "Physical Fitness Training for Stroke Patients."

83 Peurala and others, "Evidence for the Effectiveness of Walking Training on Walking and Self-Care After Stroke."

treatment should be tailored to the evidence available for that specific type of treatment.⁸⁴ For example, lumbar stabilization exercises have a positive effect on balance abilities,⁸⁵ and tailored counselling with personalized supervised exercises have a positive effect on long-term physical activity participation and functional exercise capacity in patients after stroke.⁸⁶

There is also emerging evidence that repetitive task-specific training is effective in improving sit-to-stand ability,⁸⁷ walking distance, speed, and activities of daily living.⁸⁸ A novel approach for improving physical function and disability involves having a trained assistant instruct patients on exercises and adaptive strategies over the telephone, with recommendations provided by a PT (or occupational therapist). Telerehabilitation was deemed to be a useful supplement to traditional post-stroke rehabilitation given the limited resources available for in-home rehabilitations for these patients.⁸⁹ Key challenges in this area are the need for more rehabilitation beds, which are costly and require staff with specialized training, and the need for services in rural and remote communities to serve patients close to home.⁹⁰

Musculoskeletal Conditions

Musculoskeletal (MSK) conditions can be defined as a broad range of disorders that affect the bones, joints, and connective tissue. Arthritis (and related conditions) and trauma are included in this definition.⁹¹ Patients with MSK can reduce and/or eliminate pain, muscle weakness, and loss of stability through PT assessment and treatment, as an alternative to pain medication.^{92,93} In addition, physiotherapy reduces

84 Pollock and others, "Physical Rehabilitation Approaches for the Recovery of Function and Mobility."

85 Ko, Jung, and Bae, "Effect of Lumbar Stabilization Exercises on the Balance Ability of Patients With Stroke."

86 Morris, Macgillivray, and McFarlane, "Interventions to Promote Long-Term Participation in Physical Activity After Stroke."

87 Pollock and others, "Interventions for Improving Sit-to-Stand Ability Following Stroke (Review)."

88 French and others, "Does Repetitive Task Training Improve Functional Activity After Stroke?"

89 Chumbler and others, "Effects of Telerehabilitation on Physical Function and Disability for Stroke Patients."

90 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

91 CPA, *Musculoskeletal Conditions*.

92 Ibid.

93 Centers for Disease Control and Prevention, "CDC Guideline for Prescribing Opioids for Chronic Pain."

Physiotherapy
has been shown
to decrease
workplace claims
and loss of
work time.

disability, promotes recovery from injury, reduces the risk of re-injury and enables early detection of acute events.^{94,95} Systematic reviews have found that training programs, including strength/resistance training, balance, proprioception, and education components, are effective in reducing the risk of sports injuries among athletes.^{96,97,98} More generally, exercise therapy as a physiotherapeutic rehabilitation intervention reduces pain and improves activities of daily living in patients with musculoskeletal pain.⁹⁹ As well, intermediate care for these patients provided by an interdisciplinary team that includes physiotherapists improves patient outcomes, often leads to appropriate referral and management, reduces waiting times, and improves patient satisfaction.¹⁰⁰ New research has shown that patients with MSK problems who used PhysioDirect services, based on a telephone assessment and advice from a PT, were not only treated more quickly but also had the same clinical outcomes as those who had a face-to-face appointment.¹⁰¹ Exercise adherence could also be improved through supervised or individualized exercise therapy.¹⁰² Moreover, workplace resistance training performed at 70 to 85 per cent of one-repetition maximum (1RM),¹⁰³ three times a week for 20 minutes, promotes reduction of musculoskeletal pain in the shoulders, wrists, and spine.¹⁰⁴

In the workplace, physiotherapy has been shown to decrease workplace claims and loss of work time and increase physical functioning and earlier return to work.¹⁰⁵ Although the cost of PTs treating MSK conditions is high, treatment may lower total health care costs by

94 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

95 Ibid.

96 Leppänen and others, "Interventions to Prevent Sports Related Injuries."

97 Michaelidis and Koumantakis, "Effects of Knee Injury Primary Prevention Programs on Anterior Cruciate Ligament Injury Rates in Female Athletes in Different Sports."

98 Kristensen and Franklyn-Miller, "Resistance Training in Musculoskeletal Rehabilitation."

99 Lorås and others, "Medical Exercise Therapy for Treating Musculoskeletal Pain."

100 Hussenbux and others, "Intermediate Care Pathways for Musculoskeletal Conditions."

101 Salisbury and others, "Effectiveness of PhysioDirect Telephone Assessment and Advice Services."

102 Jordan and others, "Interventions to Improve Adherence to Exercise for Chronic Musculoskeletal Pain."

103 Repetitive maximum refers to the maximum number of repetitions of a strength training exercise that can be completed with a given resistance or weight.

104 Rodrigues and others, "Effects of Exercise on Pain of Musculoskeletal Disorders."

105 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

decreasing reliance on other health care providers, appropriately triaging patients, and reducing the number of visits required over time.¹⁰⁶ While patient acceptability of receiving PT and satisfaction is high, access and uptake rates are dependent on physician referral, availability of on-site clinics, and the patient's socioeconomic status.¹⁰⁷ The MSK rehabilitation area of practice is in need of more PTs working in rural areas.^{108,109}

Low Back Pain

Physiotherapy management of low back pain includes assessment and diagnosis, manual therapy, electrotherapeutic modalities exercise prescription, education, self-management strategies, and workplace intervention.¹¹⁰ Physiotherapy for patients with low back pain is highly effective in reducing acute and chronic pain, improving physical function, decreasing wait times, promoting a healthier lifestyle and independent living, and limiting the risk of increased disability and chronic conditions.¹¹¹ Some evidence points to the benefits of a multidisciplinary approach. For example, a recent systematic review showed that patients with chronic low back pain receiving a multidisciplinary biopsychosocial rehabilitation program administered by various health care professionals—including PTs—experienced less pain and disability as compared to those receiving the usual medical care or physical therapy alone. The program also had a positive influence on work status. The cost-effectiveness of such a program is currently being assessed.¹¹² Another review suggests that both a multidisciplinary approach and physiotherapy treatment are appropriate for those with chronic low back pain, but physiotherapy is the preferred treatment due to the higher costs involved with a multidisciplinary approach.¹¹³

Other research shows that physiotherapy treatment for post-acute low back pain is slightly more effective for intermediate-term function

106 Ibid.

107 Ibid.

108 Ibid.

109 CIHI, *Physiotherapists in Canada, 2009*.

110 CPA, *Low Back Pain*.

111 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

112 Kamper and others, "Multidisciplinary Biopsychosocial Rehabilitation for Chronic Low Back Pain."

113 van Oort and others, "Physiotherapy or Multidisciplinary Treatment for Chronic Low Back Pain."

and intermediate and long-term pain than advice for self-management strategies.¹¹⁴ Specific strategies, such as core strength training exercises,¹¹⁵ coordination/stabilization exercise programs,¹¹⁶ and aerobic exercise¹¹⁷ are effective in alleviating chronic low back pain. Additionally, exercise therapy has shown to decrease pain, disability, and/or sick leave among pregnant women with lumbopelvic pain.¹¹⁸ Another study showed that group-based physiotherapy-led self-management interventions for chronic low back pain appear to be just as clinically effective as individual physiotherapy; however, research on its cost-effectiveness is needed.¹¹⁹ There is also evidence that specific cognitive behaviour therapies, such as operant conditioning, can be integrated into physiotherapy practice for standard low back pain management and prevention.^{120,121} As for prevention strategies for low back pain, there is evidence that exercise alone or in combination with education is effective.¹²² Conclusively, rehabilitation programs for low back pain are effective.

Joint Arthroplasty (Replacement Surgery)

PTs have been found to be effective in clinical patient outcomes in expanded roles in the care of patients undergoing total knee or total hip arthroplasty (also known as joint replacement surgery).¹²³

Some key interventions supporting joint arthroplasty clinical pathways to improve process and financial outcomes include pre-admission exercises or “prehabilitation,”¹²⁴ assessment and testing, post-operative rehabilitation, discharge management, home-based physiotherapy, and

114 Richards and others, “The Effectiveness of Physiotherapy Functional Restoration for Post-Acute Low Back Pain.”

115 Chang, Lin, and Lai, “Core Strength Training for Patients With Chronic Low Back Pain.”

116 Searle and others, “Exercise Interventions for the Treatment of Chronic Low Back Pain.”

117 Meng and Yue, “Efficacy of Aerobic Exercise for Treatment of Chronic Low Back Pain.”

118 van Benten and others, “Recommendations for Physical Therapists on the Treatment of Lumbopelvic Pain.”

119 Toomey, “The Effectiveness of Physiotherapist-Delivered Group Education and Exercise Interventions.”

120 Brunner and others, “Can Cognitive Behavioural Therapy Based Strategies Be Integrated.”

121 Bunzli, Gillham, and Esterman, “Physiotherapy-Provided Operant Conditioning in the Management of Low Back Pain Disability.”

122 Steffens and others, “Prevention of Low Back Pain.”

123 Large and others, “Physiotherapy-Led Arthroplasty Review Clinic.”

124 Santa Mina and others, “Effect of Total-Body Prehabilitation on Postoperative Outcomes.”

Exercise is effective in reducing the rate of falls and risk of falling

follow-up.¹²⁵ However, it must be noted that there is currently not enough evidence to support the implementation of pre-operative education or pre-operative physiotherapy programs.^{126,127} Other research shows that for those people waiting for a hip replacement surgery, exercise-based interventions can reduce pain and improve physical function, but not for those waiting for a knee replacement surgery.¹²⁸

Early intervention, which can decrease hospital length of stay, and discharging patients home with supportive therapy can reduce overall costs on the health care system.¹²⁹ Indeed, a systematic review found that physical therapy performed in a clinic under the supervision of a PT may provide the best long-term outcomes after surgery.¹³⁰

Additionally, PTs triage patients for joint arthroplasty referrals to ensure appropriateness for surgical intervention and educate patients wait-listed for surgery.¹³¹ Post-operatively, studies show that those who participated in physiotherapy programs experienced improved outcomes, such as reduced pain and increased joint range of motion.¹³² Further, physiotherapy-led arthroplasty review clinics after hip and knee replacement surgery seem to be a safe and effective service alternative to reviews conducted by orthopaedic surgeons.

Falls

Falls are the leading cause of injury among older Canadians, contributing about \$2 billion a year in direct health care costs.¹³³ Exercise interventions are effective in reducing falls in community-dwelling seniors. A recent review showed consistent evidence that exercise is effective in reducing the rate of falls and risk of falling,¹³⁴ although results

125 Herck and others, "Key Interventions and Outcomes in Joint Arthroplasty Clinical Pathways."

126 Jordan and others, "Enhanced Education and Physiotherapy Before Knee Replacement."

127 Santa Mina and others, "Effect of Total-Body Prehabilitation on Postoperative Outcomes."

128 Gill and McBurney, "Does Exercise Reduce Pain and Improve Physical Function Before Hip or Knee Replacement Surgery?"

129 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

130 Pozzi, Snyder-Mackler, and Zeni, "Physical Exercise After Knee Arthroplasty."

131 CPA, *Joint Arthroplasty*.

132 Grotle and others, "What's in Team Rehabilitation Care After Arthroplasty for Osteoarthritis?"

133 Public Health Agency of Canada, *Seniors' Falls in Canada*.

134 Gillespie and others, "Interventions for Preventing Falls in Older People Living in the Community (Review)."

varied with the exact type, duration, frequency, and setting of exercise interventions. When it comes to the most optimal exercise to prevent falls, a program that includes endurance, balance, and strength exercise components is recommended.¹³⁵ For example, the Otago exercise program, which consisted of strength and balance retraining, significantly reduced the risk of death and falling in seniors living in the community.¹³⁶ Perturbation-based balance training is also effective in reducing fall risk among seniors and those with Parkinson's disease.¹³⁷ Additionally, research shows that exercise intervention in residential care settings improves performance on some tests of physical function (such as the Berg Balance Scale) for seniors with visual impairments, but its impact on falls warrants further research.¹³⁸ The main challenges to service expansion in this area are the lack of PTs with specialized training in geriatric rehabilitation,¹³⁹ lack of funding for prevention, and lack of rehabilitation services in rural and remote communities.

Urinary Incontinence

Urinary incontinence, the involuntary loss of urine associated with urgency or with effort, physical exertion, sneezing, or coughing, is a neglected problem in the aging population and a strong predictor of a need for care.¹⁴⁰ The prevalence of urinary incontinence is one of the most common impairments in older age and is much more common among women,¹⁴¹ affecting at least one in three older women. It is a medical condition that is often curable and should be treated.¹⁴² Physiotherapy for female stress urinary incontinence (SUI) includes pelvic floor physiotherapy and lifestyle and behavioural therapy. Evidence showed greater improvements in SUI when women received at least

135 Stubbs, Brefka, and Denkinger, "What Works to Prevent Falls in Community-Dwelling Older Adults?"

136 Thomas, Mackintosh, and Halbert, "Does the 'Otago Exercise Programme' Reduce Mortality and Falls."

137 Mansfield and others, "Does Perturbation-Based Balance Training Prevent Falls?"

138 Gleeson, Sherrington, and Keay, "Exercise and Physical Training Improve Physical Function in Older Adults."

139 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

140 Yuan, Williams, and Liu, "Attitudes Toward Urinary Incontinence."

141 Milsom and others, "Global Prevalence and Economic Burden of Urgency Urinary Incontinence."

142 Chang, Lynn, and Glass, "Urinary Incontinence in Older Women."

one three-month supervised exercise program.¹⁴³ The effectiveness of the treatment was increased if principles such as intensity, duration, and the body position during pelvic floor training were considered.¹⁴⁴

Another systematic review showed that combined physical and behavioural therapies are effective in the short term for older people in care homes with urinary incontinence.¹⁴⁵ Moreover, one review found that pelvic floor muscle training programs improved continence rates in the short and long term for men who had a prostatectomy, similar to those of PT-guided programs; and thus, these muscle-training programs may be more cost-effective.¹⁴⁶ Overall, the literature shows that physical therapy treatment is effective to decrease urinary incontinence in older women, though there are a limited number of studies in this area.¹⁴⁷

Health Promotion and Injury Prevention Initiatives in Primary Health Care

This section explores the role of and potential for physiotherapy in primary health care in more detail. Health promotion strategies, as a tenet of primary health care, warranted its own section as it is a fundamental premise in managing chronic diseases and must be a focus among health care professionals to improve the sustainability of the health system. Physiotherapy has demonstrated effectiveness in health promotion and injury prevention programming and approaches.

What Is Primary Health Care?

Primary health care (PHC) aims to directly meet the health care needs of the local community by acting as the first point of contact for health care services. The team of PHC professionals not only diagnose and treat health conditions/illness but also incorporate injury prevention, health promotion, and chronic disease management into their daily practice.¹⁴⁸

143 Price, Dawood, and Jackson, "Pelvic Floor Exercise for Urinary Incontinence."

144 Ghaderi and Oskouei, "Physiotherapy for Women With Stress Urinary Incontinence."

145 Flanagan and others, "Systematic Review of Care Intervention Studies for the Management of Incontinence."

146 Fernandez, "Improvement of Continence Rate With Pelvic Floor Muscle Training Post-Prostatectomy."

147 Pereira, Escobar, and Driusso, "Effects of Physical Therapy in Older Women With Urinary Incontinence."

148 Health Canada, *What Is Primary Health Care?*

Interprofessional primary care (IPC) teams are groups of professionals from different disciplines who work together to provide health services within a community. IPC teams have been shown to produce multiple benefits compared with care provided by a solo care provider, including significant improvements in health and wellness for patients with chronic conditions and risk factors.¹⁴⁹ These teams have also been found to offset the costs to other parts of the health care system, such as acute care, and improve labour force participation by increasing the life expectancy and quality of life of Canadians.¹⁵⁰ To improve the effectiveness and efficiency of the health care system and maximize their public investments, Canadian governments are looking to expand the use of interprofessional, collaborative teams to deliver high-quality primary health care services.¹⁵¹

The Role of Physiotherapy

Many provincial physiotherapy associations, such as those of Alberta, Saskatchewan, Ontario, and New Brunswick, have released position statements supporting the inclusion and importance of PTs in primary health care. The roles and activities of PTs in PHC range from assessment, diagnosis, counselling, education, and management for various conditions and diseases to system navigation for diverse community programs and services.¹⁵² PTs, as PHC providers, consider population health needs and incorporate population health approaches into program planning and treatment interventions to enhance the impact on health outcomes. For example, PTs play an important role in the prevention and management of chronic disease, including hypertension, emphysema, Type 2 diabetes, and obesity.

Evidence of Effectiveness

Physiotherapy can significantly impact the future use of health care services by allowing patients to access the care they need before they

149 Dinh and Bounajm, *Improving Primary Health Care Through Collaboration: Briefing 3*.

150 Dinh, *Improving Primary Health Care Through Collaboration: Briefing 2*.

151 Dinh, Stonebridge, and Thériault, *Getting the Most Out of Health Care Teams*.

152 Ontario Physiotherapy Association, *Physiotherapists in Primary Health Care*.

require acute care.¹⁵³ The benefits of including PTs within PHC teams internationally include higher patient satisfaction,¹⁵⁴ decreased wait times for physiotherapy consultation,¹⁵⁵ improved patient outcomes,¹⁵⁶ decreased wait times for surgery, increased return to work, fewer emergency room visits, reduced volume of referrals to specialists, reduced use of medication,¹⁵⁷ increased likelihood that patients will achieve their treatment goals,¹⁵⁸ and cost-effective care and efficient use of health human resources.¹⁵⁹ Research that surveyed family physicians and nurse practitioners across Ontario found that the integration of PTs within Ontario PHC teams is well supported and there is potential for their role to evolve as part of this process. Respondents indicated that the contributions of PTs to health programming in primary health care are important and the Ontario PHC teams that do not have a PT may be missing an important perspective to their programming and services.¹⁶⁰

A scoping review showed that PTs help patients manage their chronic disease through self-management interventions that primarily focus on physical activity.¹⁶¹ This supports the role of PTs as health counsellors solely or within a multidisciplinary team.¹⁶² They promote positive behaviour change in their patients through health education strategies. Some common principles that PTs consider include theories to inform their approach; timing (e.g., pre- and post-assessments and follow-up); session structure (e.g., brief advice, individual or group session, or via telephone); technique (e.g., motivational prompts, individualized programs, and goal setting); and delivery method.¹⁶³

153 CPA, *The Value of Physiotherapy*.

154 Jones and others, "A Pilot Study of Pulmonary Rehabilitation in Primary Care."

155 Stanley and others, "Uptake of Prompt Access to Physiotherapy."

156 Barrett and others, *CHSRF Synthesis*.

157 Naci and Ioannidis, "Comparative Effectiveness of Exercise and Drug Interventions on Mortality Outcomes."

158 Holdsworth, Webster, and McFayden, "What Are the Costs to NHS Scotland of Self-Referral to Physiotherapy?"

159 Leemrijse, Swinkles, and Veenhof, "Direct Access to Physical Therapy in the Netherlands."

160 Dufour, "Understanding the Roles of Physiotherapists Within Ontario Primary Health Care Teams."

161 Richardson and others, "Self-Management Interventions for Chronic Disease."

162 Frerichs and others, "Can Physical Therapists Counsel Patients With Lifestyle-Related Health Conditions?"

163 Alexander and others, "Health Education Strategies Used by Physical Therapists to Promote Behaviour Change."

There are many opportunities for integrating physiotherapy into FHTs by partnering with existing physiotherapy services.

One study in the Netherlands demonstrated that using an eight-week proprioceptive training program in addition to the usual care for an ankle sprain was cost-effective for preventing recurrent ankle sprains compared to usual care alone. It was estimated that this program can save an annual €35.9 million in medical and lost productivity costs.¹⁶⁴ As well, research has demonstrated that patients who participated in tailored exercise programs required fewer emergency readmissions and physician visits and experienced a higher self-reported quality of life than those patients who received usual care.¹⁶⁵

PTs with expertise in cardiopulmonary-vascular health could ultimately enhance health promotion efforts and improve the chronic disease management within primary health care.¹⁶⁶ For example, a recent study found that services delivered by PTs who focused on chronic disease management within a family health team (FHT) in Hamilton were associated with a reduction in planned hospital days as well as improved patient satisfaction.¹⁶⁷

Moreover, a study involving interviews with key informants from FHTs across Ontario found that there are many opportunities for integrating physiotherapy into FHTs by partnering with existing physiotherapy services. Most interview participants in this study believed that there is value in adding physiotherapy services to the FHT's list of offered services, particularly given the current and future challenge of meeting the primary care needs of the growing number of Ontarians with chronic diseases. The major challenge in both cases remains the difficulty of accessing physiotherapy services outside of hospitals as a result of the lack of public funding for community-based physiotherapy services.¹⁶⁸ Timely and appropriate PT care at the community level can reduce the burden on the health care system by decreasing the need for medications and fully publicly funded institutional care.

164 Hupperets and others, "Potential Savings of a Program to Prevent Ankle Sprain Recurrence."

165 Mitton and Dionne, *Valuation of Physiotherapy Services in Canada*.

166 Ibid.

167 Richardson and others, "Rehabilitation in a Primary Care Setting for Persons With Chronic Illness."

168 Cott, Mandoda, and Landry, "Models of Integrating Physical Therapists Into Family Health Teams in Ontario."

Rehabilitative Services for Seniors

This section describes rehabilitation needs for seniors and potential opportunities for PTs to meet this need. The population of Canada is aging and the health care needs of this aging population will only continue to increase. In this report we decided to highlight the value of PTs in the context of rehabilitative services for seniors, with the intent of further estimating this value in the third report of this research series on the demand for PT services in continuing care.

Current and Future Rehabilitation Needs

Individuals who experience disability and who may have difficulty achieving optimal functioning within their current environment can be supported through rehabilitation.¹⁶⁹ EKOS Research Associates conducted a survey on behalf of The Conference Board's Canadian Alliance for Sustainable Health Care (CASHC).¹⁷⁰ At the request of the Conference Board, EKOS included an oversample of respondents 55 years and older. When it came to unmet health care needs, 23 per cent of respondents reported an unmet need related to rehabilitation services. Although 35 per cent reported using rehabilitation care services in the past year, nationally, 29 per cent reported a need for additional rehabilitative services and cited reasons such as lack of availability and high costs as reasons for not seeking service. Respondents in Atlantic Canada reported the lowest usage of rehabilitative services at half the national average.

In a decade (year 2026), approximately 2.4 million Canadians aged 65 years and older will need paid and unpaid continuing care support—a 71 per cent increase from 2011. By 2046, this number will increase to almost 3.3 million, corresponding with a growth of 129 per cent since 2011. As a result, total dollars spent on continuing care supports for seniors in Canada (excluding the territories) is expected to increase, along with inflation, from \$28.3 billion in 2011 to \$177.3 billion in 2046.

¹⁶⁹ Stucki, Cieza, and Melvin, "The International Classification of Functioning, Disability and Health (ICF)."

¹⁷⁰ A total of 3,883 respondents were surveyed online and 244 were surveyed by telephone. The sample population was selected from EKOS' proprietary panel, Probit, which covers the entire population (on and offline, cell only, and landline). The distribution of the recruitment process mirrors the actual population in Canada (as defined by Statistics Canada).

With governments continuing to provide almost two-thirds of this spending, this will substantially exceed the pace of revenue growth for most provinces.¹⁷¹ Health and health care must be made sustainable.

The Role of Physiotherapy

PTs are in an ideal position to support the independence of aging Canadians. Maintaining mobility is important for people as they age. Mobility is necessary for doing things around the house; accessing shops, services, and facilities in the community (such as parks); and participating in social and cultural activities. Declines in mobility can result in further decrements in health, such as increasing the risk of falls,¹⁷² which can have negative impacts on seniors' overall well-being and limit other areas of functioning.¹⁷³ Maintaining health, physical function, and rehabilitation following an illness or injury can be helpful in restoring and maintaining capacity in seniors who have declines in mobility associated with conditions such as a stroke, a cardiac event, or injury.¹⁷⁴

Physical activity is crucial for seniors. The loss of muscle mass, decreased flexibility, and problems with balance and coordination can all make getting around more difficult. Physical activity has multiple other benefits in older age. These include improving physical and mental capacities (e.g., maintaining muscle strength and cognitive function, reducing anxiety and depression, and improving self-esteem); preventing disease and reducing the risk of coronary heart disease, diabetes, and stroke; and improving social outcomes (e.g., increasing community involvement and maintaining social networks and intergenerational links).¹⁷⁵ Mobility limitations are common but are amenable to exercise interventions and could be routinely addressed in primary care visits.¹⁷⁶ PTs can contribute to healthy aging across the country and improve mental and physical well-being among seniors.

171 Hermus, Stonebridge, and Edenhoffer, *Future Care for Canadian Seniors*.

172 Perracini and others, "Falls in Older Adults."

173 Nordbakke and Schwanen, "Well-Being and Mobility."

174 Prince and others, "The Burden of Disease in Older People and Implications for Health Policy and Practice."

175 World Health Organization, *World Report on Ageing and Health*.

176 Brown and Flood, "Mobility Limitation in the Older Patient."

Evidence of Effectiveness

Physical rehabilitation has been associated with improved independence in daily living activities in elderly residents of long-term care facilities.¹⁷⁷ One review found that strength- and balance-training exercises can easily be provided by a PT. A great deal of data exist that support PT-led exercise interventions, including specific exercises to strengthen the lower extremities and improve balance. Moreover, physical rehabilitation has been shown to be safe and effective at reducing falls in older adults who are at high risk for falls.¹⁷⁸ Physical activity also appears to preserve, and may even improve, cognitive function in people with dementia, reducing cognitive decline by around one-third.¹⁷⁹ Similarly, stroke causes some of the greatest burden of disease in older age, and moderate physical activity may reduce the risk by 11 to 15 per cent, with vigorous physical activity having even greater benefits and reducing the risk by 19 to 22 per cent.¹⁸⁰

The primary health care pilot project called Getting a Grip on Arthritis: A National Primary Health Care Community Initiative included PTs in the provision of resources and development of tools to educate providers and their patients around the resources available, how to exercise, medication, and how to cope with arthritis and pain. The initiative had a significant impact on patients, with 83 per cent reporting increased ability in self-management of these chronic conditions.¹⁸¹

177 Crocker and others, "The Effect of Physical Rehabilitation on Activities of Daily Living in Older Residents."

178 Tofthagen, Visovsky, and Berry, "Strength and Balance Training for Adults With Peripheral Neuropathy."

179 Norton and others, "Potential for Primary Prevention of Alzheimer's Disease."

180 Diep and others, "Association of Physical Activity Level and Stroke Outcomes in Men and Women."

181 Health Canada, *Getting a Grip on Arthritis*.

CHAPTER 5

Conclusion and Next Steps

Chapter Summary

- The physiotherapy workforce is growing, along with the demand for services and new opportunities for PTs.
- PTs can contribute to creating a more efficient health system through a focus on primary care, injury prevention, and rehabilitation.
- The subsequent reports will provide further analysis of the mobility and rehabilitation market in Canada, concluding with recommendations for the future of the profession.

Physiotherapy’s scope of practice has evolved over time. The demand for physiotherapy services, along with the workforce, appears to be increasing. Although the physiotherapy workforce has grown in the last five years, over 40 per cent of PTs are employed in the hospital setting, despite the potentially growing need for PTs within home and community settings. Physiotherapy can be cost-effective and can improve health outcomes among patients in a variety of settings and areas of practice, including health promotion and prevention. Unfortunately, challenges exist in terms of varying funding models across the country, including gaps in covering community and primary care.

All PTs in Canada hold the capacity to assess physical function and prescribe exercise programs within their scope of practice. The aging Canadian population and the increased burden of chronic diseases provides new opportunities to optimize the scope of practice of physiotherapists in the primary health care setting to address changing population needs. PTs are in an excellent position to promote healthy aging and maintain mobility and prevent injuries among seniors and have a key role to play in encouraging and prescribing healthy, active living among the broader Canadian population. There is a need for increased health human resources within promotion and prevention, and PTs are well positioned to address this need and to contribute to creating a more efficient and interdisciplinary health system.

The subsequent reports in this research series will provide a market analysis to profile the physiotherapy occupation in Canada; quantify the demand and supply for physiotherapy services, specifically focusing on seniors’ care; and discuss the future of PT in relation to the changing demographics and health care needs of the Canadian population from a training, policy, and practice perspective.

APPENDIX A

Bibliography

3D Analytics and Consulting. *The Practice of Physiotherapy in Canadian Extended Health Insurance*. Report prepared for the Canadian Physiotherapy Association.

Adami, P., A. Negro, N. Lala, and P. Martelletti. "The Role of Physical Activity in the Prevention and Treatment of Chronic Diseases." *Clinical Therapeutics* 161, no. 6 (2010): 537–41.

Alberga, A., A. Frappier, R. J. Sigal, D. Prud'homme, and G. Kenny. "A Review of Randomized Controlled Trials of Aerobic Exercise Training on Fitness and Cardiometabolic Risk Factors in Obese Adolescents." *The Physician and Sportsmedicine* 41, no. 2 (2013): 44–57.

Alexander, E., S. Rosenthal, and C. Evans. "Achieving Consensus on Recommendations for the Clinical Management of Overweight and Obese Adults for Canadian Physiotherapy Practice." *Physiotherapy Canada* 64, no. 1 (2012): 42–52.

Alexander, J., E. Bambury, A. Mendoza, J. Reynolds, R. Veronneau, and E. Dean. "Health Education Strategies Used by Physical Therapists to Promote Behaviour Change in People With Lifestyle-Related Conditions: A Systematic Review." *Hong Kong Physiotherapy Journal* 30, no. 2 (December 2012): 57–75.

Anderson, L., N. Idrige, D. R. Thompson, A.-D. Zwisler, K. Rees, N. Martin, and R. S. Taylor. "Exercise-Based Cardiac Rehabilitation for Coronary Heart Disease." *Journal of the American College of Cardiology* 67, no. 1 (2016): 1–12.

Barrett, J., V. Curran, L. Glynn, and M. Godwin. *CHSRF Synthesis: Interprofessional Collaboration and Quality Primary Healthcare*. Ottawa: Canadian Health Services Research Foundation, 2007. www.cfhi-fcass.ca/Migrated/PDF/SynthesisReport_E_rev4_FINAL.pdf (accessed March 1, 2016).

Baumann, F. T., W. Bloch, and J. Buelertz. "Clinical Exercise Interventions in Pediatric Oncology: A Systematic Review." *Pediatrics Research* 74, no. 4 (2013): 366–74.

Brown, C. J., and K. L. Flood. "Mobility Limitation in the Older Patient: A Clinical Review." *Journal of the American Medical Association* 310, no. 11 (2013): 1168–77.

Brunner, E., A. De Herdt, P. Minguet, S.-S. Baldew, and M. Probst. "Can Cognitive Behavioural Therapy Based Strategies Be Integrated Into Physiotherapy for the Prevention of Chronic Low Back Pain? A Systematic Review." *Disability and Rehabilitation* 35, no. 1 (2013): 1–10.

Bruurs, M. L., L. J. Van der Giessen, and H. Moed. "The Effectiveness of Physiotherapy in Patients With Asthma: A Systematic Review of the Literature." *Respiratory Medicine* 107, no. 4 (2013): 483–94.

Bunzli, S., D. Gillham, and A. Esterman. "Physiotherapy-Provided Operant Conditioning in the Management of Low Back Pain Disability: A Systematic Review." *Physiotherapy Research International* 16, no. 1 (2011): 4–19.

Burton, E., V. Cavalheri, R. Adams, C. Browne, P. Boverly-Spencer, A. M. Fenton, B. W. Campbell, and K. D. Hill. "Effectiveness of Exercise Programs to Reduce Falls in Older People With Dementia Living in the Community: A Systematic Review and Meta-analysis." *Clinical Interventions in Aging* 10 (2015): 421–434.

Calvo-Ayala, E., B. A. Khan, M. O. Farber, E. W. Ely, and M. A. Boustani. "Interventions to Improve the Physical Function of ICU Survivors: A Systematic Review." *Chest* 144, no. 5 (2013): 1469–80.

Canadian Council of Physiotherapy University Programs. *Description of Physiotherapy in Canada*. 2012. www.physiotherapyeducation.ca/CanadianPrograms.html (accessed January 20, 2016).

Canadian Institute for Health Information (CIHI). Health Workforce Database. www.cihi.ca/en/spending-and-health-workforce/health-workforce/hwdb-metadata.

—. *Health Workforce Database Methodology Guide for Data Tables, 2014*. 2015. https://secure.cihi.ca/free_products/2014_HW_Meth_Guide_EN_web.pdf (accessed January 20, 2016).

—. *Measuring the Level and Determinants of Health System Efficiency in Canada*. 2014. www.cihi.ca/en/hse_technicalreport_en_web.pdf (accessed January 20, 2016).

—. *Physiotherapists, 2014*. <https://secure.cihi.ca/estore/productSeries.htm?pc=PCC439>.

—. *Physiotherapists in Canada, 2010: National and Jurisdictional Highlights and Profiles*. 2011. www.cihi.ca/en/ptdb2010_provincial_prof_en.pdf (accessed January 20, 2016).

—. *Physiotherapists in Canada, 2009*. 2010. www.cptbc.org/pdf/CIHIReport.PTinCanada.2009.pdf (accessed January 20, 2016).

Canadian Physiotherapy Association. *Cardiovascular Rehabilitation*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_cardiorehab-en.pdf (accessed January 20, 2016).

—. *Chronic Disease*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_chronicdisease-en.pdf (accessed January 20, 2016).

—. *Chronic Lung Disease*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_chroniclungdisease-en.pdf (accessed January 20, 2016).

—. *Description of Physiotherapy in Canada: 2012*. https://physiotherapy.ca/sites/default/files/site_documents/dopen-en.pdf (accessed January 20, 2016).

—. *Emergency Department*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_erdept-en.pdf (accessed January 20, 2016).

—. *Home-Based Physiotherapy*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_homebasedphysio-en.pdf (accessed January 20, 2016).

—. *Intensive Care Unit*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_icu-en.pdf (accessed January 20, 2016).

—. *Joint Arthroplasty*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_jointarthroplasty-en.pdf (accessed January 20, 2016).

—. *Low Back Pain*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_lowbackpain-en.pdf (accessed January 20, 2016).

—. *Musculoskeletal Conditions*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_musculoskeletal-en.pdf (accessed January 20, 2016).

—. *Pediatrics*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_pediatrics-en.pdf (accessed January 20, 2016).

—. *Stroke*. 2012. https://physiotherapy.ca/sites/default/files/valuePT/cpa_valuept_stroke-en.pdf (accessed January 20, 2016).

—. *The Value of Physiotherapy*. <https://physiotherapy.ca/value-physiotherapy> (accessed January 20, 2016).

Carey, H., and T. Long. “The Pediatric Physical Therapist’s Role in Promoting and Measuring Participation in Children With Disabilities.” *Pediatric Physical Therapy* 24, no. 2 (2012): 163–70.

Castro, A. A., S. R. Calil, S. A. Freitas, A. B. Oliveira, and E. F. Porto. “Chest Physiotherapy Effectiveness to Reduce Hospitalization and Mechanical Ventilation Length of Stay, Pulmonary Infection Rate and Mortality in ICU Patients.” *Respiratory Medicine* 107, no. 1 (2013): 68–74.

Centers for Disease Control and Prevention. “CDC Guideline for Prescribing Opioids for Chronic Pain—United States, 2016.” *Morbidity and Mortality Weekly Report* 65, no. 1 (March 2016): 1–49. www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm (accessed January 22, 2016).

Chan, W. C., J. W. Yueng, C. S. Wong, L. C. Lam, K. F. Chung, J. K. Luk, J. S. Lee, and A. C. Law. "Efficacy of Physical Exercise in Preventing Falls in Older Adults With Cognitive Impairment: A Systematic Review and Meta-analysis." *Journal of the American Medical Directors Association* 16, no. 2 (2015): 149–54.

Chang, H. J., C. Lynn, and R. M. Glass. "Urinary Incontinence in Older Women." *Journal of the American Medical Association* 303, no. 21 (2010): 2208.

Chang, W. D., H. Y. Lin, and P. T. Lai. "Core Strength Training for Patients With Chronic Low Back Pain." *Journal of Physical Therapy Science* 27, no. 3 (2015): 619–22.

Chumbler, N. R., P. Quigley, X. Li, M. Morey, D. Rose, J. Sanford, P. Griffiths, and H. Hoenig. "Effects of Telerehabilitation on Physical Function and Disability for Stroke Patients: A Randomized, Controlled Trial." *Stroke* 43, no. 8 (2012): 2168–74.

Clegg, A., S. Barber, J. Young, A. Forster, and S. Iliffe. "Do Home-Based Exercise Interventions Improve Outcomes for Frail Older People? Findings From a Systematic Review." *Reviews in Clinical Gerontology* 22, no. 1 (2012): 68–78.

College of Physiotherapists of Ontario. *Rostering for Authorized Activities/Controlled Acts*. www.collegept.org/Physiotherapists/Rostering (accessed January 23, 2016).

Cott, C., S. Mandoda, and M. Landry. "Models of Integrating Physical Therapists Into Family Health Teams in Ontario, Canada: Challenges and Opportunities." *Physiotherapy Canada* 63, no. 3 (2011): 265–75.

Crocker, T., J. Young, A. Forster, L. Brown, S. Ozer, and D. C. Greenwood. "The Effect of Physical Rehabilitation on Activities of Daily Living in Older Residents of Long-Term Care Facilities: Systematic Review With Meta-analysis." *Age and Ageing* 42, no. 6 (2013): 682–88.

Crosbie, A. "The Effect of Physical Training in Children With Asthma on Pulmonary Function, Aerobic Capacity and Health-Related Quality of Life: A Systematic Review of Randomized Control Trials." *Pediatric Exercise Science* 24, no. 3 (2012): 472–89.

Denehy, L., and S. Berney. "Physiotherapy in the Intensive Care Unit." *Physical Therapy Reviews* 11, no. 1 (2006): 49–56.

Dias, K. A., D. J. Green, C. B. Ingul, T. G. Pavey, and J. S. Coombes. "Exercise and Vascular Function in Child Obesity: A Meta-analysis." *Pediatrics* 136, no. 3 (2015): e648–e659.

Diep, L., J. Kwagyan, J. Kurantsin-Mills, R. Weir, and A. Jayam-Trouth. "Association of Physical Activity Level and Stroke Outcomes in Men and Women: A Meta-analysis." *Journal of Women's Health* 19, no. 10 (2012): 1815–22.

Dinh, T. *Improving Primary Health Care Through Collaboration: Briefing 2—Barriers to Successful Interprofessional Teams*. Ottawa: The Conference Board of Canada, 2012.

—. *Moving Ahead: Making the Case for Healthy Active Living in Canada*. Ottawa: The Conference Board of Canada, 2014.

Dinh, T., and F. Bounajm. *Improving Primary Health Care Through Collaboration: Briefing 3—Measuring the Missed Opportunity*. Ottawa: The Conference Board of Canada, 2013.

Dinh, T., C. Stonebridge, and L. Thériault. *Getting the Most Out of Health Care Teams: Recommendations for Action*. Ottawa: The Conference Board of Canada, 2014.

DuFour, S. "Understanding the Roles of Physiotherapists Within Ontario Primary Health Care Teams: A Mixed Methods Inquiry." *Electronic Thesis and Dissertation Repository*, Paper 333, 2011. <http://ir.lib.uwo.ca/etd/333> (accessed February 2, 2016).

Elkins, M., and R. Dentice. "Inspiratory Muscle Training Facilitates Weaning From Mechanical Ventilation Among Patients in the Intensive Care Unit: A Systematic Review." *Journal of Physiotherapy* 61, no. 3 (2015):125–34.

Fernandez, R. A., A. Garcia-Hermoso, M. Solera-Martinez, M. T. Correa, A. F. Morales, and V. Martinez-Vizcaino. "Improvement of Continence Rate With Pelvic Floor Muscle Training Post-Prostatectomy: A Meta-analysis of Randomized Controlled Trials." *Urologia Internationalis* 94, no. 2 (2015): 125–32.

Ferrarello, F., M. Baccini, L. A. Rinaldi, M. C. Cavallini, E. Mussel, G. Masotti, N. Marchionni, and M. Di Bari. "Efficacy of Physiotherapy Interventions Late After Stroke." *Journal of Neurology, Neurosurgery, and Psychiatry* 82, no. 2 (2011): 136–43.

Flanagan, L., B. Roe, B. Jack, J. Barrett, A. Chung, C. Shaw, and K. S. Williams. "Systematic Review of Care Intervention Studies for the Management of Incontinence and Promotion of Continence in Older People in Care Homes With Urinary Incontinence as the Primary Focus (1966–2010)." *Geriatrics & Gerontology International* 12, no. 4 (2012): 600–11.

French, B., L. Thomas, M. Leathley, C. Sutton, J. McAdam, A. Forster, P. Langhorne, C. Price, A. Walker, and C. Watkins. "Does Repetitive Task Training Improve Functional Activity After Stroke? A Cochrane Systematic Review and Meta-analysis." *Journal of Rehabilitation Medicine* 42, no. 1 (2010): 9–14.

Frerichs, W., E. Kaltenbacher, J. P. van de Leur, and E. Dean. "Can Physical Therapists Counsel Patients With Lifestyle-Related Health Conditions Effectively? A Systematic Review and Implications." *Physiotherapy Theory and Practice* 28, no. 8 (2012): 571–81.

Ghaderi, F., and A. E. Oskouel. "Physiotherapy for Women With Stress Urinary Incontinence: A Review Article." *Journal of Physical Therapy Science* 26, no. 9 (2014): 1493–99.

Gill, S. D., and H. McBurney. "Does Exercise Reduce Pain and Improve Physical Function Before Hip or Knee Replacement Surgery? A Systematic Review and Meta-analysis of Randomized Controlled Trials." *Archives of Physical Medicine and Rehabilitation* 94, no. 13 (2013): 164–76.

Gillespie, L., M. Robertson, W. Gillespie, C. Sherrington, S. Gates, L. Clemson, and S. Lamb. "Interventions for Preventing Falls in Older People Living in the Community (Review)." *Cochrane Database of Systematic Reviews* 9 (2012): 1–420.

Gisbert, R., and M. Schenkman. "Physical Therapist Interventions for Parkinson Disease." *Physical Therapy* 95, no. 3 (2015): 299–305.

Gleeson, M., C. Sherrington, and L. Keay. "Exercise and Physical Training Improve Physical Function in Older Adults With Visual Impairments but Their Effect on Falls Is Unclear: A Systematic Review." *Journal of Physiotherapy* 60, no. 3 (2014): 130–35.

Grotle, M., A. Garratt, M. Klokkerud, I. Løchting, T. Uhlig, and K. Hajen. "What's in Team Rehabilitation Care After Arthroplasty for Osteoarthritis? Results From a Multicenter, Longitudinal Study Assessing Structure, Process, and Outcome." *Physical Therapy* 90, no. 1 (2012): 121–31.

Hawkins, E., and A. Jones. "What Is the Role of the Physiotherapist in Paediatric Intensive Care Units? A Systematic Review of the Evidence for Respiratory and Rehabilitation Interventions for Mechanically Ventilated Patients." *Physiotherapy* 101, no. 4 (2016): 303–09.

Health Canada. *Getting a Grip on Arthritis: A National Primary Health Care Community Initiative*. 2006. www.apps.hc-sc.gc.ca/hcs-sss/phctf-fassp.nsf/WebProject/0019?OpenDocument&lang=eng&.

—. *What Is Primary Health Care?* 2006. www.hc-sc.gc.ca/hcs-sss/delivery-prestation/fptcollab/2003accord/primary-primaire-eng.php.

Health Quality Ontario. "In-Home Care for Optimizing Chronic Disease Management in the Community: An Evidence-Based Analysis." *Ontario Health Technology Assessment Series* 13, no. 5 (2013): 1–65.

Hebert and others. "Canadian Stroke Best Practice Recommendations: Stroke Rehabilitation Practice Guidelines, Update 2015." *International Journal of Stroke* 11, no. 4 (2016): 460–84.

Herck, P. V., K. Vanhaecht, S. Deneckere, J. Bellemans, M. Panella, A. Barbieri, and W. Sermeus. "Key Interventions and Outcomes in Joint Arthroplasty Clinical Pathways: A Systematic Review." *Journal of Evaluation in Clinical Practice* 16, no. 1 (2010): 39–49.

Hermus, G., C. Stonebridge, and K. Edenhoffer. *Future Care for Canadian Seniors: A Status Quo Forecast*. Ottawa: The Conference Board of Canada, 2015.

Hill, K. D., S. W. Hunter, F. A. Batchelor, V. Cavalheri, and E. Burton. "Individualized Home-Based Exercise Programs for Older People to Reduce Falls and Improve Physical Performance: A Systematic Review and Meta-analysis." *Maturitas* 82, no. 1 (2015): 72–84.

Holdsworth, L., V. Webster, and A. McFayden. "What Are the Costs to NHS Scotland of Self-Referral to Physiotherapy? Results of a National Trial." *Physiotherapy* 93, no. 1 (2007): 3–11.

Hupperets, M. D., E. A. Verhagen, M. W. Heymans, J. E. Bosmans, M. W. van Tulder, and W. van Mechelen. "Potential Savings of a Program to Prevent Ankle Sprain Recurrence: Economic Evaluation of a Randomized Controlled Trial." *The American Journal of Sports Medicine* 38, no. 11 (2010): 2194–200.

Hussenbux, A., D. Morrissey, C. Joseph, and C. McClellan. "Intermediate Care Pathways for Musculoskeletal Conditions—Are They Working? A Systematic Review." *Physiotherapy* 101, no. 1 (2015): 13–24.

Institute for Healthcare Improvement. *The IHI Triple Aim*. 2016. www.ihl.org/Engage/Initiatives/TripleAim/Pages/default.aspx (accessed March 1, 2016).

Janssen, I. "Health Care Costs of Physical Inactivity in Canadian Adults." *Applied Physiology, Nutrition, and Metabolism* 37, no. 4 (2012): 803–06.

Javier, F., A. Gómez Conesa, and J. Pérez-López. "Efficacy of Early Physiotherapy Intervention in Preterm Infant Motor Development." *Journal of Physical Therapy Science* 24, no. 9 (2012): 933–40.

Johnston, K., and K. Grimmer-Somers. "Pulmonary Rehabilitation: Overwhelming Evidence but Lost in Translation." *Physiotherapy Canada* 62, no. 4 (2010): 368–73.

Jones, R., S. Copper, O. Riley, and F. Dobbs. "A Pilot Study of Pulmonary Rehabilitation in Primary Care." *The British Journal of General Practice* 52, no. 480 (2002): 567–68.

Jordan, J., M. Holden, E. Mason, and N. Foster. "Interventions to Improve Adherence to Exercise for Chronic Musculoskeletal Pain in Adults." *Cochrane Database of Systematic Reviews* 1 (2010): 1–64.

Jordan, R., N. Smith, G. Chahal, C. Casson, M. Reed, and A. Sprowson. "Enhanced Education and Physiotherapy Before Knee Replacement; Is It Worth It? A Systematic Review." *Physiotherapy* 100, no. 4 (2014): 305–12.

Kamper, S., A. Apeldoorn, A. Chiarotto, R. Smeets, R. Ostelo, J. Guzman, and M. van Tulder. "Multidisciplinary Biopsychosocial Rehabilitation for Chronic Low Back Pain." *Cochrane Database of Systematic Reviews* 9 (2014): 1–214.

Ko, D.-S., D.-I. Jung, and S.-Y. Bae. "Effect of Lumbar Stabilization Exercises on the Balance Ability of Patients With Stroke: A Systematic Review." *Journal of Physical Therapy Science* 26, no. 12 (2014): 1993–96.

Kristensen, J., and A. Franklyn-Miller. "Resistance Training in Musculoskeletal Rehabilitation: A Systematic Review." *British Journal of Sports Medicine* 46, no. 10 (2012): 719–26.

Large, K. E., C. J. Page, K. Brock, M. M. Dowsey, and P. F. Choong. "Physiotherapy-Led Arthroplasty Review Clinic: A Preliminary Outcomes Analysis." *Australian Health Review* 38, no. 5 (2014): 510–16.

Lawler, P. R., K. B. Filion, and M. J. Eisenberg. "Efficacy of Exercise-Based Cardiac Rehabilitation Post-Myocardial Infarction: A Systematic Review and Meta-analysis of Randomized Controlled Trials." *American Heart Journal* 162, no. 4 (2011): 571–84.

Leemrijse, C., I. Swinkles, and C. Veenhof. "Direct Access to Physical Therapy in the Netherlands: Results From the First Year in Community-Based Physical Therapy." *Physical Therapy* 88, no. 8 (2008): 936–46.

Leppänen, M., S. Aaltonen, J. Parkkari, A. Heinonen, and U. Kujala. "Interventions to Prevent Sports Related Injuries: A Systematic Review and Meta-analysis of Randomised Controlled Trials." *Sports Medicine* 44, no. 4 (2014): 473–86.

Levy, C. E., E. Silverman, H. Jia, M. Geiss, and D. Omura. "Effects of Physical Therapy Delivery Via Home Video Telerehabilitation on Functional and Health-Related Quality of Life Outcomes." *Journal of Rehabilitation Research and Development* 52, no. 3 (2015): 361–70.

Liu, X.-L., J.-Y. Tan, T. Wang, Q. Zhang, M. Zhang, L.-Q. Yao, and J.-X. Chen. "Effectiveness of Home-Based Pulmonary Rehabilitation for Patients With Chronic Obstructive Pulmonary Disease: A Meta-analysis of Randomized Controlled Trials." *Rehabilitation Nursing* 39, no. 1 (2014): 36–59.

Long, A. R., and K. A. Rouster-Stevens. "The Role of Exercise Therapy in the Management of Juvenile Idiopathic Arthritis." *Current Opinion in Rheumatology* 22, no. 2 (2010): 213–17.

Lorås, H., B. Østerås, T. A. Torstensen, and H. Østerås. "Medical Exercise Therapy for Treating Musculoskeletal Pain: A Narrative Review of Results From Randomized Controlled Trials With a Theoretical Perspective." *Physiotherapy Research International* 20, no. 3 (2015): 182–90.

Malak, R., A. Kostiukow, A. Krawczyk-Wasielewska, P. Keczmer, E. Mojs, K. Głodowska, and W. Samborski. "Dysfunctions Associated With Dementia and Their Treatment." *Annals of Agricultural and Environmental Medicine* 21, no. 4 (2014): 790–91.

Mansfield, A., J. S. Wong, J. Bryce, S. Knorr, and K. K. Patterson. "Does Perturbation-Based Balance Training Prevent Falls? Systematic Review and Meta-analysis of Preliminary Randomized Controlled Trials." *Physical Therapy* 95, no. 5 (2015): 700–9.

Martin, L., R. Baker, and A. Harvey. "A Systematic Review of Common Physiotherapy Interventions in School-Aged Children With Cerebral Palsy." *Physical & Occupational Therapy in Pediatrics* 30, no. 4 (2010): 294–312.

Meng, X. G., and S. W. Yue. "Efficacy of Aerobic Exercise for Treatment of Chronic Low Back Pain: A Meta-analysis." *American Journal of Physical Medicine and Rehabilitation* 94, no. 5 (2015): 358–65.

Michaelidis, M., and G. Koumantakis. "Effects of Knee Injury Primary Prevention Programs on Anterior Cruciate Ligament Injury Rates in Female Athletes in Different Sports: A Systematic Review." *Physical Therapy in Sport* 15, no. 3 (2014): 200–10.

Milsom, I., K. S. Coyne, S. Nicholson, M. Kvasz, C. I. Chen, and A. J. Wein. "Global Prevalence and Economic Burden of Urgency Urinary Incontinence: A Systematic Review." *European Urology* 65, no. 1 (2014): 79–95.

Mitton, C., and F. Dionne. *Valuation of Physiotherapy Services in Canada*. Ottawa: Canadian Physiotherapy Association, 2012.

Morris, J., S. Macgillivray, and S. McFarlane. "Interventions to Promote Long-Term Participation in Physical Activity After Stroke: A Systematic Review of the Literature." *Archives of Physical Medicine and Rehabilitation* 95, no. 5 (2014): 956–67.

Munro, D. *Healthy People, Healthy Performance, Healthy Profits: The Case for Business Action on the Socio-Economic Determinants of Health*. Ottawa: The Conference Board of Canada, 2008.

Naci, H., and J. Ioannidis. "Comparative Effectiveness of Exercise and Drug Interventions on Mortality Outcomes." *The BMJ* 347 (2013).

Nagarajan, K., A. Bennett, P. Agostini, and B. Naidu. "Is Preoperative Physiotherapy/Pulmonary Rehabilitation Beneficial in Lung Resection Patients?" *Interactive Cardiovascular and Thoracic Surgery* 13, no. 3 (2011): 300–2.

National Physiotherapy Advisory Group. 2012. *Essential Competency Profile for Physiotherapist Assistants in Canada*. <http://npag.ca/PDFs/Joint%20Initiatives/PTA%20profile%202012%20English.pdf>.

Nellessen, A., N. Hernandez, and F. Pitta. "Physiotherapy and Rehabilitative Interventions in Patients With Chronic Respiratory Diseases: Exercise and Non-Exercise Treatment." *Panminerva Medica* 55, no. 2 (2013): 197–209.

Nogueira, R., B. Weeks, and B. Beck. "Exercise to Improve Pediatric Bone and Fat: A Systematic Review and Meta-analysis." *Medicine Science in Sports and Exercise* 46, no. 3 (2014): 610–21.

Nordbakke, S., and T. Schwanen. "Well-Being and Mobility: A Theoretical Framework and Literature Review Focusing on Older People." *Mobilities* 9, no. 1 (2014): 104–29.

Norton, S., F. Matthews, D. Barnes, K. Yaffe, and C. Brayne. "Potential for Primary Prevention of Alzheimer's Disease: An Analysis of Population-Based Data." *The Lancet Neurology* 13, no. 8 (2014): 788–94.

Occupational Therapist Assistant and Physiotherapist Assistant Education Accreditation Program. 2016. *Accreditation Process*. www.otapta.ca/english/accreditation/accreditation-process.php (accessed January 21, 2016).

—. *Affiliated Education Programs*. 2016. www.otapta.ca/english/accreditation/affiliated-education-programs.php (accessed January 21, 2016).

Ochmann, U., R. A. Jörres, and D. Nowak. "Long-Term Efficacy of Pulmonary Rehabilitation: A State-of-the-Art Review." *Journal of Cardiopulmonary Rehabilitation and Prevention* 32, no. 3 (2012): 117–26.

Ontario Physiotherapy Association. 2014. *Physiotherapists in Primary Health Care*. <https://opa.on.ca/physiotherapy-in-the-health-system/health-system/> (accessed January 22, 2016).

Ordre professionnel de la physiothérapie du Québec. *Section 4 of the regulation respecting the categories of permits issued by the Ordre professionnel de la physiothérapie du Québec: Explanatory Guide*. Anjou, QC: Ordre professionnel de la physiothérapie du Québec, 2011.

Peiris, C., N. F. Taylor, and N. Shields. "Extra Physical Therapy Reduces Patient Length of Stay and Improves Functional Outcomes and Quality of Life in People With Acute or Subacute Conditions: A Systematic Review." *Archives of Physical Medicine and Rehabilitation* 92, no. 9 (2011): 1490–1500.

Pereira, V. S., A. C. Escobar, and P. Driusso. "Effects of Physical Therapy in Older Women With Urinary Incontinence: A Systematic Review." *Revista brasileira de fisioterapia* 16, no. 6 (2012): 463–68.

Perracini, M., L. Clemson, A. Tiedmann, S. Kalula, V. Scott, and C. Sherrington. "Falls in Older Adults: Current Evidence, Gaps, and Priorities." *Gerontologist* (2016), in press.

Peurala, S., A. H. Karttunen, T. Sjögren, J. Paltamaa, and A. Heinonen. "Evidence for the Effectiveness of Walking Training on Walking and Self-Care After Stroke: A Systematic Review and Meta-analysis of Randomized Controlled Trials." *Journal of Rehabilitation Medicine* 46, no. 5 (2014): 387–99.

Peytremann-Bridevaux, I., C. Ardit, G. Gex, P. O. Bridevaux, and B. Burnand. "Chronic Disease Management Programmes for Adults With Asthma." *Cochrane Database of Systematic Reviews* 5 (2015).

Pollock, A., G. Baer, P. Campbell, P. Choo, A. Forster, J. Morris, V. M. Pomeroy, and P. Langhorne. "Physical Rehabilitation Approaches for the Recovery of Function and Mobility Following Stroke (Review)." *Cochrane Database of Systematic Reviews* 4, (2014): 1–447.

Pollock, A., C. Gray, E. Culham, B. Durward, and P. Langhorne. "Interventions for Improving Sit-to-Stand Ability Following Stroke (Review)." *Cochrane Database of Systematic Reviews* 5 (2014): 1–79.

Pozzi, F., L. Snyder-Mackler, and J. Zeni. "Physical Exercise After Knee Arthroplasty: A Systematic Review of Controlled Trials." *European Journal of Physical and Rehabilitation Medicine* 49, no. 6 (2013): 877–92.

Prada, G., K. Grimes, and I. Slokin. *Defining Health and Health Care Sustainability*. Ottawa: The Conference Board of Canada, 2014.

Price, N., R. Dawood, and S. R. Jackson. "Pelvic Floor Exercise for Urinary Incontinence: A Systematic Literature Review." *Maturitas* 67, no. 4 (2010): 309–15.

Prince, M., F. Wu, Y. Guo, L. Gutierrez Robledo, M. O'Donnell, R. Sullivan, and S. Yusuf. "The Burden of Disease in Older People and Implications for Health Policy and Practice." *The Lancet* 385, no. 9967 (2015): 549–62.

Public Health Agency of Canada. *Seniors' Falls in Canada: Second Report*. 2014. www.phac-aspc.gc.ca/seniors-aines/publications/public/injury-blessure/seniors_falls-chutes_aines/index-eng.php.

Richards, M. C., J. J. Ford, S. L. Slater, A. J. Hahne, L. D. Surkitt, M. Davidson, and J. M. McMeeken. "The Effectiveness of Physiotherapy Functional Restoration for Post-Acute Low Back Pain: A Systematic Review." *Manual Therapy* 18, no. 1 (2013): 4–25.

Richardson, J., L. Letts, D. Chan, and M. Law. "Rehabilitation in a Primary Care Setting for Persons With Chronic Illness: A Randomized Controlled Trial." *Primary Health Care Research & Development* 11, no. 4 (2010): 382–95.

Richardson, J., and others. "Self-Management Interventions for Chronic Disease: A Systematic Scoping Review." *Clinical Rehabilitation* 28, no. 11 (2014): 1067–77.

Rodrigues, E., A. Gomes, A. Tanhoffer, and N. Leite. "Effects of Exercise on Pain of Musculoskeletal Disorders: A Systematic Review." *Acta Ortopédica Brasileira* 22, no. 6 (2014): 334–38.

Rubi, M., F. Renom, F. Ramis, M. Medinas, M. J. Centeno, M. Górriz, E. Crespí, B. Martín, and J. B. Soriano. "Effectiveness of Pulmonary Rehabilitation in Reducing Health Resources Use in Chronic Obstructive Pulmonary Disease." *Archives of Physical Medicine and Rehabilitation* 91, no. 3 (2010): 364–68.

Salisbury, C., and others. "Effectiveness of PhysioDirect Telephone Assessment and Advice Services for Patients With Musculoskeletal Problems." *British Journal of Sports Medicine* 48, no. 18 (2014): 1391.

Sampson, F.C., S. W. Goodacre, and A. O’Cathain. "Interventions to Improve the Management of Pain in Emergency Departments: Systematic Review and Narrative Synthesis." *Emergency Medicine Journal* 31 (2014): e9–e18.

Santa Mina, D., H. Clark, P. Ritvo, Y. Leung, A. Matthew, J. Katz, J. Trachtenberg, and S. Alibhai. "Effect of Total-Body Prehabilitation on Postoperative Outcomes: A Systematic Review and Meta-analysis." *Physiotherapy* 100, no. 3 (2014): 196–207.

Saunders, D., M. Sanderson, M. Brazzelli, C. Greig, and G. Mead. "Physical Fitness Training for Stroke Patients." *Cochrane Database of Systematic Reviews* 10 (2013): 1–64.

Searle, A., M. Spink, A. Ho, and V. Chuter. "Exercise Interventions for the Treatment of Chronic Low Back Pain: A Systematic Review and Meta-analysis of Randomised Controlled Trials." *Clinical Rehabilitation* 29, no. 12 (2015): 1115–67.

Shen, X., I. S. Wong-Yu, and M. K. Mak. "Effects of Exercise on Falls, Balance, and Gait Ability in Parkinson's Disease." *Neurorehabilitation and Neural Repair* 30, no. 6 (2016): 512–27.

Sosnowski, K., F. Lin, M. L. Mitchell, and H. White. "Early Rehabilitation in the Intensive Care Unit: An Integrative Literature Review." *Australian Critical Care* 28, no. 4 (2015): 216–25.

Specker, B., N. Thiex, and R. G. Sudhagani. "Does Exercise Influence Pediatric Bone? A Systematic Review." *Clinical Orthopaedics and Related Research* 473, no. 11 (2015): 3658–72.

Stanley, I., J. Miller, M. Pinnington, G. Rose, and M. Rose. "Uptake of Prompt Access to Physiotherapy for New Episodes of Back Pain Presenting in Primary Care." *Physiotherapy* 87, no. 2 (2001): 60–67.

Statistics Canada. *Canadian Community Health Survey*. 2003. www.statcan.gc.ca/daily-quotidien/040615/dq040615b-eng.htm (accessed January 20, 2016).

—. *Canadian Community Health Survey*. 2012. www.statcan.gc.ca/daily-quotidien/130918/dq130918a-eng.htm.

—. *Population Projections for Canada, Provinces and Territories, 2009 to 2036*. Cat. No. 91-520-X. 2010. www.statcan.gc.ca/pub/91-520-x/91-520-x2010001-eng.pdf.

—. CANSIM table 051-0001. *Estimates of Population, By Age Group and Sex for July 1, Canada, Provinces and Territories*. www5.statcan.gc.ca/cansim/a26?id=510001.

Steffens, D., C. G. Maher, L. S. Pereira, M. L. Stevens, V. C. Oliveira, M. Chapple, L. F. Teixeira-Salmela, and M. J. Hancock. "Prevention of Low Back Pain: A Systematic Review and Meta-analysis." *JAMA Internal Medicine* 176, no. 2 (2016): 199–208.

Stiller, K. "Physiotherapy in Intensive Care: An Updated Systematic Review." *Chest* 144, no. 3 (2013): 825–47.

Stoller, O., E. D. Bruin, R. H. Knols, and K. J. Hunt. "Effects of Cardiovascular Exercise Early After Stroke: Systematic Review and Meta-analysis." *BMC Neurology* 12, no. 45 (2012): 1–16.

Stubbs, B., S. Brefka, and M. D. Denking. "What Works to Prevent Falls in Community-Dwelling Older Adults? Umbrella Review of Meta-analyses of Randomized Controlled Trials." *Physical Therapy* 95, no. 8 (2015): 1095–110.

Stucki, G., A. Cieza, and J. Melvin. "The International Classification of Functioning, Disability, and Health (ICF): A Unifying Model for the Conceptual Description of the Rehabilitation Strategy." *Journal of Rehabilitation Medicine* 39 (2015): 279–85.

Tanf, C., N. F. Taylor, and F. C. Blackstock. "Chest Physiotherapy for Patients Admitted to Hospital With an Acute Exacerbation of Chronic Obstructive Pulmonary Diseases (COPD): A Systematic Review." *Physiotherapy* 96 (2010): 1–13.

Taylor, N. F., E. Norman, L. Roddy, C. Tang, A. Pagram, and K. Hearn. "Primary Contact Physiotherapy in Emergency Departments Can Reduce Length of Stay for Patients With Peripheral Musculoskeletal Injuries Compared With Secondary Contact Physiotherapy: A Prospective Non-Randomised Controlled Trial." *Physiotherapy* 97, no. 2 (2011): 107–14.

Thiebaud, R. S., M. D. Funk, and T. Abe. "Home-Based Resistance Training for Older Adults: A Systematic Review." *Geriatrics & Gerontology International* 14, no. 4 (2014): 750–57.

Thomas, M. J., J. Simpson, R. Riley, and E. Grant. "The Impact of Home-Based Physiotherapy Interventions on Breathlessness During Activities of Daily Living in Severe COPD: A Systematic Review." *Physiotherapy* 96, no. 2 (2010): 108–19.

Thomas, S., S. Mackintosh, and J. Halbert. "Does the 'Otago Exercise Programme' Reduce Mortality and Falls in Older Adults?: A Systematic Review and Meta-analysis." *Age and Ageing* 39, no. 6 (2010): 681–87.

Toftthagen, C., C. Visovsky, and D. Berry. "Strength and Balance Training for Adults With Peripheral Neuropathy and High Risk of Fall: Current Evidence and Implications for Future Research." *Oncology Nursing Forum* 39, no. 5 (2012): E416–24.

Tomlinson, C., and others. "Physiotherapy for Parkinson's Disease: A Comparison of Techniques (Review)." *Cochrane Database of Systematic Reviews* 6 (2014): 1–121.

Tomlinson, C., and others. "Physiotherapy Versus Placebo or No Intervention in Parkinson's Disease." *Cochrane Database of Systematic Reviews* 8 (2012): 1–103.

Toomey, E., L. Currie-Murphy, J. Matthews, and D. A. Hurley. "The Effectiveness of Physiotherapist-Delivered Group Education and Exercise Interventions to Promote Self-Management for People With Osteoarthritis and Chronic Low Back Pain: A Rapid Review Part I." *Manual Therapy* 20, no. 2 (2015): 265–86.

van Benten, E., J. Pool, J. Mens, and A. Pool-Goudzwaard. "Recommendations for Physical Therapists on the Treatment of Lumbopelvic Pain During Pregnancy: A Systematic Review." *The Journal of Orthopaedic and Sports Physical Therapy* 44, no. 7 (2014): 464–73.

van Doorn, N. "Exercise Programs for Children With Cystic Fibrosis: A Systematic Review of Randomized Controlled Trials." *Disability and Rehabilitation* 32, no. 1 (2010): 41–9.

van Oort, L., J. Mutsaers, S. Lakke, and A. Verhagen. "Physiotherapy or Multidisciplinary Treatment for Chronic Low Back Pain? A Systematic Review." *Nederlands Tijdschrift voor Fysiotherapie* 119, no. 5 (2009): 153–60.

Vera-Garcia, E., F. Mayoral-Cleries, D. Vancampfort, B. Stubbs, and A. I. Cuesta-Vargas. "A Systematic Review of the Benefits of Physical Therapy Within a Multidisciplinary Care Approach for People With Schizophrenia: An Update." *Psychiatry Research* 229, no. 3 (2015): 828–39.

Verbeeten, D., P. Astles, and G. Prada. *Understanding Health and Social Services for Seniors in Canada*. Ottawa: The Conference Board of Canada, 2015.

Wearing, J., S. Beaumont, D. Forbes, B. Brown, and R. Engel. "The Use of Spinal Manipulative Therapy in the Management of Chronic Obstructive Pulmonary Disease: A Systematic Review." *Journal of Alternative and Complementary Medicine* 22, no. 2 (2016): 108–14.

Wieczorek, B., C. Burke, A. Al-Harbi, and S. R. Kudchadkar. "Early Mobilization in the Pediatric Intensive Care Unit: A Systematic Review." *Journal of Pediatric Intensive Care* (2015): 129–70.

World Health Organization. *World Report on Ageing and Health*. Geneva: World Health Organization, 2014.

You, L., G. Sadler, S. Majumdar, D. Burnett, and C. Evans. "Physiotherapists' Perceptions of Their Role in the Rehabilitation Management of Individuals With Obesity." *Physiotherapy Canada* 64, no. 2 (2012): 168–75.

Yuan, H., B. Williams, and M. Liu. "Attitudes Toward Urinary Incontinence Among Community Nurses and Community-Dwelling Older People." *Journal of Wound, Ostomy and Continence Nursing* 38, no. 2 (2011): 184–89.

APPENDIX B

Methodology

Table 1
Database Search Strategy

Step	Search (MeSH, keywords, combined selections)
1	Physical Therapy Modalities / or physiotherapy.mp
2	Physical Therapists
3	1 or 2
4	Primary Health Care
5	Aged / or Senior Centers / or "Aged, 80 and over"
6	Long-Term Care
7	"Physical and Rehabilitation Medicine" / or Rehabilitation Nursing / or Rehabilitation Centers / or Rehabilitation
8	3 and 4
9	3 and 5
10	3 and 6
11	3 and 7
12	8 or 9 or 10 or 11
13	limit 12 to (english language and humans)
14	limit 13 to yr = "2010–Current"
15	limit 14 to abstracts
16	limit 15 to "review articles"

Source: The Conference Board of Canada.

Table 2
Canadian Physiotherapy Scope of Practice

Skill/Activity	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT
Skill acquisition:												
Assess physical function	A	A	A	A	A	A	A	A	A	A	A	A
Assess neuromusculoskeletal and cardiorespiratory systems	A	A	A	A	A	A	A	A	A	A	A	A
Treat as autonomous clinicians	A	A	A	A	A	A	A	A	A	A	A	A
Therapeutic exercise programs	A	A	A	A	A	A	A	A	A	A	A	A
Hydrotherapy; electrotherapy; and use of mechanical, radiant, or thermal energy	A	A	A	A	A	A	A	A	A	A	A	A
Soft tissue and manual therapy, including massage and PNF	A	A	A	A	A	A	A	A	A	A	A	A
Treating a wound by cleansing, soaking, irrigating, probing, debriding, packing, or dressing	R*	A	A	A	R	A*	A*	A	A*	A*	A	UNK
*Exceptions:												
<ul style="list-style-type: none"> • BC—No debridement • QC—May apply topical medication • NB, PE, NL—Silent 												
Pelvic floor dysfunction—putting an instrument, hand, or finger beyond the labia majora or anal verge	A	A	A*	A	R	A	A	A	A*	A*	A*	UNK
*Exceptions:												
<ul style="list-style-type: none"> • SK—With consent • NL—Silent • PE—If competency met, silent • YT—With special endorsement 												
Acupuncture	A	R	A	A	R	UNA	A	A	A	A	A	UNK
<ul style="list-style-type: none"> • BC—Approved programs • AB—Five approved programs and roster enrolment • NS—Pain relief • YT—No restrictions • MB—Use by approved program • NB—AFC or equivalent, included on a roster, and limited to within physiotherapy practice • PE—AFC or equivalent and college endorsement • SK—AFC or equivalent, PTs restrictions 												
Dry needling		R	A	A	R	A*	A	A	A*	A	A	
<ul style="list-style-type: none"> • *QC—With approved programs • *PE—Evidence of competency 												
Intramuscular stimulation	UNK	R	?	?	R	UNK						
Spinal manipulation	A	R	A	A	R	A	A	A	UNK	A	A	UNK
<ul style="list-style-type: none"> • NS—No restrictions • YT—No restrictions • MB—By approved program, within skill level, and within college competency statement • SK—Undergrad teachings or post-grad courses from Orthopaedic Division • QC—With approval from college 												
Tracheal suctioning	A	A	A	A	R	A	A	A	A	A	A	A
<ul style="list-style-type: none"> • Endotracheal and nasopharyngeal 												
Introduce an instrument past the pharynx or nasal passages						A						

(continued ...)

Table 2 (cont'd)
Canadian Physiotherapy Scope of Practice

Skill/Activity	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	YT	NT
Administration by inhalation: oxygen, drug, or substance by health professional with authority	A	UNK	A	A	A	UNA	A	A	A	R	R	UNK
*Exceptions:												
• NB and PE—Silent												
• BC*—Anticipated legislative reform												
• AB—Legislation silent												
• MB—Only oxygen, not applicable when adjustment of flow during ET suctioning or with unstable patients												
• NL—Oxygen only and with training												
• YT—Physiotherapy-related medications prescribed by physician, oxygen unknown												
Setting/casting a fracture or dislocation	D	UNA	UNA	UNA	UNA	UNA	A?	UNA	UNA	UNA	UNA	UNK
Reduction of a joint	A	A										
Administration of medications prescribed by physicians								A			A	
Test requisitions:												
Ordering MRI or diagnostic ultrasound	R	R*	UNA	UNA	R*	R*	A*	UNA	UNA	UNA	UNA	UNK
*Exceptions:												
• ON—Legislation passed, not yet proclaimed, not yet permitted												
• NB—Silent												
• AB—Diagnostic ultrasound included in new legislation												
• QC—Sound waves, not MRI or X-ray												
Ordering x-rays		R		D*	R*			R*				
• ON—New legislation passed—not yet proclaimed, not yet permitted												
• NS—Anticipated reform												
• MB—Delegated act, restricted to MSK and no interpretation												
Ordering lab tests	UNA	UNK*	UNA	D	R*	UNA	A*	UNA	UNA	UNA	UNA	UNK
*Exceptions:												
• MB—Under delegation from geriatricians only, not general PTs												
• NB—Silent												
• AB—Silent												
• ON—Not yet proclaimed, not yet permitted												
Ordering electricity for EMG or nerve conduction	UNK	UNK	UNK	UNK	UNA	UNK	A	UNK	UNK	UNK	UNK	UNK
Prescriptions:												
Prescription, manufacture, modification, and application of braces, splints, taping, mobility aids, or seating equipment	UNK	UNK	UNK	UNK	UNK	UNK	UNK	A	UNK	UNK	A	UNK
Ergonomic evaluation, modification, education, and counselling	UNK	UNK	UNK	UNK	UNK	UNK	UNK	A	UNK	UNK	A	UNK
Professional referrals:												
Professional development:												
Communicating a diagnosis identifying a physical dysfunction, disease, or disorder as the cause of a person's symptoms	A	A	A	A	A	UNA	A	A	A	A	A	UNK
Direct access, private practice	A	A	A	A	A	A	A	A	A	A	A	A
Direct access, public facility	A	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK	UNK

Note: A = authorized act; D = delegated act; R = restricted/controlled act; UNA = unauthorized act; UNK = unknown.
Source: Canadian Physiotherapy Association, 2012.



About The Conference Board of Canada

We are:

- The foremost independent, not-for-profit, applied research organization in Canada.
- Objective and non-partisan. We do not lobby for specific interests.
- Funded exclusively through the fees we charge for services to the private and public sectors.
- Experts in running conferences but also at conducting, publishing, and disseminating research; helping people network; developing individual leadership skills; and building organizational capacity.
- Specialists in economic trends, as well as organizational performance and public policy issues.
- Not a government department or agency, although we are often hired to provide services for all levels of government.
- Independent from, but affiliated with, The Conference Board, Inc. of New York, which serves nearly 2,000 companies in 60 nations and has offices in Brussels and Hong Kong.

Insights. Understanding. Impact.



255 Smyth Road, Ottawa ON
K1H 8M7 Canada
Tel. 613-526-3280
Fax 613-526-4857
Inquiries 1-866-711-2262
conferenceboard.ca



PUBLICATION 8648 | 8659
PRICE: Complimentary