Entry-to-Practice Physiotherapy Curriculum:
Content Guidelines for Canadian University Programs

May 2009

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About 100 physiotherapy faculty members from across the country contributed to the overall production and high quality of the final Guidelines through participation in on-line content development exercises, a two-day workshop in Vancouver, B.C. and a final review of the document in Ottawa, one year later.

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1 In early 2009, the Canadian Universities Physiotherapy Academic Council (CUPAC) formally changed its name to the Council of Canadian Physiotherapy University Programs (CCPUP). Correspondence regarding this document may be addressed to the CCPUP through CCPUP@physiotherapy.ca
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Introduction

A curriculum is a plan for learning. In the context of a physiotherapy (PT) education program, it identifies the academic and professional learning components upon which the practice of physiotherapy is based.

Purpose and Intent

While a curriculum has four important elements: content; teaching and learning strategies; assessment processes; and evaluation processes, the purpose of the Entry-to-Practice Physiotherapy Curriculum: Content Guidelines for Canadian Academic Programs (the Guidelines) is restricted to the provision of parameters vis-à-vis the recommended range of curriculum content.

The Guidelines are intended to help program faculty design and implement a curriculum that will prepare the entry-to-practice physiotherapist (PT) to be an autonomous, effective, safe and compassionate professional, who practices collaboratively in a variety of health and social service settings and is responsive to the current and future needs of the Canadian health care system.

Further, the Guidelines reflect current physiotherapy practice and evolving sciences that influence practice while accommodating emerging areas of practice.


In addition, program faculty have access to a range of national companion documents such as the Analysis of Practice 2008: A Report on Physiotherapists’ Practice in Canada, Essential Competency Profile for Physiotherapists in Canada (2004), Accreditation Standards for Physiotherapy Education Programs in Canada (2004) and Entry-Level Manual Therapy Curriculum Guidelines (2003).

Background

It became apparent in the late 1990’s that an undergraduate professional degree was not sufficient to prepare entry-to-practice physiotherapists to meet the challenges and demands of the 21st century. Expanding knowledge in physiotherapy and related sciences, increasing emphasis on evidence-based practice, technological advances, and professional autonomy combined with emerging trends in population health, primary health care, accountability, collaborative and ethical practice precipitated the need for change.

To-day, entry-to-practice physiotherapy programs in Canada are located exclusively in universities with a Faculty of Medicine, and their curricula are delivered at the graduate level. This change was a result of a commitment by the Canadian Universities Physiotherapy Academic Council (CUPAC) in 2001 that all entry-to-practice physiotherapy programs in Canada will be offered at the graduate level by 2010.

To reflect these changes, CUPAC initiated a project to revise/update the 1995 document, Entry-Level Curriculum for Canadian Physical Therapy Programs: Guidelines for Faculty.

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2 The terms physiotherapy (PT) and physiotherapist (PT) will be used consistently throughout this document and are considered synonymous with physical therapy and physical therapist respectively.
3 Prideaux, D.: ABC of Learning and Teaching in Medicine, BMJ 2003; 326:268-270
4 under revision
5 Successful graduates are awarded a professional master’s degree such as MPT or MScPT
Assumptions

The guiding principles for the development of the new/revised guidelines were that they:

- Must be developed and written within a *national* context, while recognizing jurisdictional differences
- Must be sufficiently *flexible* to accommodate the anticipated evolution of professional practice i.e. they must not be prescriptive
- Focus on curriculum *content*, rather than competency, while respecting the diversity of curriculum frameworks and delivery models that contribute to the depth and breadth of physiotherapy education in Canada
- Reflect academic *leadership* in the evolution of entry-level practice, providing the foundation for future curriculum development and physiotherapy education program accreditation standards

It is understood that each academic program (university) will continue to develop and implement it’s own curriculum design and delivery model for this learning content, guided by the university/program’s strategic planning and consultation processes and that curriculum can be offered across a range of academic and clinical settings. This will result in a variety of programs across Canada with unique strengths and areas of emphasis. It’s likely that many programs will go beyond these guidelines in selected areas, depending on their university’s or faculty’s philosophy and resources.

The *Guidelines’* curriculum content was developed with awareness of the competencies and standards published in the national companion documents (listed above), recognizing that many of them will undergo revision. Authors and contributors to each of those publications were among the many stakeholders who contributed to the development of these *Guidelines*.

While the primary users of the *Guidelines* will be academic programs and their faculty, the *Guidelines* will be of interest to many others, both internal and external to the profession in Canada. Examples include entry-to-practice students and re-entry-to-practice students, accreditors of academic programs, regulators of physiotherapy practice, physiotherapy support workers, non-Canadian educated physiotherapists, national and international credentialing agencies, employers of physiotherapists and health human resource professionals as well as funders, legislators, planners and policy developers, other professional groups and international agencies.

Process/Methodology

A Curriculum Revision Working Group, made up of three CUPAC members from different provinces and a Canadian Physiotherapy Association representative, oversaw the revision project and was accountable to the Canadian Universities Physiotherapy Academic Council.

A multi-stage consultation approach was employed:

1. An environmental scan via literature review and on-line survey explored emerging trends and gaps relative to the 1995 curriculum guidelines in:
   - Existing physiotherapy (PT) curricula in Canada and other jurisdictions (Australia, USA, UK etc)
   - Current physiotherapy practice and their relevance to entry-level practice in Canada

2. Internal stakeholder consultations with all Canadian PT faculty (via web-based platform) to provide expert content input to a range of curriculum domains in the clinical sciences (e.g. Cardiorespiratory) and cross-curricular themes (e.g. Professional Issues).

3. External consultations with key stakeholders via focus group interviews (Accreditation Council of Canadian Physiotherapy Academic Programs [ACCPAP], Canadian Physiotherapy Association [CPA], the Canadian Alliance of Physiotherapy Regulators [the Alliance]) and on-line surveys (provincial regulators, employers).

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6 University of Toronto donated access and technical support for a communications site on their Blackboard® Academic Suite for this purpose. The site included an announcement board, discussion board, document collection and a forum for on-line meetings and was accessible 24/7 for a 6 week period leading up to the Vancouver meeting.
4. A two-day Workshop in Vancouver, British Columbia (B.C.), involving about 100 educators from every PT program in Canada and external stakeholder representatives, using small and large group fora, further developed the content already generated via Blackboard, with a focus on achieving clarity, clarifying boundaries and filling important gaps.

5. The Curriculum Revision Working Group refined the draft guidelines further and distributed them for final review by CUPAC members.

The Guidelines were published by the Canadian Universities Physiotherapy Academic Council with support from the Canadian Physiotherapy Association, the Accreditation Council of Canadian Physiotherapy Academic Programs and the Canadian Alliance of Physiotherapy Regulators.

Literature Review

The literature reviewed involved mostly "grey" sources i.e. non-peer reviewed publications by professional, regulatory or academic organisations and included curricular documents submitted by 10 Canadian physiotherapy academic programs. Non-Canadian sources included websites containing pertinent documents from the United States of America, Australia, European Union and the United Kingdom. A search of peer-reviewed articles yielded only two that met the project's review criteria, one each from Scandinavia and South Africa. A full discussion of the findings may be found in Appendix A.

Canadian Findings

An overview of all of the 2006 Canadian master’s level curricula as compared with the 1995 Guidelines indicated all programs had incorporated the 2004 Essential Competency Profile for Physiotherapists in Canada and all continued to regard the traditional physiotherapy practice areas, Cardiovascular/respiratory, Musculoskeletal and Neurological as central to the entry-to-practice curriculum. There were notable enhancements in the curricular content areas addressing evidence-based practice, research and professional issues (e.g. culturally competent practice, boundaries). In addition, the complexity of the curricular content increased and there was integration of knowledge, skills and behaviours across the curriculum as the student moved through the program.

Other trends dominating the most recent grey literature addressed the need for enhancements in entry-level physiotherapy education in the areas of primary health care role preparation, interprofessional interactions, collaborative teamwork and exercise (e.g. "with the pending epidemics of diabetes and obesity, exercise and exercise prescription are very important interventions").

International Findings

A high level review of physiotherapy curricula from relevant countries and other jurisdictions around the world was conducted to provide comparisons for Canada’s curriculum revision process and identify areas of strategic interest for the project. Given the complementarity of education programs, credentials, scope of practice and practice environments the United States of America, Australia and United Kingdom were of primary interest. Recent publications from the European Union, Scandinavia and South Africa were also reviewed.

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7 Richardson et al (2006), Rehabilitation in Primary Care: National and International Examples and Training Requirements, prepared for the Ontario Ministry of Health and Long Term Care
8 Soever (2006), Primary Health Care and Physical Therapists - Moving the Profession’s Agenda Forward, prepared for the College of Physical Therapists of Alberta, the Alberta Physiotherapy Association and CPA.
While there was variation in curricular design, delivery and credentials (e.g. the entry-to-practice credential in the U.S.A. is a DPT), there was no apparent difference between the curricular content areas in Canadian academic programs in 2006 and that reported in the UK\(^9\), Australia or the U.S.A.\(^10\). Similarly, there was minimal variance in the practice standards\(^11\) reported for these jurisdictions.

**Stakeholder Input**

**Internal Stakeholder Findings (Round I)**

The initial consultation with Canadian PT faculty confirmed the literature review findings regarding areas of enhanced emphasis for the revised curriculum, with the addition of *population health approaches* and *chronic disease management*. There was also a consensus that entry-to-practice PTs should have an enhanced awareness of the professional development required and the potential for career advancement opportunities presented by advanced/extended practice and clinical specialist roles, while being better prepared to respond to changes in the health care environment.

At the time of the consultation, there was very little consensus on the importance of including several new competencies (e.g. acupuncture, medication prescription) to the entry-to-practice curriculum. Subsequently, these issues surfaced as having either regional importance or as being more suited to a post-entry-to-practice level of practice e.g. advanced/extended practice.

**External Stakeholder Findings**

Each stakeholder group consulted was asked to identify any *curriculum enhancements* they felt were important, *new or emerging trends* they felt would better prepare new graduates and any *strategic issues* they felt would inform the mission of the Working Group. An outline of each stakeholder’s responses may be found in PowerPoint® presentation format in Appendix B.

There was marked consistency within this stakeholder group and with the findings of the literature review and initial faculty consultation regarding the areas of curriculum enhancement (e.g. interdisciplinary practice) and new/emerging trends (e.g. primary health care roles).

Other trends and strategic issues identified were:

- Gaps in physiotherapy service in rural and aboriginal populations
- Importance of business knowledge and skills
- Quality measurement & reporting will continue to drive service delivery issues in the future.
- Ability and need to advocate for the profession with attendant risks of NOT advocating e.g. missing opportunities regarding new practice models and roles; being replaced by other providers
- Globalisation and internationalisation of education is driving the call to reduce barriers to education and practice, across and between nations.
- Global health human resource (HHR) shortage of all health professionals worldwide may influence PT curriculum content (e.g. by requiring the addition of medication prescription).

Essentially, external stakeholders challenged educators to:

- Prepare students to embrace the developing world of practice by valuing life-long learning and actively pursuing professional development plans
- Help students embrace and embody professionalism and professional behaviours

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Internal Stakeholder Findings (Round II and III)

A draft curriculum framework was generated with four dimensions that were envisioned as four sides of a cube, where the inside/core of the cube represented the intersection of two or more dimensions of the framework i.e. trans-curricular integration of knowledge, skills and behaviours. The dimensions were Clinical Practice (e.g. client-centred), Clinical Sciences (e.g. Neurological PT), Cross-curricular Themes (e.g. Professional Issues and Practice) and Context of Practice (e.g. Models of practice and health care). The draft framework provided a structure with which to organise input collected from faculty members in the next two rounds of consultation.

Round II/Blackboard

Using Blackboard® Academic Suite, faculty in all programs across the country were invited to provide expert content for a full range of curriculum content domains in the Clinical Sciences dimension (e.g. Cardiorespiratory, Musculoskeletal, Neurological, Movement and Therapeutic PT) and the Cross-curricular Themes dimension (e.g. Foundation Sciences, Organisation and Business Science, Professional Issues and Practice, Program and Practice Management and Scientific Inquiry). Draft curriculum content documents were generated for each domain using the 1995 Curriculum Guidelines as a sample/reference point. Faculty edited the documents by inserting their preferred/suggested alternative statements under “Knowledge” and “Skills and Behaviours”.

Round III/Workshop

A two-day workshop was held prior to World Physical Therapy Congress 2007 in Vancouver, B.C., with faculty member representatives from all 14 Canadian Physical Therapy academic programs as well as external stakeholder representation from several CPA Divisions, the Alliance and ACCPAP. The purpose of the Workshop was to further develop the curriculum content, confirm or revise the location of the major theme/categories in the dimensions, recommend alternative groupings, develop a consensus on (or alternative to) the overall framework and make recommendations regarding future reviews/revisions. The workshop succeeded in meeting its objectives, including a recommendation for a revised approach to the overall framework of the Guidelines.

Final Guidelines

The Working Group redesigned the framework and organisation of the curriculum content with further input from content experts (identified at the Workshop) on select domains. CUPAC reviewed and approved the final draft, publishing the final document with assistance from partners, CPA, the Alliance and ACCPAP.
Parameters to Guide the User

1. The document is designed to provide a reference on curriculum content only; it does not address teaching and learning strategies, assessment processes or evaluation processes. It is understood that curriculum content is characterized by a progression from learner of foundational knowledge, clinical sciences and clinical practice to competent practitioner of the physiotherapy profession. Curriculum content in this document is categorized as Knowledge, Skills and Behaviours and while the final learning outcome, “competence”, is expected in each category listed, the definition and assessment/evaluation of competence is determined by each academic program.

2. The Guidelines are presented and organised in the context of a framework presented in Chapter 2. Each subsequent chapter addresses a unique Dimension of the framework e.g. Chapter 3 addresses Foundations and Chapter 4 addresses the Physiotherapy Clinical Sciences and Practice Areas. The framework attempts to separate content into Dimensions that are logical and somewhat distinct, while acknowledging the progressive complexity and integration of content associated with a professional curriculum. It is understood that each academic physiotherapy program will design their own unique curriculum model or framework.

3. As the content areas unfold in each chapter, the reader will observe some overlap and apparent redundancies between Dimensions and Domains. For example, content related to movement appears from different perspectives in numerous locations and many of the skills and behaviours in the Clinical Practice areas (Chapter 4) overlap with those presented in the Client-PT Interaction Domain (Chapter 5). These redundancies are deliberate and reflect the complexity and integration of curriculum content across Dimensions. In addition, while the Clinical Practice areas are presented separately, it is understood that there is significant overlap, integration and interconnectivity between them, reflecting the multidimensional reality of client function, disability and health.

4. In keeping with the principle of not being prescriptive, the reader is advised that the Domain Elements and the Knowledge, Skills and Behaviours listed are not exhaustive and are intended to provide curriculum content guidance, in the form of examples, rather than prescribe minimum requirements.
Purpose and Intent
A framework was designed to conceptualize the integration of the many content areas into a cohesive curriculum for entry-to-practice physiotherapy education programs in Canada. The focus of the framework is on curriculum content, not on curriculum delivery. The framework provides the organization of content into the sections of this Guidelines document and is intended to facilitate its use as a reference document.

Framework
The entry-to-practice physiotherapy curriculum content is characterized by Dimensions which are depicted graphically as 3-dimensional layers of a sphere. The four Dimensions are:

- **Foundations** (blue – innermost layer)
- **Physiotherapy Clinical Practice** (green – second layer)
- **Physiotherapy Professional Interactions** (orange – third layer)
- **Context of Practice** (red – outermost layer)

Through the Curriculum Content Framework (Figure 1), the interconnectedness of each uniquely important Dimension is illustrated. As each of the Dimensions is discussed in this Guideline, the sphere/Framework is developed and expanded. For example, each of the four Dimensions is further divided into Domains and then into more specific Elements. At the level of the Elements, specific Knowledge, Skills and Behaviours provide examples of curriculum content areas. Each of the subsequent chapters in this guideline is organized using these terms: Dimensions, Domains, Elements and Knowledge, Skills and Behaviours.

It is important to note that each Dimension or layer of the sphere interacts with the others, sometimes to the point of apparent redundancy. For example, Elements in the Foundations Dimension, such as Ethics, appear in another Dimension, Physiotherapy Professional Interactions, but from an applied perspective. The interaction between Dimensions reflects the fact that knowledge, skills and behaviours are integrated throughout the curriculum in progressively more complex clinical, professional and practice curricular Domains.

As the document unfolds, the content attributed to each Dimension is presented in its own chapter.
The Dimensions

The **Foundations** Dimension (Figure 2) supports and informs the entire entry-to-practice curriculum and encompasses four Domains: Biological and Basic Sciences, Psychosocial Sciences, Scientific Inquiry and Professionalism and Ethics.

**Figure 2. Foundations**

Although students may enter the physiotherapy education program with varying backgrounds in many of these foundational subjects, it is expected that relevant content from each of the Domains is integrated into the entry-to-practice curriculum.

**Biological and Basic Sciences** refers to Knowledge in a wide range of scientific fields, e.g.:

- Human Anatomy
- Human Physiology
- Pathology
- Immunology and Endocrinology
- Genetics
- Pharmacology
- Medical and Adjunct Therapies
- Biological Theories of Lifespan Development
- Physics
- Movement Sciences
- Environmental Science

**Psychosocial Sciences** include cultural anthropology, psychology, social science, psychological theories of lifespan development and learning and education.

**Professionalism and Ethics** addresses the theoretical knowledge required of the entry-to-practice student, which characterizes her/him as a professional and forms the basis for professional practice. It includes professional roles, professional competencies and responsibilities, foundational ethics and legislation and regulation.

**Scientific Inquiry** addresses a) how new knowledge is generated from a researcher perspective and b) how to find, evaluate and apply research findings within physiotherapy practice as an entry-level practitioner. It includes research, scientific communication and knowledge transfer/exchange.
The **Physiotherapy Clinical Practice** Dimension (Figure 3) is made up of five Domains (depicted in various shades of green): *PT Movement Sciences, PT Therapeutics, Cardiorespiratory PT Practice, Musculoskeletal PT Practice* and *Neurological PT Practice* and is layered around the Foundations Dimension (blue – innermost layer).

![Physiotherapy Clinical Practice](image)

While the clinical practice areas are presented separately (for ease of access and reference), it is understood that there is significant overlap, integration and interconnectivity between them, reflecting the multidimensional reality of client “function, disability and health” and client-centred physiotherapy practice.

Wherever possible the Knowledge, Skills and Behaviours identified reflect the latest iteration of the World Health Organisation’s disablement model, the International Classification of Functioning, Disability and Health: ICF\(^\text{12}\).

**PT Movement Sciences** is fundamental to physiotherapy clinical practice. It is the application of movement sciences through preventative and rehabilitative strategies and exercise prescription to promote health, activity and participation across a continuum of ages and abilities in the context of personal and environments factors. PT Movement Sciences reflects the integration of biomechanics and ergonomics, motor control and learning, and exercise.

**PT Therapeutics** is central to the practice of physiotherapy and the promotion of client health and wellness including illness/disablement prevention. It reflects the integration of Foundations (Chapter 3) and PT Movement Sciences and crosses all areas of PT clinical practice. It encompasses a wide range of therapeutic strategies, interventions, methods and techniques that span the scope of physiotherapy practice in Canada including prevention and health promotion. Therapeutic approaches addressed in this Domain include maximizing ventilation and perfusion, soft tissue (e.g. wound) management and mobilization, electro-physical agent applications, movement interventions and therapeutic exercise, physical handling and education.

Curriculum content in the clinical practice area Domains, *Cardiorespiratory PT, Musculoskeletal PT* and *Neurological PT* addresses the Knowledge, Skills and Behaviours required by graduates of an entry-to-practice Physiotherapy program. The curriculum content in each practice area outlines a sample range of key indicator conditions, essential and pertinent theory/foundation knowledge and the entry-to-practice physiotherapy assessment/evaluation and management of a client/population.

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The **Physiotherapy Professional Interactions** Dimension (Figure 4) addresses curriculum content at the level of the client/patient and individual physiotherapist in three Domains: **Professional and Ethical Practice**, **Client–Physiotherapist Interaction** and **Interprofessional Practice**. Content in this Dimension is influenced by and, in turn, impacts on curriculum content in the Clinical Practice (inner green) and Foundations (centre blue) layers as well as the outer Context of Practice layer (not shown).

![Figure 4. Physiotherapy Professional Interactions](image)

**Professional and Ethical Practice**

Professional and ethical practice curriculum content addresses the Knowledge, Skills and Behaviours required of the entry-to-practice physiotherapist in a range of practice relationships and roles. The content in this Domain builds on the foundations (i.e. knowledge) outlined in the Professionalism and Ethics Domain and includes the application of professional and ethical reasoning and decision-making strategies, professional communication, reflective practice strategies and personal management issues (stress, work-life balance). Factors that influence individual practice are addressed, including the availability and accessibility of local health care resources as well as the ethical, legal and regulatory requirements of practicing the physiotherapy profession in a given jurisdiction.

**Client-Physiotherapist Interaction**

The Client-Physiotherapist Interaction is characterized by the Knowledge, Skills and Behaviours that reflect the primary functions or the process of the therapeutic interaction: client/patient assessment, clinical reasoning and professional judgement, physiotherapy diagnosis/clinical impression and prognosis, intervention planning, client-PT communication and documentation, implementation of the PT intervention, systematic evaluation of the client’s response to the intervention and completion and follow-up regarding the therapeutic interaction. This Domain is closely aligned with the dimensions and elements detailed in the *Essential Competency Profile for Physiotherapists in Canada (2004)*.

**Interprofessional Practice**

Interprofessional practice refers to the Knowledge, Skills and Behaviours required of the entry-to-practice physiotherapist in a range of professional relationships associated with being a team member including education, delegation, supervision, conflict management, collaboration, consultation and referral practices. An important component of this Domain is familiarity with the scope of practice of a range of other health care professionals and their contribution to the health of the client.
The **Context of Practice** Dimension (Figure 5) addresses curriculum content required of the entry-to-practice physiotherapist at the service and health system level. It is the environment in which the entire curriculum lives, influencing clinical and professional practice.

Context of Practice includes the following Domains: **Health Care Environment, Health Care Models and Frameworks, Practice Management, Services Management and Practice Settings**.

**Health Care Environment**

Effective delivery of physiotherapy service requires that the entry-to-practice physiotherapist recognizes and responds to the influence of social, cultural, economic, legislative and demographic factors impacting the continuum of general health and physiotherapy care not only locally, but globally. Understanding the development of health and social policy and the related funding/delivery phenomena is fundamental to practicing effectively in the Canadian setting, whether in the private or public sector.

Curriculum content in the Health Care Environment Domain addresses the Knowledge, Skills and Behaviours associated with the global health environment and Canada’s health system including policy, legislation, funding, allocation and service delivery models.

**Health Care Models and Frameworks**

Curriculum content in the Health Care Models and Frameworks Domain addresses the Knowledge, Skills and Behaviours associated with a range of models and frameworks applicable to physiotherapy. Examples include those that address the continuum of health care service delivery (e.g. from illness prevention/health promotion through acute to palliative care), the health of populations, chronic disease states and enablement/disablement models (e.g. ICF).

**Practice Management**

This Domain addresses the physiotherapist’s professional responsibilities vis-à-vis the physiotherapist’s practice in the context of his/her contribution to a program of care. It includes the Knowledge, Skills and Behaviours necessary for an entry-to-practice physiotherapist to contribute to effective program management and practice management.

Curriculum content in program management addresses the steps and rationale used, the roles and responsibilities and the environmental factors that influence the availability and access to programs of healthcare. In practice management, content examples include leadership, health human resource parameters, program delivery parameters, caseload, health records, safety and risk management, delegation and practice evaluation.
**Services Management**

The entry-to-practice physiotherapist will contribute knowledgeably to the operation of a busy physiotherapy service, whether in a healthcare facility or in the community, in the public or private sector. Indeed, Knowledge, Skills and Behaviours in this Domain are of equal importance to successful practice in both the public and the private sector.

Curriculum content in this Domain will provide the entry-to-practice physiotherapist with an understanding of the business, organization and management principles and processes required to support physiotherapy service delivery in both the public and private sectors. Curriculum content includes an introduction to change management, business plan development, marketing, quality management and accreditation preparation.

**Practice Settings**

The Practice Settings Domain addresses curriculum content that will prepare the entry-to-practice physiotherapist for “direct access” practice in a variety of populations (e.g. aboriginal, sports-related and the elderly) and settings (e.g. traditional health care facilities, community/home settings and clinics).

Curriculum content will also introduce the student to the credentials/education/skills and behaviours required of more specialised settings (e.g. business/industrial worksites, education and research facilities) and the anticipated skills and behaviours necessary for new and emerging settings (e.g. primary care and telerehabilitation).

It is anticipated that the content will be fully integrated across the curriculum, reflecting its contextual relevance to overall learning and the curriculum as a whole.

**Summary**

The PT Curriculum Framework conceptualizes the interconnectedness of its four Dimensions. As Figure 6 illustrates, a slice at any angle through the centre of the sphere reveals all curriculum Dimensions and their relationship to one another.
Foundations

The Foundations Dimension (Figure 7) includes four Domains: Biological and Basic Sciences, Psychosocial Sciences, Professionalism and Ethics and Scientific Inquiry. The Elements identified in this Dimension will be integrated throughout the learning process of the entry-to-practice physiotherapy student. The majority of the foundational knowledge identified in this Dimension will be covered directly in the professional curriculum; some aspects may be covered by pre-requisite requirements. With the exception of Scientific Inquiry, only knowledge statements are identified, reflecting the foundational nature of this learning content.

**Figure 7. Foundations**

![Foundations Diagram](image)

**Biological and Basic Sciences** and **Psychosocial Sciences** refer to knowledge in a wide range of scientific and pedagogical fields, some of which may be acquired prior to admission to the entry-to-practice physiotherapy education program.

Content in the Biological and Basic Sciences Domain is strongly related to the movement and therapeutics Domains of the Physiotherapy Clinical Practice Dimension (Chapter 4). In particular, human anatomy, human physiology and pathology content are essential Elements of the entry-to-practice curriculum. Content in the Psychosocial Sciences lays the foundation for the Guidelines in the Physiotherapy Professional Interactions Dimension (Chapter 5).

The emphasis in each Element attempts to balance the present and evolving needs of physiotherapy practice in the future. As such, the content Elements listed are not exhaustive and are intended to provide guidance rather than prescribe minimum knowledge requirements. The skills and behaviours for this Domain are not listed in this chapter as they are integrated throughout the curriculum. They require the student to utilize and apply knowledge as a basis for understanding and applying the advanced scientific concepts upon which physiotherapy clinical practice is founded.
### Biological and Basic Sciences

<table>
<thead>
<tr>
<th>Element</th>
<th>Knowledge</th>
</tr>
</thead>
</table>
| Human Anatomy | • Focus on the musculoskeletal, neurological, cardiovascular and respiratory systems with lesser emphasis on related body systems, including the integumentary system.  
• Gross, functional and applied/surface anatomy are essential, with an emphasis on structure and function in health and disease related to physiotherapy (PT) practice  
• Includes histology of muscle and bone |
| Human Physiology | • Focus on the body systems most relevant to PT practice, including the integumentary system.  
• Includes the continuum from cell to system |
| Pathology (including Pathophysiology) | • Nature of disease, injury and their causes, processes, development and consequences  
• Common pathophysiological processes and mechanisms  
• Impact on structure and function e.g. immobility and indicator conditions pertinent to PT practice  
• Includes pain, inflammation, degeneration, healing, regeneration and repair |
| Immunology (including neuroimmunology) and Endocrinology | • Associated with PT indicator and related conditions |
| Genetics (including Functional Genomics\(^{13}\)) | • Associated with PT indicator and related conditions |
| Physics | • Physical laws and principles operative in:  
  – biomechanics  
  – PT Therapeutics and  
  – health care diagnostic tools |
| Movement Sciences\(^{14}\) | • Biomechanics e.g. kinematics and kinetics of functional mobility, soft tissue mechanics, biomechanical measurement & modelling  
• Ergonomics e.g. anthropometrics, principles of ergonomics and principles related to development, aging and associated conditions.  
• Motor control and learning e.g. models, theories and principles related to neuroplasticity and motor development across the lifespan  
• Exercise e.g. exercise physiology and the integration with immobility/inactivity, illness, disease and impaired functions |
| Pharmacology | • Mechanism, actions and therapeutic dosages of drugs used with PT indicator and related conditions  
• Effects and interaction between pharmacology and physical therapy interventions |

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\(^{13}\) [http://wordnet.princeton.edu/perl/webwn](http://wordnet.princeton.edu/perl/webwn): the branch of genomics that determines the biological function of the genes and their products  

\(^{14}\) Knowledge, Skills and Behaviours addressed in detail in the PT Movement Sciences Domain, Chapter 4.
### Biological and Basic Sciences

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical and Adjunct Therapies</td>
<td>• Mechanism, actions and therapeutic implications</td>
</tr>
</tbody>
</table>
| Biological Theories of Lifespan Development | • Common theories of biological development (e.g. movement) and aging  
• Relationship with health, injury, disease and disablement across the lifespan  

Environmental Science | • Interactions among physical, chemical and biological components of the environment which may impact on health  
• Related to the determinants of health and well-being (e.g. air/noise pollution, climate change, water quality)  
• Includes factors which may impact on function from cellular to population levels related to PT practice |

### Psychosocial Sciences

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural Anthropology</td>
<td>• Related to culturally competent/sensitive, client-centred practice</td>
</tr>
</tbody>
</table>
| Psychology including Cognitive and Behavioural sciences and Psycho-Social sciences | • Cognitive sciences e.g. learning, memory, perception, coping, self-efficacy, attention/motivation  
• Behavioural sciences e.g. related to change (health behaviours), social participation, communication  
• Interaction between psycho-social development, physical therapy and the most common indicator conditions pertinent to PT practice e.g. pain |
| Social Science | • Quality of life, social determinants of health, support systems, social policy, disability and function, community participation, culture, impact of client role/occupation on therapeutic interaction and social theories related to change |
| Psychosocial Theories of Lifespan Development | • Theories of psychological development and aging  
• Relationship with health, injury, disease and disablement across the lifespan  
• End of Life |
| Learning and Education | • Learning principles informed by cognitive and behavioural psychology and the social sciences  
• Education principles related to the role of PT as educator of clients/patients, families, other professionals and students |

15[http://www.cyberpursuits.com/anthro/](http://www.cyberpursuits.com/anthro/): Anthropology is a science of humankind. It studies all facets of society and culture... (and) describes the impact of humans on other humans.
**Professionalism and Ethics**

As part of the foundation for the curriculum at large, the Professionalism and Ethics Domain addresses the theoretical knowledge required of the entry-to-practice student, which characterizes her/him as a professional and forms the basis for professional practice. Professionalism involves accepting the responsibilities that come with the privilege of membership in a profession and the ensuing accountability to society.\(^{16}\)

This Domain addresses only the foundational **knowledge** required by the student to prepare him/her to learn professional and ethical practice skills and behaviours as he/she progresses through the curriculum. The **skills and behaviours** associated with professional and ethical practice are addressed in the Chapter 5 (Physiotherapy Professional Interactions Dimension). The Elements and knowledge listed are intended to provide guidance regarding curriculum content rather than prescribe minimum requirements.

<table>
<thead>
<tr>
<th>Professionalism and Ethics</th>
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</thead>
<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
</tbody>
</table>
| Professional Roles for the entry-to-practice physiotherapist | \- Includes direct-access clinician, reflective practitioner, learner, (client/family) educator, communicator, advocate, delegator, supervisor, collaborator, negotiator, organiser, professional, leader, change agent, member of professional associations  
  \- Introduction to other roles beyond entry-to-practice: mentor, specialist practitioner, advanced practice clinician, professional/academic educator, researcher, manager, entrepreneur, expert witness, lobbyist, consultant |
| Professional competencies and responsibilities | \- Familiarity with the Essential Competency Profile for Physiotherapists in Canada (2004) and updates as they become available  
  \- Practice that is autonomous, reflective, evidence-based, culturally competent and sensitive, and integrates critical thinking and moral/ethical reasoning into clinical decision-making  
  \- The value and importance of best practices, effective communication strategies (e.g. in difficult situations), teamwork and interprofessional collaboration, safety/security (e.g. for client, self, workplace), and life-long learning/continuous professional development |
| Ethics | \- Ethical theories and reasoning models, bioethics  
  \- Rationale for codes of ethics, therapeutic relationships and professional boundaries and professional values (e.g. integrity, honesty, compassion)  
  \- Issues related to informed consent, conflicts of interest and ethical business practices |
| Legislation and Regulations | \- Federal & provincial legislative requirements regarding health care delivery, professional regulation of practice (licensure) and issues of scope, delegation, professional misconduct, records, client/consumer rights, privacy/confidentiality, consent, health and personal information management, funding of health services for different populations (e.g. workers who are injured versus the general population) |

\(^{16}\) Adapted from DiGiacomo, M. (Dec 2004): Professionalism, Values in Action. PT Magazine (APTA).
Scientific Inquiry

Physiotherapy practice integrates the principles of scientific inquiry. Students are expected to have the knowledge and skills related to scientific inquiry in terms of a) how new knowledge is generated from a research perspective and b) how to find, evaluate and apply research findings within physical therapy practice as competent practitioners. Students are therefore expected to have experience with generating new knowledge, although not at the level of independent researchers and as competent practitioners, they are expected to be very skilled “consumers” of research.

The first content area of Scientific Inquiry curriculum addresses the generation of new knowledge and includes skills and knowledge needed in order to develop answerable questions; systematically search and critically appraise the literature; determine the best design; collect and analyse the data; and interpret and disseminate the results.

The second content area of Scientific Inquiry curriculum, the explicit use of evidence, includes the knowledge and skills necessary to gather, appraise and apply scientific information, and evaluate its impact, resulting in best practice. Evidence based practice is a term that has been used to describe this process: it involves the determination of the best evidence, consideration of the uniqueness and wishes of the client (individual to organization to society) and application of the expertise/clinical experience of the practitioner. Knowledge, Skills and Behaviours in this Domain will serve the student/graduate well in the pursuit of life-long learning.

The content for these two related areas of the Scientific Inquiry curriculum overlap and are organized into three Elements: Research, Scientific Communication and Knowledge Transfer/Exchange.

---

### Knowledge

Research designs relevant to Physical Therapy including quantitative and qualitative designs e.g.:

- Primary source study designs e.g. effectiveness, prognosis, outcome measures development and testing
- Secondary source study designs e.g. systematic reviews and meta-analysis, clinical practice guidelines (levels of analysis)
- Use of research designs/ methods in best practice development, program evaluation and quality management
- Non-research-based reviews: how to interpret
- Data quality issues (reliability, internal and external validity)
- Issues of bias and trustworthiness (validity)
- Conceptual frameworks or theories to guide:
  a) research development (i.e. research questions and data to be collected), data analysis and interpretation
  b) clinical reasoning

### Skills and Behaviours

- Selects the best available evidence
- Selects the best outcome measures
- Critically appraises the literature (includes peer-reviewed, non-peer reviewed, grey literature and websites), with the goal of applying the knowledge to clinical practice
- Collaborates in the design of small/pilot studies (using appropriate methods, statistics and referencing) or quality improvement projects

### Principles of the ethical conduct of research e.g.:

- Knowledge of provincial & federal/national ethical and legal standards
- Intellectual property rights

Applies ethical principles in the conduct of research by e.g.:

- Ensuring participants’ confidentiality and privacy
- Ensuring protection of participants from harm
- Ensuring protection of participants from burden
- Obtaining informed consent
- Accurately reporting of results

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18 "Quality management" is a method for ensuring that all the activities necessary to design, develop and implement a product or service are effective and efficient with respect to the system and its performance. Quality management can be considered to have three main components: quality control, quality assurance and quality improvement. ([http://en.wikipedia.org/wiki/Quality_management](http://en.wikipedia.org/wiki/Quality_management))
<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills and Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic research <strong>methods</strong> e.g.:</td>
<td>• Evaluates and understands the impact of interventions in the clinical setting e.g. in single case and/or group applications</td>
</tr>
<tr>
<td>• Development and testing of research questions and hypotheses</td>
<td>• Evaluates and understands commonly reported psychometric properties of physical therapy clinical tests</td>
</tr>
<tr>
<td>• Factors in sampling</td>
<td>• Participates in planning and conducting a research project and/or best practice development</td>
</tr>
<tr>
<td>• Accepted standards for interviews, observations, tests and measurements in the clinical setting, e.g. purpose, selection, administration, evidence of reliability and validity, inferring clinically important change</td>
<td>• Manages a data set e.g. quality indicators</td>
</tr>
<tr>
<td>• Common descriptive and inferential statistical methods (in collaboration with consultants)</td>
<td></td>
</tr>
<tr>
<td>• Common methods of quantitative and qualitative data analysis</td>
<td></td>
</tr>
<tr>
<td>• Interpretation of results</td>
<td></td>
</tr>
</tbody>
</table>
### Scientific Communication

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills and Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mechanics of undertaking a literature review using specified methods and criteria</td>
<td>• Demonstrates effective and efficient library and literature search skills</td>
</tr>
<tr>
<td>• Methods to critique the quality of the evidence (including grey literature, websites/internet information)</td>
<td>• Performs critical appraisal of literature using recognized “quality of evidence” criteria</td>
</tr>
<tr>
<td>• Decision-making methods that incorporate psychosocial and other factors (e.g. related to the client) with the best available evidence</td>
<td>• Demonstrates clinical reasoning that incorporates the best evidence, the client’s perspective and the PT’s clinical expertise/experience</td>
</tr>
<tr>
<td>• Principles of preparing and disseminating a research proposal, scientific paper, scientific abstract or a scientific poster</td>
<td>• Computer literacy e.g. basic computer skills such as word processing, computer assisted learning, design of a spreadsheet or (simple) database for data entry</td>
</tr>
<tr>
<td></td>
<td>• Uses a statistics package for basic qualitative, univariate and bivariate analyses (in consultation with researcher)</td>
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<td></td>
<td>• Writes purposefully, demonstrating correct use of language and style, presentation of arguments and synthesis of results</td>
</tr>
<tr>
<td>• Rationale for authorship and appropriate acknowledgement of authors, contributors, advisors, funding bodies, etc. in a scientific presentation or publication</td>
<td>• Collaborates effectively when working with faculty, clinician researchers and other colleagues e.g. experts, consultants and role models</td>
</tr>
<tr>
<td></td>
<td>• Communicates appropriately with co-authors in the preparation of presentations and papers</td>
</tr>
<tr>
<td>• Principles of argument presentation, information synthesis, use of graphics</td>
<td>• Uses effective and appropriate language and style in oral presentations</td>
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<td></td>
<td>• Uses multimedia techniques effectively</td>
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</tbody>
</table>

### Knowledge Transfer/Exchange

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills and Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Theories and models re changing client adoption of best practice interventions</td>
<td>• Uses methods to facilitate change in behaviours in clients</td>
</tr>
<tr>
<td>• Knowledge transfer/exchange theories/models e.g. role of participation, collaboration and uptake of new knowledge</td>
<td>• Uses methods to facilitate uptake of best practice in clinical settings and community</td>
</tr>
</tbody>
</table>
Physiotherapy Clinical Practice

The Physiotherapy Clinical Practice Dimension (Figure 8) reflects the scope of practice of physiotherapy in Canada by encompassing the key clinical practice Domains that distinguish physiotherapy (PT) from other health science professions. This Dimension interacts or interfaces with all of the other Dimensions and Domains of the curriculum.

Figure 8. Physiotherapy Clinical Practice

The Physiotherapy Clinical Practice Dimension is made up of five interconnected Domains: PT Movement Sciences, PT Therapeutics, Cardiorespiratory PT Practice, Musculoskeletal PT Practice and Neurological PT Practice.

It is understood that many patients/clients present with problems or conditions that span these traditional clinical practice areas resulting in multisystem problems and that curriculum delivery strategies will be employed by academic programs to facilitate student learning for these complex clinical scenarios. In order to maximize the ease with which academic PT program faculty can access specific curriculum content guidelines in this document, however, each clinical practice Domain is presented individually.

The entry-to-practice physiotherapist will be prepared to integrate Knowledge, Skills and Behaviours from all clinical practice Domains in order to deliver best practice physiotherapy that is patient-centred. In addition, curriculum content in Physiotherapy Clinical Practice will reflect the influence of a range of contextual factors such as the client’s age or stage of life and the point along the continuum at which physiotherapy is being delivered e.g. illness/disability prevention versus treatment intervention.

PT Movement Sciences and PT Therapeutics present content that has both foundational and ‘applied clinical’ level material which is expanded to reflect physiotherapy’s unique body of knowledge at the ‘scope of practice’ level.

PT Movement Sciences

At the heart of the physiotherapy profession is an understanding of movement and function. PT Movement Sciences are fundamental and integral to all physiotherapy clinical practice, reflecting the application of movement sciences to clinical practice. PT Movement Sciences influence every stage of the PT health care continuum from illness and disability management or prevention through therapeutic exercise and mobility to high performance functioning. The integration of PT Movement Sciences and clinical practice promotes health, activity and participation across a continuum of ages and abilities in the context of personal, task-related and environmental factors.
Curriculum content in this Domain elaborates on the knowledge requirements identified in the Foundations Dimension (Chapter 3) and integrates it with the skills and behaviours associated with the Elements of biomechanics and ergonomics, motor control and learning and exercise. PT Movement Sciences content is expected to be used to inform all aspects of clinical decision-making in all areas of practice.

As previously noted, the content listed is not exhaustive and is intended to provide guidance rather than prescribe minimum requirements.

<table>
<thead>
<tr>
<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomechanics and Ergonomics</td>
<td>Biomechanics e.g.:</td>
<td>Perform assessments or measures of body functions and structures related to tissue</td>
</tr>
<tr>
<td></td>
<td>• Kinematics and kinetics of functional mobility and manipulation tasks</td>
<td>mechanics e.g.:</td>
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<td></td>
<td>Tissue mechanics e.g.:</td>
<td>Strength testing:</td>
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<td></td>
<td>• Muscle contraction and the generation of tension (e.g. length tension,</td>
<td>• Strengths and limitations of different approaches to assess muscle strength.</td>
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<tr>
<td></td>
<td>velocity of contraction)</td>
<td>• Perform and interpret Manual Muscle Test, Dynamometry Testing, Isokinetic testing</td>
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<td></td>
<td>• Behaviour of muscle and other connective tissues under mechanical</td>
<td>• Perform and interpret evaluation for flexibility</td>
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<td></td>
<td>loads (e.g. compression, shear, torsion, tension)</td>
<td>Determine anatomical landmarks, anthropometric parameters</td>
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<td></td>
<td>Biomechanical measurement &amp; modelling e.g.:</td>
<td>Determine position, displacement, velocity and acceleration of body segments</td>
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<tr>
<td></td>
<td>• Measurement and instrumentation methods.</td>
<td>under different conditions: standing, sitting, lifting, walking and running</td>
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<tr>
<td></td>
<td>• Common models for analysing and interpreting movement and functional</td>
<td>Observational and instrumented analyses of gait, posture, balance, joint range of</td>
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<tr>
<td></td>
<td>activity (e.g. Link Segment)</td>
<td>motion and functional movement, ADL and IADL in both healthy and dysfunctional states</td>
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<td></td>
<td>Ergonomics e.g.:</td>
<td>Design effective interventions to address activity limitations using principles of</td>
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<tr>
<td></td>
<td>• Anthropometrics</td>
<td>tissue mechanics, biomechanics and ergonomics</td>
</tr>
<tr>
<td></td>
<td>• Principles of Ergonomics (Force, Frequency, Posture and Exposure)</td>
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<tr>
<td></td>
<td>Ergonomics and Mobility e.g.:</td>
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<tr>
<td></td>
<td>• Associated principles related to development, aging and associated</td>
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<tr>
<td></td>
<td>conditions:</td>
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<tr>
<td></td>
<td>- gait</td>
<td></td>
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<tr>
<td></td>
<td>- balance control</td>
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<td></td>
<td>- influence of ambulatory assistive devices (e.g. wheelchairs),</td>
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<tr>
<td></td>
<td>prosthetics and orthotics on gait</td>
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<tr>
<td></td>
<td>Motor control:</td>
<td>Perform assessments or measures of body functions and structures related to motor</td>
</tr>
<tr>
<td></td>
<td>• Models and theories of motor control e.g. reflex, distributed, systems</td>
<td>control</td>
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<tr>
<td></td>
<td>and dynamics</td>
<td>Implement strategies to address impairments that affect motor control such as,</td>
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<tr>
<td></td>
<td>Neurophysiological basis for motor control and motor learning</td>
<td>contractures, sensory impairments, muscle weakness &amp; increased fatiguability,</td>
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<tr>
<td></td>
<td>mechanisms, theories and principles of neuroplasticity e.g.:</td>
<td>postural malalignment, impaired coordination, impaired vestibular processing</td>
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<td></td>
<td>• Injury induced vs practice induced neuroplasticity</td>
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</tr>
<tr>
<td>PT Movement Sciences</td>
<td>Knowledge</td>
<td>Skills &amp; Behaviour</td>
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<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Motor Control and</strong></td>
<td>• Contextual factors that affect neuroplasticity (environmental, experiential, chemical, genetic and physical factors)</td>
<td>• Perform assessments or measures of motor control activities</td>
</tr>
<tr>
<td><strong>Motor Learning:</strong></td>
<td>Motor Learning:</td>
<td>Perform assessments or measures of motor control affecting participation:</td>
</tr>
<tr>
<td></td>
<td>• Theories and models of motor learning: principles of skill acquisition, such as role of practice; performance-learning distinction and the role of feedback</td>
<td>• Vocational &amp; avocational</td>
</tr>
<tr>
<td></td>
<td>• Relationship between motor development across the lifespan and motor learning</td>
<td>• Community integration</td>
</tr>
<tr>
<td></td>
<td>• Effects of cognition and diseases on motor learning</td>
<td>Utilize principles of motor learning to design effective motor control interventions</td>
</tr>
<tr>
<td><strong>Motor Development:</strong></td>
<td>Motor Development:</td>
<td>Perform assessments or measures of body functions and structures, abilities and participation that are appropriate for the age of the individual</td>
</tr>
<tr>
<td></td>
<td>• Theories and models of motor development across the lifespan</td>
<td>Design and implement interventions that consider the motor control and learning abilities related to age</td>
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<tr>
<td></td>
<td>• Effects of injury and/or illness, disease on motor development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Effects of environment, experience and pharmacological agents on development</td>
<td></td>
</tr>
<tr>
<td><strong>Exercise</strong></td>
<td>Determinants of health and exercise behaviour</td>
<td>Assessment skills such as:</td>
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<tr>
<td></td>
<td>Responses of the major physiological systems (cardiorespiratory, neuromuscular and neurological) systems, from cellular to whole organ level, to exercise and occupation-related physical activity (work) at the:</td>
<td>• Risk factor screening (e.g. PARQ\textsuperscript{19}, medical, lifestyle and physical activity history)</td>
</tr>
<tr>
<td></td>
<td>• In the context of disability, physiological responses to:</td>
<td>• BP, HR, RR, ECG\textsuperscript{19} analysis, oximetry, rating of perceived exertion and dyspnea, blood sugar, body composition</td>
</tr>
<tr>
<td></td>
<td>• acute or immediate level</td>
<td>• Aerobic fitness and functional performance testing (e.g. formal sub-maximal testing, 6 Minute Walk Test)</td>
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<tr>
<td></td>
<td>• chronic adaptation level that occurs as a result of exercise</td>
<td>• Muscle strength, endurance and power testing</td>
</tr>
<tr>
<td></td>
<td>• In the context of disability, physiological responses to:</td>
<td>• Flexibility and range of motion (goniometry, muscle length testing)</td>
</tr>
<tr>
<td></td>
<td>• immobilization and inactivity</td>
<td>• Balance and Trunk stabilization testing</td>
</tr>
<tr>
<td></td>
<td>• stretching of soft tissue</td>
<td>• Agility and coordination</td>
</tr>
<tr>
<td></td>
<td>• muscle strengthening and endurance training</td>
<td>Interpretation and analysis of assessment findings (addressed more fully in Chapter 5)</td>
</tr>
<tr>
<td></td>
<td>• cardiovascular endurance training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• disease/injury</td>
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</tbody>
</table>

\textsuperscript{19} PAR-Q: Physical Activity Readiness Questionnaire; BP: Blood-Pressure; HR: Heart Rate; RR: Respiratory Rate, EKG: Electro-Cardio Gram
<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Skills &amp; Behaviour</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exercise contd.</strong></td>
<td>• Impact on these responses related to a wide range of factors e.g. age, gender, initial fitness level, type, duration and intensity of exercise/work, environment, nutrition, illness/disease/impaired function, medication and ergogenic aids, pregnancy, psychosocial</td>
<td>Best practice exercise prescription for variety of populations in the following areas:</td>
</tr>
<tr>
<td></td>
<td>• Integration of exercise physiology with illness/disease/impaired functions in special populations e.g. the central neural vs. peripheral limitations to exercise or occupation-related performance in individuals with coronary artery disease, stroke, spinal cord injury, hip fracture, anterior cruciate ligament injury etc.</td>
<td>– aerobic and anaerobic training</td>
</tr>
<tr>
<td></td>
<td>• Principles of fitness assessment:</td>
<td>– resistance (strength, endurance and power)</td>
</tr>
<tr>
<td></td>
<td>– risk factor screening</td>
<td>– flexibility</td>
</tr>
<tr>
<td></td>
<td>– energy/work/power, body composition, aerobic/anaerobic fitness, muscular strength and endurance, flexibility, balance and coordination</td>
<td>– stabilization and balance (including coordination and agility)</td>
</tr>
<tr>
<td></td>
<td>• Principles of exercise prescription &amp; programming for:</td>
<td>Modification of exercise and activity in the presence of pathology</td>
</tr>
<tr>
<td></td>
<td>– health promotion</td>
<td>Implement strategies to address impairments of body structure/functions affecting activity limitations</td>
</tr>
<tr>
<td></td>
<td>– therapeutic exercise</td>
<td>Implementation of strategies to address impairments of body structure/functions affecting the ability to engage in participation e.g. work</td>
</tr>
<tr>
<td></td>
<td>– high performance individuals</td>
<td></td>
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<tr>
<td></td>
<td>• Exercise Prescription guidelines:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– for healthy populations</td>
<td></td>
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<tr>
<td></td>
<td>– for special populations e.g. children, older adults, diabetes, chronic lung disease, cardiac pathologies, stroke, obesity, etc.</td>
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<tr>
<td></td>
<td>– components include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ aerobic and anaerobic</td>
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<tr>
<td></td>
<td>▪ flexibility and range of motion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ resistance (strength, endurance and power)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▪ balance</td>
<td></td>
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<tr>
<td></td>
<td>▪ trunk stabilization</td>
<td></td>
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<tr>
<td></td>
<td>• Functional training principles</td>
<td></td>
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<tr>
<td></td>
<td>• Knowledge of exercise science/physiology organisations and practice sector (e.g. Canadian Society for Exercise Physiology [CSEP], American College of Sports Medicine [ACSM])</td>
<td></td>
</tr>
</tbody>
</table>
**PT Therapeutics**

**PT Therapeutics** is central to the practice of physiotherapy and the promotion of client health and wellness including illness/disability prevention. It reflects the integration of Foundations (Chapter 3) and PT Movement Sciences and crosses all areas of PT clinical practice. It encompasses a wide range of therapeutic strategies, interventions, methods and techniques that span the scope of physiotherapy practice in Canada including prevention and health promotion. Therapeutic approaches addressed in this Domain include maximizing ventilation and perfusion, soft tissue (e.g. wound) management and mobilization, physical and electrical agents, movement interventions, physical handling and education.

Decisions regarding the selection and application of PT Therapeutics incorporate foundational knowledge (e.g. biological and basic sciences), principles of best practice (including, but not limited to, critical appraisal of the evidence), clinical expertise (e.g. indicator conditions), clinical reasoning and professional judgement as well as patient/client defined values, needs and goals. The processes involved in making these decisions are addressed in the Physiotherapy Professional Interactions Dimension (Chapter 5), Client-Physiotherapist Interaction Domain.

Note that PT Therapeutics utilized by entry-to-practice physiotherapists are identified in this Domain ONLY - they are not itemized in each practice area e.g. Cardiorespiratory PT. In addition, as the scope of practice of the entry-level physiotherapist in Canada and the quality of the evidence for current PT Therapeutics evolves over time, it is understood that the content listed here is neither finite nor exhaustive. It is intended to provide guidance rather than prescribe minimum curriculum requirements.

<table>
<thead>
<tr>
<th>Element</th>
<th>PT Therapeutics</th>
<th>Skills &amp; Behaviour</th>
</tr>
</thead>
</table>
| Maximizing ventilation and perfusion | Cardiorespiratory:  
- Strategies to clear airway secretions  
- Strategies to improve gas exchange and manage low lung volumes  
- Strategies to manage dyspnea | Implementation of techniques e.g.:  
- Suctioning, use of mechanical assistive devices (e.g. Positive Expiratory Pressure, Flutter, Vest, etc.), postural drainage and percussions, coughing manoeuvres, medication delivery e.g. oxygen  
- Positioning, breathing control strategies (e.g. Pursed Lip Breathing, Sustained Maximal Inspiration, deep breathing), movement  
- Relaxation training, positioning, exercise |
| Superficial soft tissue (primarily skin) management | Stages of healing  
Physiological impact and clinical management of:  
- Wounds (including ulcers)  
- Skin conditions (e.g. infectious, mechanical [e.g. contact dermatitis])  
- Oedema (including lymphedema)  
- Burns (including radiation)  
- Amputations  
- Bracing e.g. effects on skin integrity | Assessment of body structure and functions related to the integumentary/skin system using best practice techniques and tools  
Implementation of the clinical management best practices (excluding chemical debridement)  
Implementation of therapeutic interventions noted ensuring best practice application techniques regarding e.g.:  
- Universal health precautions (e.g. hand washing, gloving, sterile field, etc.) |
<table>
<thead>
<tr>
<th>PT Therapeutics</th>
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<tbody>
<tr>
<td><strong>Element</strong></td>
</tr>
</tbody>
</table>
| Superficial soft tissue (primarily skin) management contd. | Clinical management best practices e.g.:  
• Universal health precautions  
• Role of collaborative teams in skin care, prevention of skin damage and management of wounds  
• Skin integrity supportive measures (breakdown prevention) e.g. positioning in bed, wheelchair etc  
• Role of physical and electrical agents in wound care and healing  
• Wound care e.g. cleansing, debriding, dressing  
• Chemical debridement (knowledge only)  
• Blister and scar management  
Therapeutic interventions e.g.:  
• Compression garments (e.g. TEDS)  
• Hydrotherapy and cryotherapy in the management of oedema  
• Bandaging/tensor techniques for amputations  
• Splinting (e.g. adaptive, assistive, protective, supportive and prosthetic devices) and implications for skin health  
• Taping and wrapping techniques  
|  |  | • Physical handling (e.g. positioning and donning, doffing, fitting and adjusting Thrombo-Emboliem Deterrent Stockings [TEDS], prosthetic devices, splints and orthotics)  
| Soft tissue mobilization techniques |  
• Soft tissue physiology, stages of healing and the effects of pathophysiology on movement and function  
• Biomechanics and the osteo- and arthro-kinematics of joint movements  
• Functional anatomy, static and dynamic posture  
• Theory, foundation and evidence regarding manual therapy including contraindications (red flags)  
• Principles of stretching, range of motion, therapeutic massage, joint and soft tissue mobilization, traction and other manual therapy and manipulation techniques  
• Principles of safe handling and the prevention of adverse effects  
|  |  | • Performance of best practice neuromusculoskeletal examination e.g.:  
• Active and passive physiological movements  
• Muscle function i.e. strength, recruitment, length  
• Contraindications or preventable adverse effects  
|  |  | Appropriate use of mobilization and manual therapy techniques in the establishment of a physical diagnosis and treatment strategy  
|  |  | Implementation of best practice manual therapy and manipulation interventions |
## PT Therapeutics

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Skills &amp; Behaviour</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrophysical Agents e.g. Electrical</td>
<td>Examples of modalities(^{20}):</td>
<td>Selection of appropriate modality to facilitate therapeutic outcomes based on evidence regarding indications, effectiveness, contraindications, precautions</td>
</tr>
<tr>
<td></td>
<td>• Transcutaneous electrical nerve stimulation (TENS)</td>
<td>Demonstrates safe and effective use of physical and electrical agents including appropriate dosage selection and progression of dosage</td>
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<tr>
<td></td>
<td>• Interferential current (IFC)</td>
<td>Responsible for calibration and routine maintenance of selected modalities</td>
</tr>
<tr>
<td></td>
<td>• Neuromuscular electric stimulation (NMES)</td>
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<td></td>
<td>• High voltage pulsed current (HVPC)</td>
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<td>• Direct current (iontophoresis)</td>
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<td>• EMG biofeedback</td>
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<td>• LASER</td>
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<td>• Hot packs</td>
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<td>• Paraffin wax</td>
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<td></td>
<td>• Cryotherapy</td>
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<td></td>
<td>• Ultrasound (continuous)</td>
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<tr>
<td>Light Thermal</td>
<td>• Shortwave diathermy</td>
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<td></td>
<td>• Whirlpool</td>
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<tr>
<td>Hydrotherapy</td>
<td>• Contrast baths</td>
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<tr>
<td>Mechanical energy</td>
<td>• Ultrasound (pulsed)</td>
<td></td>
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<tr>
<td></td>
<td>Indications, contraindications and precautions of electrophysical agents</td>
<td></td>
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<tr>
<td></td>
<td>Principles of calibration and routine maintenance of equipment</td>
<td></td>
</tr>
<tr>
<td>Movement Interventions and Therapeutic Exercise (overlaps with PT Movement Sciences)</td>
<td>Immobility: Implications, Evaluation, Interventions</td>
<td>Assessment of body structure and functions related to:</td>
</tr>
<tr>
<td></td>
<td>• Physiological effects of bed rest and immobility</td>
<td>• Bed rest &amp; immobility e.g. range of motion/contracture status, BP, HR during position changes, muscle strength etc.</td>
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<tr>
<td></td>
<td>• Therapeutic strategies to prevent immobility and it’s sequelae</td>
<td>• Posture and gait</td>
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<td></td>
<td>• Clinical strategies to redress the effects of immobility</td>
<td>Implementation of movement interventions including prescription, instruction, client education and monitoring e.g.:</td>
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<tr>
<td></td>
<td>Therapeutic exercise in the context of the client’s environment (e.g. home)</td>
<td>• Bed-exercises, use of a tilt-table</td>
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<tr>
<td></td>
<td>and a range of therapeutic environments (e.g. home, gymnasium, pool/hydrotherapy, out-patient clinic, hospital ward/corridor etc.):</td>
<td>• Assistive mobility devices such as walkers, crutches, wheelchairs</td>
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<td></td>
<td>• Best practice guidelines for therapeutic exercise prescription (e.g. ACSM Guidelines):</td>
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<td>• prevention and health promotion</td>
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<td>• special populations</td>
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<td></td>
<td>• Best practice for skills training</td>
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</tbody>
</table>

\(^{20}\) Recommendations of PT Therapeutics Working Group, Vancouver, June 2007. Decisions by individual academic programs regarding which modalities to include in their curriculum will be based on the available evidence. As the evidence changes, this list will evolve.
## PT Therapeutics

<table>
<thead>
<tr>
<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
</tr>
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</table>
| Movement Interventions and Therapeutic Exercise contd. | Posture and Gait/Locomotion:  
- Causes and implications of impairments and functional limitations  
- Assistive & prosthetic devices  
- Analytical approaches  
- Indications, precautions and implications for PT interventions e.g.:  
  - weight-bearing implications of gait aids  
  - training and education strategies  
| Integrates clinical assessment results (e.g. exercise test and the presence of pathology):  
- Uses movement analysis and training principles to change function  
- Prescribes and teaches:  
  - aerobic, endurance and interval exercise training  
  - resistance (strength, endurance and power) training  
  - flexibility, stabilization, balance, coordination and dexterity training  |
| | Upper and lower extremity function:  
- Causes and implications of impairments and functional limitations  
- Assistive & prosthetic devices  
- Analytical approaches  
- Indications, precautions, implications for PT interventions e.g.:  
  - stabilization and dexterity  
  - training and education strategies  | Use and instruction of a variety of exercise/movement equipment (e.g. treadmill, heart rate monitor, oximeter, pressure biofeedback unit, free weights, balance boards, theraballs, etc)  
Assessment and implementation of management strategies to address impairments of body structure/functions, functional limitations and associated participation limitations e.g.:  
- Posture, gait/locomotion e.g.:  
  - transitional movements (transfers)  
  - wheelchair skills  
  - ambulation  
  - bed mobility  
- Upper and lower extremity function e.g.:  
  - reach/grasp  
  - manipulation of tools  
  - activities of daily living  
  - gait training  
- Work e.g.:  
  - functional assessment and prescription of work-related physical conditioning  |
| | Functional training principles:  
- Task analysis  
- Ergonomics  
- Return to work and activity |  

Integrates clinical assessment results (e.g. exercise test and the presence of pathology):  
- Uses movement analysis and training principles to change function  
- Prescribes and teaches:  
  - aerobic, endurance and interval exercise training  
  - resistance (strength, endurance and power) training  
  - flexibility, stabilization, balance, coordination and dexterity training  

Use and instruction of a variety of exercise/movement equipment (e.g. treadmill, heart rate monitor, oximeter, pressure biofeedback unit, free weights, balance boards, theraballs, etc)  
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  - wheelchair skills  
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  - bed mobility  
- Upper and lower extremity function e.g.:  
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  - manipulation of tools  
  - activities of daily living  
  - gait training  
- Work e.g.:  
  - functional assessment and prescription of work-related physical conditioning
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<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Skills &amp; Behaviour</strong></th>
</tr>
</thead>
</table>
| Physical Handling techniques | • The physiological, psychological and biomechanical (static and dynamic) effects of handling on the client and physiotherapist  
• Functional anatomy and the effects of handling and positioning on muscle activation  
• Principles of neuromotor control and the effects of handling/positioning  
• Principles of sensitive practice as they relate to patient handling e.g. role of draping and hand placement  
• Principles of safety that apply to the physical handling of patients with a full range of dependencies e.g.:  
  - impact of different environmental conditions on safety outcomes  
  - availability and accessibility of resources on safety outcomes | Selection of appropriate technique(s) to facilitate safety, sensitive practice, client comfort and effectiveness  
Demonstrates safe, respectful and effective performance of physical handling techniques taking into account the patient’s clinical condition, the need for privacy, the physiotherapist, the resources available and the environment e.g.:  
• Use of draping  
• Hand placement for assessment and treatment techniques (e.g. manual therapy)  
• Body(-part) positioning  
• range of motion (e.g. passive, assisted, resisted) and other manual techniques  
• Lifting and transfer techniques |
| Education | • Learning theories and their application to physiotherapy practice (clinical and non-clinical) e.g.:  
  - learning styles  
  - group process and dynamics  
  - effective communication  
• Behaviour change theories and support strategies e.g. as applied to health education and promotion  
• Education theories, models and principles e.g.:  
  - teaching principles and strategies  
  - adult learning principles | Education of clients, families, professional peers and small groups  
Communication with clients, families, professional peers, superiors (e.g. professors, employers) and small groups  
• Health education/promotion management e.g.:  
  - assessment of readiness to change  
  - instruction of psychomotor skills to support lifestyle modification behaviours  
  - one to one and group counselling  
  - monitoring of health, function and performance |

Curriculum content in the [Cardiorespiratory](#), [Musculoskeletal](#) and [Neurological PT Practice](#) areas addresses the Knowledge, Skills and Behaviours required by graduates of an entry-to-practice Physiotherapy program.

Across Canada, contemporary clinical practice occurs in a rapidly evolving primary health care context, where client-centred approaches and interprofessional collaboration are important factors in the achievement of successful outcomes for the patient/client. Curriculum content in each of the physiotherapy clinical practice areas is presented in the context of these evolving realities (further developed in Chapters 5 and 6).
In addition, there is increasing national and international emphasis on theoretical constructs in which curriculum, practice and research discourse is based on enablement-disablement models such as the Quebec Disability Creation Process model. While any of these models are compatible with the entry-to-practice curriculum, this document is framed by the most recent iteration of the World Health Organisation’s model, the International Classification of Functioning, Disability and Health: ICF.

The ICF is structured around the following broad components:

- Body functions and structure
- Activities (related to tasks and actions by an individual) and
- Participation (involvement in a life situation)

Functioning and disability are viewed as a complex interaction between the health condition of the individual and the contextual factors of the environment as well as personal factors. The picture produced by this combination of factors and dimensions is of "the person in his or her world." … It is applicable to all people, whatever their health condition. The language of the ICF is neutral as to etiology, placing the emphasis on function rather than condition or disease. It also is carefully designed to be relevant across cultures as well as age groups and genders, making it highly appropriate for heterogeneous populations.

Curriculum content in these practice areas is presented separately (for ease of access and reference). It is understood that there is significant overlap, integration and interconnectivity between them, reflecting the multidimensional reality of client “function, disability and health” and client-centred physiotherapy practice.

The curriculum content in each practice area addresses a sample range of indicator conditions, essential and pertinent theory/foundation knowledge and the entry-to-practice physiotherapy assessment and management of a client/population. Wherever possible the Knowledge, Skills and Behaviours identified reflect the language of the ICF.

**Cardiorespiratory PT Practice**

**Introduction**

Cardiorespiratory Physiotherapy (CR PT) focuses on maximizing functional independence and well-being. A patient-centred model of care is used with multi-system assessment, evidence-based interventions and a significant education component to promote healthy active lifestyles and community-based living.

Knowledge and skills in cardiovascular-respiratory management and disease prevention are critical for the entry-to-practice physiotherapist as a basis for holistic and comprehensive management of clients with a wide range of conditions across the lifespan. In addition, the newly graduated PT will appreciate the invaluable contributions that other health care professionals bring to the patient/client’s care and understand the importance of interprofessional practice and the team approach to health care.

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CR PT Indicator Conditions

The entry-level professional will have a working knowledge of the prevalence and incidence of cardiovascular and respiratory disease, associated risk factors, and the principles of cardiovascular and respiratory dysfunction including pathophysiological mechanisms, aetiology, clinical presentation and differential diagnosis.

Cardiorespiratory diseases may result from environmental or genetic factors, trauma or lifestyle choices, e.g. smoking, burns or atherosclerosis. They may also result from dysfunction of other organ systems, e.g. endocrine or immune systems. Other examples of conditions affecting the cardiovascular or respiratory systems include progressive neuromuscular disorders, medical disorders and musculoskeletal disorders.

The key indicator conditions identified are those most commonly encountered by the entry-to-practice PT. Examples of key indicator conditions for CR PT are presented by category along with some examples of conditions that, while less prevalent, provide an opportunity for learning transfer in each category, thereby facilitating more in-depth or independent learning.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Key Indicator Conditions</th>
<th>Other Conditions: Learning Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular</td>
<td><strong>Hereditary/congenital</strong> e.g. valve disorders</td>
<td><strong>Hereditary/congenital</strong> e.g. atrial septal defect, ventricular septal defect, tetralogy of Fallot, cardiomyopathy, haematologic disorders</td>
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<td></td>
<td><strong>Acquired</strong> e.g. atherosclerosis (coronary artery disease, peripheral artery disease), chronic congestive heart failure, lymphedema, hypertension, myocardial infarction</td>
<td><strong>Acquired</strong> e.g. chronic arterial and venous insufficiency</td>
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<tr>
<td></td>
<td><strong>Surgical</strong> e.g. cardiac transplant, coronary artery bypass graph</td>
<td><strong>Surgical</strong> e.g. myectomy</td>
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<tr>
<td>Respiratory</td>
<td><strong>Early developmental &amp; childhood</strong> e.g. bronchiolitis, interstitial respiratory distress syndrome, bronchopulmonary dysplasia, paediatric cystic fibrosis (CF), bronchiectasis</td>
<td><strong>Early developmental &amp; childhood</strong> e.g. Kartagener’s syndrome</td>
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<tr>
<td></td>
<td><strong>Obstructive</strong> e.g. chronic obstructive pulmonary disease (COPD), bronchiectasis, asthma, adult CF</td>
<td><strong>Restrictive</strong> e.g. environmental e.g. pneumonitis, silicosis, pulmonary fibrosis; autoimmune e.g. sarcoidosis</td>
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<td></td>
<td><strong>Restrictive</strong> e.g. pneumonia, pleural effusion, pulmonary oedema, atelectasis, pneumothorax, interstitial lung disease</td>
<td><strong>Surgical</strong> e.g. pleurectomy, pleurodesis</td>
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<td><strong>Neoplastic</strong> e.g. lymphedema, cancer</td>
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<td><strong>Traumatic</strong> e.g. pulmonary contusions, inhalation/burns, wounds (knife, foreign body, bullet), aspiration</td>
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<td></td>
<td><strong>Surgical</strong> e.g. lung transplant, lung resection</td>
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<td><strong>Infectious</strong> e.g. tuberculosis, sudden acute respiratory syndrome (SARS), pneumonia, human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS)</td>
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<tr>
<td></td>
<td><strong>Others</strong> e.g. pneumocystis carinii pneumonia</td>
<td></td>
</tr>
</tbody>
</table>
Categories | Key Indicator Conditions | Other Conditions: Learning Transfer
--- | --- | ---
**Neurological** | Many patients with neurological conditions have a compromised or at-risk cardiovascular and/or respiratory system | Examples include:  
*Hereditary/congenital* e.g. cerebral palsy  
*Acquired & traumatic* e.g. brain and spinal cord injuries, stroke (Cerebro-Vascular Accident),  
*Infectious* e.g. intercostal neuritis  
*Progressive neuromuscular* e.g. Guillain-Barre Syndrome, amyotrophic lateral sclerosis, muscular dystrophy, multiple sclerosis

**Musculoskeletal** | Some patients with MSK disorders develop a compromised, or at-risk, cardiovascular and/or respiratory system | Examples include:  
rheumatoid lung, thoracic cage deformities (e.g. structural scoliosis/kyphosis), muscular dystrophy, rib fracture(s), costo-chondral / costo-vertebral / vertebral joint impairment or dysfunction

**Endocrine** | | Diabetes, metabolic disorders, obesity

**Integumentary** | Burns of the neck and thorax | |

**CR PT Theory/Foundation Knowledge**

The CR PT entry-to-practice curriculum requires the student to have a sound understanding of the theories, scientific evidence and, where available, best practices in the areas of the Cardiorespiratory System, Psychosocial Sciences, PT Movement Sciences and PT Therapeutics.

**Cardiorespiratory System:**
- The response of structures of the cardiovascular and respiratory systems i.e. upper and lower respiratory tract, lungs, heart, vascular structures, diaphragm, thoracic costal and spinal structures (skin, bone, articular cartilage, tendon, ligaments, fascia, peripheral nerves, skeletal muscle) in consideration of the pathophysiology, pathomechanics and functional limitations associated with the indicator conditions e.g.:
  - respiratory physiology: structure/function, defence mechanisms, mechanics of respiration, pulmonary circulation, gas transport, gas exchange, control of ventilation, acid base balance and electrolytes, pressure flow relationships  
  - cardiovascular physiology: structure/function, mechanical function of heart, electrical activity of heart, hemodynamics, coronary circulation controls, peripheral circulation control, fluid dynamics  
  - renal physiology: basic knowledge of structure and function (fluid and electrolyte balance, red blood cell formation)  
  - immune system: basic knowledge of structure and function (inflammatory process, immune response)  
  - endocrine system: basic knowledge of structure and function (blood glucose regulation, hormonal control of fluid and electrolyte balance and blood pressure  
  - related neuromusculoskeletal principles e.g. muscle physiology, conditioning and deconditioning, energy systems  
  - pain and the Cardiorespiratory system including pharmacologic considerations
Pharmacology:
- mechanism of action of drugs
- therapeutic dosage
- indications, contra-indications, general effects on cardiorespiratory function, adverse effects
- impact on recovery and function

Medical, surgical and non-PT management approaches of cardiorespiratory disorders including effects of adjunct therapies e.g. supplemental oxygen, mechanical ventilation, Continuous Positive Airway Pressure (CPAP)

Models of care e.g. principles of health/wellness promotion, Chronic Disease Management and End of Life Management

Psycho-Social Sciences:
- Personal and Environmental factors in the context of disability associated with the cardiorespiratory or multiple body systems:
  - psycho-social issues e.g. change, loss, coping, end of life, grief
  - impact of chronic disease on individual and society
  - sensitive practice e.g. life style, gender, culture, trauma, end of life
- Behavioural change/adherence (e.g. readiness for change, adult learning styles, teaching/coaching strategies, motivational techniques)
- Risk factor modification: principles of behaviour modification, stages of change, learning theory, client-centered interviewing techniques

PT Movement Sciences:
- Biomechanics and Ergonomics
- Motor control and learning
- Exercise: principles of metabolism, aerobic response to exercise, aerobic exercise tolerance / capacity testing, effects of aerobic deconditioning, principles of aerobic conditioning, role of anaerobic metabolism in exercise

PT Therapeutics e.g. maximizing ventilation and perfusion and movement interventions

**CR PT Assessment/Evaluation and Management**

The CR PT entry-to-practice curriculum emphasizes the selection and use of measurement tools and treatment techniques based on the best available evidence. Physiotherapy strategies for assessment and management address structural impairments, functional deficits and activity restrictions of individuals and populations in the context of their personal needs/goals including participation limitations and the environment they live in. The therapeutic approach embraces interprofessional collaboration and incorporates a biopsychosocial approach to care.

The cardiorespiratory assessment/evaluation involves a comprehensive multi-system assessment with particular emphasis on the cardiovascular (e.g. HR, BP) and pulmonary systems (e.g. Inspection, Palpation, Percussion and Auscultation [IPPA]) and to integrate this information with relevant musculoskeletal and neurological assessment findings.

Many skills and behaviours in this Domain overlap with those in Client-PT Interaction Domain (Chapter 5).
### CR PT Assessment / Evaluation

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills &amp; Behaviours</th>
</tr>
</thead>
</table>
| Rationale, utility (e.g. economic implications), indications, contraindications and measurement scales of a range of medical, diagnostic and investigative procedures and physiotherapy assessment tools/techniques, as well as the implications of results for the most commonly encountered cardiorespiratory indicator conditions, including, but not limited to, reports based on:  
  - Health condition e.g. severity, comorbidities  
  - Imaging techniques e.g. chest X-ray  
  - Pulmonary tests e.g. pulse oximetry  
  - Laboratory tests e.g. cardiac enzymes  
  - Neurological and musculoskeletal system assessments  
  - Assessments done by other health professionals such as nurses and respiratory therapists  | Applies the ICF framework in selecting measurement tools to ensure a holistic approach to client evaluation e.g.:  
  - Body functions and structures e.g. pulmonary function, arterial blood gas  
  - Activities e.g. mobility (e.g. 6 minute walk test)  
  - Participation e.g. health-related quality of life (e.g. Chronic Respiratory Questionnaire)  
Selects assessment/evaluation tools and techniques suitable for the patient/client’s problems and indicator condition(s) based on the best available evidence  
Administers assessment/evaluation tools and techniques and interprets information obtained demonstrating evidence-based decision-making and safe handling technique |

| Clinical reasoning and evidence-based analysis of the findings of measurement tools/techniques employed before and after the physiotherapy intervention | Reviews and interprets background information, assessment findings and test results  
Employs clinical reasoning in order to develop a prioritized problem list and differential physiotherapy diagnosis of cardiorespiratory conditions  
Selects & utilizes appropriate outcome measures to evaluate clinically important change in the patient’s status and formulate clinical management decisions accordingly  
Identifies the need for further information/data and follows an appropriate, client-centred reassessment and analysis schedule  
Identifies the need for referral to other healthcare professionals  
Evaluates client to determine risk factors for preventable CR, cardiovascular and cerebrovascular disease e.g. stroke |

Important influences on CR PT management choices include: a) diverse settings of care including critical, acute, rehabilitation, long term and community care; b) lifespan issues ranging from the neonatal stage to those associated with aging; c) effects of adjunct therapies such as oxygen and mechanical ventilation; and d) a variety of life style factors including level of conditioning, exercise, immobility, smoking and pharmacological agents.

The strategies incorporated within CR PT include airway management interventions, exercise and mobilization, body positioning, breathing control and coughing manoeuvres, relaxation and energy conservation (see PT Movement Sciences and PT Therapeutics). A patient-centred model of care is used with multi-system assessment, evidence-based interventions and a significant education component to promote healthy active lifestyles and community-based living.
<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills and Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key indicator conditions relevant to CR PT practice</td>
<td>Demonstrates thorough knowledge/understanding of key indicator conditions, medical, surgical and other non-PT management approaches in the selection and implementation of PT management strategies</td>
</tr>
<tr>
<td>Medical management approaches relevant to CR PT practice</td>
<td>Selects PT management strategies (programs of care) suitable for the patient/client’s problem and indicator condition(s) based on the best available evidence</td>
</tr>
</tbody>
</table>
| Surgical management approaches relevant to CR PT practice including common complications | Implements PT therapeutic interventions using dosage parameters that are based on the best available evidence and demonstrate safe handling e.g.:
  - Structure/functional limitations (e.g. due to COPD) through breathing retraining interventions (e.g. targeting the diaphragmatic or inspiratory muscles)
  - Activity limitations (e.g. due to restricted mobility) through functional mobility interventions (e.g. aerobic training using walking, biking or interval training)
  - Participation limitations (e.g. affecting family or spiritual activities) through self-management skills training (e.g. in a pulmonary or cardiac rehabilitation program) |
| Non-PT management approaches relevant to CR PT practice                  | Selects and implements best practice infection control strategies and techniques in a range of therapeutic settings |
| Implications of all of the above for physiotherapy management including pre- and post-operative rehabilitation strategies | Promotes individual and community health through education of clients, families, health professionals and the community environment |
| Theoretical basis, physiological effects, indications, contraindications, best available evidence on the effectiveness and efficacy and safe application guidelines for a full range of physiotherapeutic strategies and interventions that can be employed to manage problems of the individual’s structures, functions, activities or participation levels associated with the cardiorespiratory system | Advocates for healthy environmental practices to optimize the health of the community |
| Infection control principles, best practices and techniques applicable to a range of settings where clients with cardiorespiratory conditions may receive physiotherapy services |                                                                                                                                                     |
| Determinants of health (e.g. environmental, nutritional, self-management/behavioural factors) and public health policies (e.g. smoking) related to cardiorespiratory health |                                                                                                                                                     |
Musculoskeletal PT Practice

Introduction

Musculoskeletal Physiotherapy (MSK PT) involves the prevention and treatment of neuro-musculoskeletal\(^\text{24}\) dysfunction, the management of episodic conditions and the promotion of a healthy, productive and balanced lifestyle.

Knowledge and skills in MSK PT management and disease prevention are critical for the entry-to-practice physiotherapist as a basis for holistic and comprehensive management of clients with a wide range of conditions across the lifespan.

In addition, the entry-to-practice PT will appreciate the invaluable contributions that other health care professionals bring to the patient/client’s care and understand the importance of interprofessional practice and the team approach to health care.

MSK PT Indicator Conditions

The entry-level professional will have a working knowledge of the prevalence and incidence of neuro-musculoskeletal disease, associated risk factors, and the principles of neuro-musculoskeletal dysfunction including pathophysiological mechanisms, aetiology, natural history, clinical presentation, diagnostic indicators and differential diagnosis.

The musculoskeletal group of conditions managed by physiotherapy range from acute to chronic throughout the lifespan, and include arthritic and metabolic bone diseases and soft tissue injuries and disorders that affect the muscles, tendons, ligaments and other connective tissues. These injuries and conditions may be sports and recreation-related, occupation and work-related or disease states with other aetiologies.

The key indicator conditions identified are those most commonly encountered by the entry-to-practice PT. While pain is not a “condition” per se, it is the most prevalent presenting problem in the MSK PT clinical practice area, warranting special curriculum content consideration.

Examples of key indicator conditions for MSK PT are presented by category along with some examples of conditions that, while less prevalent, provide an opportunity for learning transfer in each category, facilitating more in-depth or independent learning.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Key Indicator Conditions</th>
<th>Other Conditions: Learning Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Primary (conditions where pain is the primary feature) e.g.:</td>
<td>Neurological e.g. stroke, spinal cord, multiple sclerosis</td>
</tr>
<tr>
<td></td>
<td>• Complex regional pain syndrome (CRPS)</td>
<td>Cardiorespiratory e.g. post-operative incision</td>
</tr>
<tr>
<td></td>
<td>• Fibromyalgia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>States/Mediators e.g.:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Acute, subacute, chronic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nociceptive vs. neuropathic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Inflammatory vs. mechanical</td>
<td></td>
</tr>
<tr>
<td>Traumatic</td>
<td>Fractures, amputations, disc herniation, soft tissue lesions e.g. tendon lacerations, haematoma</td>
<td>Multiple system trauma</td>
</tr>
</tbody>
</table>

\(^{24}\) Reflects the significant functional integration of the neurological and musculoskeletal systems
<table>
<thead>
<tr>
<th>Categories</th>
<th>Key Indicator Conditions</th>
<th>Other Conditions: Learning Transfer</th>
</tr>
</thead>
</table>
| **Insidious Onset / Degenerative** | *Bone & Joint* e.g. osteoarthritis, spinal stenosis, spondylolisthesis, osteoporosis, hyper- and hypo-mobility syndromes, surgery (e.g. joint replacements), obesity  
*Soft Tissue* e.g. repetitive strain syndromes, hormonal changes (e.g. pregnancy), surgery related to soft tissue disorders  
*Postural Syndromes* e.g. abnormal kyphosis and lordosis  
Obesity, bowel and bladder incontinence | *Bone & Joint* e.g. Osgood-Schlatter’s Disease  
Diabetes  
Down’s Syndrome, Marfans Syndrome, Ehlers Danlos Syndrome; plagiocephaly, arthrogryposis multiplex, osteogenesis imperfecta, muscular dystrophy  
Psoriatic arthritis, arthritis associated with bowel disease  
Reactive arthritis (e.g. Reiter’s syndrome)  
Polymyositis, dermatomyositis  
|  
| **Congenital & Genetic** | Scoliosis, talipes equino vares, hip dysplasia, muscular torticollis, spina bifida |  
| **Inflammatory & Immunologic** | Inflammatory *soft tissue* dysfunctions of the contractile and inert tissues e.g. rheumatoid arthritis (RA), juvenile idiopathic arthritis (JIA); ankylosing spondylitis  
*Connective tissue* disease e.g. Lupus, Scleroderma | Psoriatic arthritis, arthritis associated with bowel disease  
Reactive arthritis (e.g. Reiter’s syndrome)  
Polymyositis, dermatomyositis  
|  
| **Integumentary & Wound Healing** | Burns, ulcers/pressure sores, incisions | Amputation (residual limb/wound care), frostbite  
Disorders associated with exposure to hazardous substances e.g. contact dermatitis  
|  
| **Neuro-Vascular** | Entrapment syndromes e.g. thoracic outlet, anterior/posterior pelvic outlet, peripheral nerve, carpal tunnel, diabetic and other neuropathies  
Haemarthrosis, ischemic bone disease | Haemophilia  
|  
| **Neoplastic/Oncology** | Osteosarcoma, breast cancer, lymphedema | Melanoma (recognition), prostate cancer  
|  
| **Infectious** | Osteomyelitis | Septic arthritis, tuberculosis, HIV, poliomyelitis & post-polio syndrome, Lyme disease  
|  
| **Other** | Metabolic gout, mental health conditions e.g. depression | Diabetes  

MSK PT Theory/Foundation Knowledge

The MSK PT entry-to-practice curriculum requires the student to have a sound understanding of the theories, scientific evidence and, where available, best practices in the areas of the Musculoskeletal System, Psychosocial Sciences, PT Movement Sciences and PT Therapeutics.

Musculoskeletal System:
- The response of structures of the neuromusculoskeletal system (skin, bone, articular cartilage, tendon, ligaments, fascia, peripheral nerves, skeletal muscle) in consideration of:
  - musculo-skeletal development and adaptations in response to teratogens, genetic mutations, abnormal forces and disease
  - changes across the lifespan (age)
  - kinetics and kinematics
  - patho-physiology (disease) and patho-mechanics (immobilization or disuse, abnormal forces and movement dysfunction)
  - the stages of healing
  - non-PT management approaches and
  - PT Therapeutics i.e. physical stimuli such as biomechanical, movement, electrophysical and training/work
- Pain and pain management in the context of MSK PT indicator conditions as well as the patient’s body structures and functions, activities and participation
- Pharmacology of commonly used medications used to treat musculoskeletal conditions (eg. analgesic, anti-inflammatory, anti-spasmodic, and antidepressant medications):
  - mechanism of action of drugs
  - therapeutic dosage
  - indications, contra-indications, general therapeutic and adverse effects
  - impact on recovery and function
- Medical, surgical and non-PT management approaches for key MSK indicator conditions
- Models of care e.g. principles of health/wellness promotion and Chronic Disease Management

Psycho-Social Sciences:
- Personal and Environmental factors in the context of disability associated with the musculoskeletal or multiple body systems:
  - psycho-social issues e.g. change, loss, grief, coping
  - impact of chronic disease on individual and society
  - sensitive practice e.g. life style, gender, culture, trauma
- Behavioural change/adherence (e.g. readiness for change, adult learning styles, teaching/coaching strategies, motivational techniques)

PT Movement Sciences:
- Biomechanics and Ergonomics
- Motor control and learning
- Exercise

PT Therapeutics e.g. movement interventions, stretching of soft tissues and application of thermal and electrical agents

MSK PT Assessment/Evaluation and Management

The Musculoskeletal PT entry-to-practice curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural impairments, functional deficits and activity restrictions of individuals and populations in the context of their personal needs/goals including participation limitations and the environment they live in. The therapeutic approach embraces interprofessional collaboration and incorporates a biopsychosocial approach to care.
Many of the skills and behaviours in this section overlap with those in the Client-PT Interaction Domain (Chapter 5).

### MSK PT Assessment / Evaluation

<table>
<thead>
<tr>
<th><strong>Knowledge</strong></th>
<th><strong>Skills &amp; Behaviours</strong></th>
</tr>
</thead>
</table>
| Rationale, utility (e.g. economic implications), indications, contraindications and measurement scales of a range of medical, diagnostic and investigative procedures and physiotherapy assessment tools/techniques, as well as the implications of results for the most common musculoskeletal indicator conditions, including, but not limited to reports based on: | Applies the ICF framework in selecting measurement tools to ensure a holistic approach to client evaluation e.g.:
- Body functions and structures e.g. joint stability, pain, muscle strength
- Activities e.g. gait assessment, physical activity outcome measures
- Participation e.g. Roland Morris Questionnaire, Work-Related Quality of Life
Selects assessment/evaluation tools and techniques suitable for the client’s problem and indicator condition(s) based on the best available evidence
Administers assessment/evaluation tools and techniques and interprets information obtained demonstrating evidence-based decision-making and safe handling technique
| • Health condition e.g. severity, co-morbidities | •

| • Imaging techniques e.g. X-ray, CT, MRI | •

| • Electro-physiologic tests e.g. nerve conduction study | •

| • Laboratory tests e.g. rheumatoid factor, erythrocyte sedimentation rate | •

| • Cardiorespiratory and neurological system assessments | •

| • Assessments done by other health professionals such as the orthopaedic surgeon, rheumatologist or occupational therapist | •

| Clinical reasoning and evidence-based analysis of the findings of measurement tools/techniques employed before and after the physiotherapy intervention | Reviews and interprets background information, assessment findings and test results
Employs clinical reasoning in order to develop a prioritized problem list and differential physiotherapy diagnosis (or clinical impression) of musculoskeletal conditions
Selects & utilizes appropriate outcome measures to evaluate clinically important change in the patient’s status and formulate clinical management decisions accordingly
Identifies the need for further information/data and follows an appropriate, client-centred reassessment and analysis schedule
Identifies the need for referral to other healthcare professionals
| | |

The broad range of strategies incorporated within MSK PT management include movement interventions (e.g. exercise prescription and functional activities), soft tissue management and mobilization (e.g. wound care, use of splints and orthotics), physical and electrical agents (e.g. hydrotherapy and LASER), physical handling and education of clients, families and professional peers (see PT Movement Sciences and PT Therapeutics).
## MSK PT Management

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills and Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key indicator conditions relevant to MSK PT practice</td>
<td>Demonstrates thorough knowledge and understanding of key indicator conditions, medical, surgical and other non-PT management approaches in the selection and implementation of PT management strategies</td>
</tr>
<tr>
<td>Medical management approaches relevant to MSK PT practice</td>
<td></td>
</tr>
<tr>
<td>Surgical management approaches relevant to MSK PT practice including common complications</td>
<td></td>
</tr>
<tr>
<td>Non-PT management approaches relevant to MSK PT practice</td>
<td></td>
</tr>
<tr>
<td>Implications of all of the above for physiotherapy management including pre- and post-operative rehabilitation strategies</td>
<td></td>
</tr>
<tr>
<td>Theoretical basis, physiological effects, indications, contraindications, best available evidence on the effectiveness and efficacy and safe application guidelines for a full range of physiotherapeutic strategies and interventions that can be employed to manage problems of the individual’s structures, functions, activities or participation levels associated with the musculoskeletal system</td>
<td>Selects PT management strategies (programs of care) suitable for the client’s problem and indicator condition(s) based on the best available evidence</td>
</tr>
</tbody>
</table>
| Infection control principles, best practices and techniques applicable to a range of settings where clients with musculoskeletal conditions may receive physiotherapy services | Implements PT therapeutic interventions using dosage parameters that are based on the best available evidence and demonstrate safe handling e.g.:  
  - Structural/functional limitations (e.g. hypomobility) through select soft tissue mobilization, manipulation and muscle strengthening techniques  
  - Activity limitations (e.g. inability to climb stairs) through functional mobility interventions (e.g. use of appropriate assistive mobility device)  
  - Participation limitations (e.g. affecting return to work) through work hardening/conditioning programs |
| Determinants of health (e.g. environmental, nutritional, self-management/behavioural factors) and public health policies (e.g. workplace safety) related to musculoskeletal health | Selects and implement best practice infection control strategies and techniques in a range of therapeutic settings |
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Neurological PT Practice

Introduction

Neurological Physiotherapy (Neuro PT) focuses on the management of individuals who have movement problems due to injury or disease of the nervous system. Contemporary Neuro PT management requires a functionally based and evidence-informed approach, involving the client, service providers, families and the community.

The entry-to-practice physiotherapist will have working knowledge of the multi-system changes experienced by individuals in body functions and structure, activity and participation that are associated with neurological conditions and the resultant chronic disabilities.

Neuro PT strategies include a combination of restoration, compensation, adaptation and maintenance in response to primary and secondary conditions, as well as health promotion and prevention of primary and secondary conditions.

In addition, the entry-to-practice PT will appreciate the invaluable contributions that other health care professionals bring to the patient/client’s care and understand the importance of interprofessional practice and the team approach to health care.

Neuro PT Indicator Conditions

The entry-level physiotherapist will have working knowledge of the epidemiology, pathophysiology, primary prevention, natural history, prognosis as well as theory and evidence to support current/emerging health care interventions. In addition, the entry-to-practice PT will have a working knowledge of the theories and evidence to support PT interventions that address neurological conditions across the lifespan, including conditions which are secondary to dysfunction of systems other than the neurological system.

The key indicator conditions identified are those most commonly encountered by the entry-to-practice PT. Examples of key indicator conditions for Neuro PT are presented by category along with some examples of conditions that, while less prevalent, provide an opportunity for learning transfer in each category, thereby facilitating more in-depth or independent learning.
<table>
<thead>
<tr>
<th>Categories</th>
<th>Key Indicator Conditions</th>
<th>Other Conditions: Learning Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Congenital and Acquired Brain Disorders</strong></td>
<td>Traumatic brain injury, stroke, brain tumours, cerebral palsy syndrome</td>
<td>Meningitis, encephalitis, Developmental Coordination Disorder, autism, Down’s Syndrome</td>
</tr>
<tr>
<td><strong>Neurodegenerative (Central Nervous System)</strong></td>
<td>Parkinson disease, multiple sclerosis, amyotrophic lateral sclerosis</td>
<td>Degenerative diseases of childhood (metabolic, enzymatic), hereditary ataxia</td>
</tr>
<tr>
<td><strong>Peripheral Neuropathies and Myelopathies</strong></td>
<td>Guillain Barré Syndrome, diabetic neuropathy</td>
<td>Alcoholic neuropathy, Post-polio syndrome</td>
</tr>
<tr>
<td><strong>Spinal Cord</strong></td>
<td>Spina bifida, trauma, vascular, myelopathies</td>
<td>Neoplasm, infection</td>
</tr>
<tr>
<td><strong>Mental Health</strong></td>
<td>Depression, bipolar disorder, schizophrenia, dementia/cognitive impairment</td>
<td>Depression or substance abuse associated with other neurological conditions e.g. Parkinson disease or stroke</td>
</tr>
</tbody>
</table>

**Neuro PT Theory/Foundation Knowledge**

The Neuro PT entry-to-practice curriculum requires the student to have a sound understanding of the theories, scientific evidence and, where available, best practices in the areas of Neuroscience, Psychosocial Sciences, PT Movement Sciences and PT Therapeutics.

**Neuroscience:**
- **Neuroanatomy:**
  - neuro-anatomical development & changes across the lifespan
  - anatomical substrates of the central, peripheral, and autonomic nervous systems involved in cognition, perception, emotion, sensory processing, motor function
- **Neurophysiology:**
  - neuro-physiologic development & changes across the lifespan
  - nervous system responses to injury/aging including repair
  - physiological mechanisms of the central, peripheral and autonomic nervous systems in:
    - neurotransmission
    - muscle tone
    - motor function, sensory processing, sensorimotor integration, cognition (e.g. memory), perception, emotion, and
    - cardiovascular function
- **Neuroplasticity:**
  - neuroplastic mechanisms and positive/negative effects on neurological and functional recovery
  - contextual factors affecting neuroplastic mechanisms (e.g. environmental, experiential, chemical, genetic & physical factors)
- **Neuro-pharmacology:**
  - mechanism of action of drugs
  - therapeutic dosage
  - indications, contra-indications, general effects on nervous system function, adverse effects
  - impact on recovery and function
Psycho-Social Sciences:
- Personal and Environmental factors in the context of disability associated with the neurological or multiple body systems:
  - psycho-social issues e.g. change, loss, grief, coping, end of life
  - impact of chronic disease on individual and society
  - sensitive practice e.g. life style, gender, culture, trauma, end of life
- Behavioural change/adherence (e.g. readiness for change, adult learning styles, teaching/coaching strategies, motivational techniques)

Medical, surgical and non-PT management approaches for key Neuro PT indicator conditions
Models of care e.g. principles of health/wellness promotion and Chronic Disease Management

PT Movement Sciences:
- Models/theories of motor development across the lifespan
- Models of motor control
- Models of motor learning
- Biomechanics - kinematics and kinetics of functional mobility and manipulation tasks, ergonomics
- Exercise and the impact of:
  - lifespan
  - immobilization and inactivity
  - muscle strengthening and endurance training
  - cardiovascular endurance training

PT Therapeutics e.g. stretching of soft tissues and application of functional movement retraining strategies
**Neuro PT Assessment/Evaluation and Management**

The Neuro PT entry-to-practice curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural impairments, functional deficits and activity restrictions of individuals and populations in the context of their personal needs/goals including participation limitations and the environment they live in. The permanence of many neurological impairments mandates that, where possible, emphasis is placed on prognosis and criterion-referenced outcomes to establish realistic goals.

The therapeutic approach is client- and family-focused with a biopsychosocial emphasis that embraces interprofessional collaboration and requires ongoing communication, education and negotiation with the client, family, care-giver and healthcare team.

Many of the skills and behaviours in this section overlap with those in the Client-PT Interaction Domain (Chapter 5).

<table>
<thead>
<tr>
<th><strong>Neuro PT Assessment/Evaluation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
</tr>
<tr>
<td>Rationale, utility (e.g. economic implications), indications, contraindications and measurement scales of a range of medical, diagnostic and investigative procedures and physiotherapy assessment tools/techniques, as well as the implications of results for the most commonly encountered neurological indicator conditions, including, but not limited to, reports based on:</td>
</tr>
<tr>
<td>• Health condition e.g. severity, co-morbidities</td>
</tr>
<tr>
<td>• Imaging techniques e.g. CT, MRI, PET</td>
</tr>
<tr>
<td>• Electro-physiologic tests e.g. EMG</td>
</tr>
<tr>
<td>• Laboratory tests e.g. lumbar puncture</td>
</tr>
<tr>
<td>• Cardiorespiratory and musculoskeletal system assessments</td>
</tr>
<tr>
<td>• Assessments done by other health professionals such as neuro-psychologists, occupational therapists and speech-language pathologists</td>
</tr>
<tr>
<td>Clinical reasoning and evidence-based analysis of the findings of measurement tools/techniques employed before and after the physiotherapy intervention.</td>
</tr>
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</tbody>
</table>
The strategies incorporated within Neuro PT management address impairments of body structure and functions, activity limitations and participation restriction and include a range of interventions from movement (see PT Movement Sciences) through physical and electrical agents to physical handling and education (see PT Therapeutics).

Neuro PT management best practices include consideration of theories (e.g. motor control, motor learning and behavioural change), evidence, needs of the client and clinical experience. Neuro PT management addresses areas such as functional mobility, upper extremity training, health promotion and illness prevention.

<table>
<thead>
<tr>
<th><strong>Neuro PT Management</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Skills and Behaviours</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Implications for physiotherapy management of:</td>
<td></td>
<td>Demonstrates thorough knowledge and understanding of key indicator conditions, medical, surgical and other non-PT management approaches in the selection and implementation of PT management strategies</td>
</tr>
<tr>
<td>- Key indicator conditions relevant to Neuro PT practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Medical and surgical management approaches relevant to Neuro PT practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Other non-PT management approaches relevant to Neuro PT practice</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Theoretical basis, physiological effects, indications, contraindications, best available evidence on the effectiveness and efficacy and safe application guidelines for a full range of physiotherapeutic strategies and interventions that can be employed to manage problems of the individual’s structures, functions, activities or participation levels associated with the neurological system

Selects PT management strategies (programs of care) suitable for the client’s problem and indicator condition(s) based on the best available evidence

Implements PT therapeutic interventions using dosage parameters that are based on the best available evidence to address all aspects of disablement e.g.:

- Structural/functional limitations (e.g. due to motor control dysfunction) through task analysis, practice/repetition and feedback
- Activity limitations (e.g. inability to perform grooming activities) through task-specific training
- Participation limitations (e.g. affecting community engagement) through functional retraining/education

Infection control principles, best practices and techniques applicable to a range of settings where clients with neurological conditions may receive physiotherapy services

Selects and implement best practice infection control strategies and techniques in a range of therapeutic settings

Determinants of health (e.g. environmental, nutritional, self-management/behavioural factors) and chronic disease management principles related to neurological health

Promotes individual and community health through education of clients, families, health professionals and the community e.g. by shifting the emphasis in goal-setting and intervention to the level of activity and participation
**Physiotherapy Professional Interactions**

The **Physiotherapy Professional Interactions** Dimension (Figure 9) focuses on the client and individual physiotherapist level of Knowledge, Skills and Behaviours and is divided into three Domains: *Professional and ethical practice*, *Client-PT interaction* and *Interprofessional practice*.

![Figure 9. Physiotherapy Professional Interactions](image)

Physiotherapy professional interactions are influenced by contextual factors at the client level, such as the client’s age or stage of life and by the point along the continuum of health care delivery these interactions occur e.g. illness/disability prevention versus treatment intervention.

The Skills and Behaviours associated with the practice of physiotherapy are built on the Knowledge, Skills and Behaviours described thus far in the Guidelines. Curriculum content in this Dimension is characterized by a progression from learner of foundational knowledge, clinical sciences and clinical practice to competent practitioner of the physiotherapy profession.

**Professional and Ethical Practice**

Professional and ethical curriculum content addresses the Knowledge, Skills and Behaviours required of the entry-to-practice physiotherapist in a range of practice relationships and roles. The content in this Domain builds on the foundations outlined in Chapter 3 and includes the application of professional and ethical reasoning and decision-making strategies, professional communication, reflective practice strategies and personal management issues (stress, work-life balance).

The examples presented for each Element are intended to provide curriculum guidance rather than prescribe minimum requirements.

---

25 The Professionalism and Ethics Domain in Chapter 3 encompasses all of the knowledge statements pertinent to this Domain.
### Professional and Ethical Practice

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Skills &amp; Behaviour</strong></th>
</tr>
</thead>
</table>
| Professional practice | • Autonomous practice i.e. provides clients with direct access to PT in consultation with the patient, family/caregiver and team by making sound, independent judgements related to the initiation, termination and alteration of physiotherapy interventions and/or interactions  
• Practice reflects principles of client-focused care, informed, shared decision-making and the right of clients/patients to informed consent and information privacy/confidentiality\(^{26}\)  
• Practices within the regulatory, legal and ethical boundaries of the profession e.g.:  
  – applies knowledge of health law and ethical principles to client-focused practice in a manner that prevents issues of negligence or liability (e.g. harassment, abuse of any kind) and supports clients' rights (e.g. informed consent, privacy)  
• Professional judgement is guided by reflective practice (see below) i.e. a process that involves continuous review of one’s practice, the implications and alternatives  
• Acts in a responsible manner taking professional, clinical, resource and economic factors into consideration  
• Demonstrates best practice i.e. critically evaluates published research relevant to physiotherapy and applies to clinical practice  
• Provides PT services within the profession’s scope of practice and personal competence\(^{27}\)  
• Understands the need for life-long learning and establishes realistic goals for a plan of professional growth and development  
• Seeks information regarding the quality of care rendered, participates in quality assurance activities and adjusts care as indicated  
• Identifies advocacy issues and opportunities by demonstrating a heightened awareness of disability and human rights issues in everyday practice  
• Adapts to varying clinical and client situations with sensitivity, discretion and good judgment  
• Demonstrates professional integrity by accepting responsibility for own actions and decisions e.g. seeks out performance appraisal by peers and superiors\(^{27}\)  
• Assigns appropriate PT service activities to students and support personnel and provides appropriate supervision  
• Appraises work performance of PT providers (e.g. students, support personnel, physiotherapists) and provide appropriate feedback  
• Demonstrates behaviours that contribute to a positive work environment  
• Presentation of self is professional with regards to dress, communication style and comportment  
• Presents professional qualifications accurately and in compliance with regulatory and/or the professional association’s requirements\(^{27}\) |

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\(^{26}\) Dimension 5: Element 3, Essential Competency Profile for Physiotherapists in Canada (2004)  
\(^{27}\) Dimension 1: Element 1c, Essential Competency Profile for Physiotherapists in Canada (2004)
<table>
<thead>
<tr>
<th>Element</th>
<th>Skills &amp; Behaviour</th>
</tr>
</thead>
</table>
| Professional & Ethical Reasoning    | - Interprets clinical findings, establishes and interprets a physiotherapy diagnosis and prognosis using an accepted clinical decision making method  
- Uses knowledge of relevant health care legislation to guide clinical practice e.g. jurisdictional variation in legal and regulatory requirements regarding select procedures  
- Practice reflects knowledge of availability and accessibility of health care resources  
- Incorporates ethical decision-making principles into clinical decision-making process  
- Identifies personal values and how these influence interactions with patients and colleagues  
- Conducts ethical research  
- Demonstrates ability to integrate professional and ethical principles such as time management, resource allocation, best practice and ethical reasoning in challenging situations e.g. caseload prioritization  
- Delegates and supervises activities appropriately with respect to support personnel  
- Practices in a safe and secure manner that minimizes risk to clients, self and others  |
| Ethical Practice                     | - Ethical practice reflects:  
  - respect for personal and professional boundaries  
  - altruism, a duty to treat, social accountability  
  - integration of personal and professional values with the Code of Ethics of the Canadian Physiotherapy Association (CPA) and applicable regulatory codes of ethics  
  - The right of clients/patients to informed consent and information privacy/confidentiality e.g. by facilitating the process  
- Makes defensible moral and ethical decisions using established methods and approaches  
- Manages client care by concurrent practitioners (e.g. Chiropractor) with sensitivity, professionalism and in the client’s best interest  
- Demonstrates ethical billing practices  
- Employs ethical decision-making principles to manage conflicts of interest effectively  |
| Professional Communication           | - Interactions with clients, colleagues, employers and others emphasize:  
  - accountability & responsibility  
  - commitment  
  - respect and compassion  
- Demonstrates effective communication strategies with clients and professionals that reflect integration of the many influencing factors e.g. power imbalances, lifespan issues, language and cultural barriers (e.g. for difficult situations or regarding feedback/criticism)  
- Produces documentation to support the delivery of physiotherapy services that is clear, accurate, concise and timely  |

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<tr>
<th>Professional and Ethical Practice</th>
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<td><strong>Element</strong></td>
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</table>
| Professional Communication contd. | • Applies knowledge of general documentation guidelines for each area of practice to the specific documentation requirements of a variety of practice settings (clinic, home care, acute care, etc.)  
• Use of communications technology that supports effective communication, reflects professionalism and complies with applicable confidentiality and legal requirements  
• Employs strategies to enhance professional communication and interprofessional practice  
• Resolves conflict using mechanisms that demonstrate sensitivity and respect for opposing points of view, negotiation and problem-solving skills |
| Reflective Practice               | • Demonstrates self-reflection in professional and continuing development e.g. through the use of tools such as a portfolio  
• Uses self-awareness and self-evaluation to guide and modify practice (e.g. recognizing instructive patterns in one’s practice, managing stress, maintaining competence)  
• Modifies behaviour based on self-regulation and external feedback |
**Client-Physiotherapist Interaction**

The Client-Physiotherapist Interaction is characterized by the Knowledge, Skills and Behaviours that reflect the primary functions or the process of the therapeutic interaction: client/patient assessment, clinical reasoning and professional judgement, physiotherapy diagnosis/clinical impression and prognosis, intervention planning, client-PT communication and documentation, implementation of the PT intervention, systematic evaluation of the client’s response to the intervention and completion and follow-up regarding the therapeutic interaction. This Domain is closely aligned with the dimensions and elements detailed in the *Essential Competency Profile for Physiotherapists in Canada* (2004).

The following examples demonstrate professional practice in the context of a specific client-PT interaction:

*The entry-to-practice physiotherapist …*

- Respects the individuality and autonomy of the client
- Respects the principles of client-focussed practice including informed, shared decision-making and informed consent
- Maintains the dignity of, and demonstrates compassion for, the client at all times
- Demonstrates cultural competence in all client-PT interactions
- Advocates effectively with and for the client

<table>
<thead>
<tr>
<th>Client-Physiotherapist Interaction</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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</table>
| Client/patient assessment         | • Assessment strategies, classification frameworks (e.g. ICF), measures and tools  
                                 | • Measurement principles in the selection of assessment tools e.g.:  
                                 |  - purpose (e.g. to classify, predict and/or evaluate over time  
                                 |  - psychometric properties (e.g. reliability, validity, sensitivity, specificity, test bias  
                                 |  - application of the ICF framework (e.g. contextual factors, body functions and structures, activities, participation  
                                 | • Best available evidence regarding assessment strategies, measures and tools  
                                 | • Safety/risk management pertaining to client assessment  
                                 | • Informed consent process  
                                 | • Identifies client expectations re client-PT interaction  
                                 | • Informs client of the nature, purpose and risks (if any) of the assessment  
                                 | • Seeks/confirm consent to proceed, as indicated  
                                 | • Applies measurement principles in the selection of assessment/evaluation measures  
                                 | • Using a client-centred approach, selects, administers and interprets the results of measures related to:  
                                 |  - personal and environmental contextual factors e.g. social support  
                                 |  - body functions and structures e.g. relevant clinical or laboratory tests  
                                 |  - activities e.g. mobility or tasks  
                                 |  - participation e.g. vocational or avocational  
                                 |  - health-related quality of life e.g. perceived self-efficacy  
                                 | • Performs assessment safely and monitors client’s health status for significant changes  
                                 | • Identifies the need for further data and follows an appropriate, client-centred reassessment and analysis schedule |

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29 Dimension 1, Element 2, Essential Competency Profile for Physiotherapists in Canada (2004)  
30 Section 1.5, Essential Competency Profile for Physiotherapists in Canada (2004)  
31 Dimension 4, Element 1, Essential Competency Profile for Physiotherapists in Canada (2004)  
<table>
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<th><strong>Element</strong></th>
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</thead>
</table>
| **Clinical reasoning and professional judgement** | • Models (e.g. PT Logic, medical/acute, ICF, CDM\(^{33}\)) that can be used in clinical decision-making  
• The impact that the PT’s personal factors and the prevailing environmental factors can have on decision-making and professional judgement | • Uses a comprehensive clinical reasoning or problem-solving model to make decisions  
• Engages in client/family/caregiver and/or interprofessional collaboration, when indicated  
• Identifies the need for referral to another physiotherapist or health care professional |
| **Physiotherapy diagnosis (or clinical impression) and prognosis** | • PT practice indicator conditions  
• Common diagnostic (e.g. ICD-10) and classification (e.g. ICF) frameworks  
• Clinical reasoning and differential diagnostic analysis leading to a PT diagnosis or clinical impression | • Using a differential diagnosis framework, interprets and analyses background information, assessment findings and test results to establish a physiotherapy diagnosis and prognosis  
• Identifies the potential value (or not) of intervention by a physiotherapist\(^{27}\)  
• Communicates findings e.g. physiotherapy diagnosis, clinical impression and prognosis with the client and others, as indicated\(^{27}\)  
• Facilitates informed decision-making and consent by the client\(^{28}\) |
| **Intervention planning** | • Prognostic considerations/approaches i.e. use of evidence and other approaches to predict the optimal (or most realistic) level of improvement that can be achieved and amount of time needed to achieve those goals  
• Principles of goal setting  
• Treatment planning approaches e.g. intervention selection, dosage, frequency and timing of episodes of care, direct care versus self-management.  
• Roles and potential contributions of other health care professionals | • Establishes and prioritizes with the client, goals and expected outcomes, physiotherapy intervention strategy, service schedule and anticipated discharge plans\(^{34}\)  
• Engages in interprofessional collaboration as indicated to facilitate achievement of client goals/outcomes e.g. refers client to another health care professional with the client’s agreement |

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\(^{33}\) Chronic Disease (Illness) Management  
\(^{27}\) Dimension 5: Element 4, Essential Competency Profile for Physiotherapists in Canada (2004)  
\(^{34}\) Dimension 5: Element 4, Essential Competency Profile for Physiotherapists in Canada (2004)
<table>
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<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Skills &amp; Behaviour</strong></th>
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</table>
| Client-PT communication and documentation | • Privacy and consent legislation  
• The importance of demonstrating respect for and maintaining the dignity of the client at all times  
• The critical communication points in the client-PT interaction e.g. when the PT diagnosis has been determined  
• Documentation guidelines that apply to each area of practice and the specific practice setting | • Complies with legislative requirements and ethical principles regarding informed consent and communication with the client about the storage, use and disclosure of his/her personal and health information  
• Builds rapport and trust by demonstrating respect and integrity in all communications with the client, family/caregiver  
• Employs communication strategies (e.g. active listening, use of interpreter, verbal, non-verbal, written) throughout the interaction that foster clarity, understanding and informed, shared decision-making with the client  
• Produces documentation to support individual case management that is clear, accurate, concise and timely\(^{35}\) e.g. by using a charting framework such as S.O.A.P.\(^{36}\) |
| Implementation of the PT intervention | • Best practice evidence for all interventions in PT Movement Sciences and PT Therapeutics (Chapter 4) including:  
  - dosage, parameters, physiological effects, therapeutic benefits, contraindications, precautions and safe practices  
  - education re client’s problem, PT treatment plan, goals, treatment | • Implements PT interventions to assist the client:  
  - in achieving and maintaining established goals and health outcomes in functional independence and physical performance e.g. health and wellness promotion, disease and injury prevention  
  - to manage physical impairments, disabilities and limits to participation\(^{37}\)  
  - Empowers clients by providing relevant, user-friendly information and encouraging independence |

\(^{35}\) See also: Dimension 7, Element 3: Essential Competency Profile for Physiotherapists in Canada (2004)  
\(^{36}\) Subjective, Objective, Analysis, Plan  
\(^{37}\) Dimension 6, Element 1: Essential Competency Profile for Physiotherapists in Canada (2004)
### Client-Physiotherapist Interaction

<table>
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<tr>
<th><strong>Element</strong></th>
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</table>
| Evaluation of client’s response to the intervention | • Best practice evidence for the selection and application of outcome measures | • Evaluates on an ongoing basis the effectiveness of PT interventions in relation to the identified goals and outcomes and makes appropriate adjustments<sup>38</sup>  
• Demonstrates “best practice” through the use of appropriate outcome measures in the delivery and evaluation of ongoing client care  
• In consultation with the client, redefines goals, modifies interventions and discontinues intervention that are no longer necessary or effective<sup>38</sup> |
| Completion and follow-up regarding the therapeutic interaction | • Discharge planning guidelines and options  
• Follow-up and other available service options  
• Collaborative team practice | • Plans for timely completion of PT intervention<sup>39</sup>  
• Establishes plans and options for follow-up, continuing care, client self-management and referral to another healthcare service as indicated.<sup>39</sup>  
• Coordinates/collaborates with other health care services to facilitate efficient and effective follow-up client care |

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<sup>38</sup> Dimension 6, Element 2: Essential Competency Profile for Physiotherapists in Canada (2004)

<sup>39</sup> Dimension 6, Element 3: Essential Competency Profile for Physiotherapists in Canada (2004)
**Interprofessional Practice**

Interprofessional practice\(^{40}\) refers to the Knowledge, Skills and Behaviours required of the entry-to-practice physiotherapist, in a range of professional relationships associated with being a team member, including education, delegation, supervision, conflict management, collaboration, consultation and referral practices. An important component of this Domain is familiarity with the scope of practice of a range of other health care professionals and their contribution to the health of the client.

<table>
<thead>
<tr>
<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Health Care</td>
<td>• Credentials/education</td>
<td>• Establishes professional interprofessional relationships within the relevant</td>
</tr>
<tr>
<td>Professionals</td>
<td>• Relevant/related competencies</td>
<td>domains and scope of practice for the benefit of client-focused health care</td>
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<tr>
<td></td>
<td>• Scope of practice</td>
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<tr>
<td>Communication</td>
<td>• Effective communication strategies and skills e.g. written, verbal,</td>
<td>• Demonstrates effective interprofessional communication and teamwork to ensure</td>
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<td>non-verbal, electronic</td>
<td>comprehensive service delivery e.g.:</td>
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<td></td>
<td>• The most up-to-date practice setting documentation guidelines</td>
<td>- Rationale for service initiation or discontinuation</td>
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<td>- Produces documentation to support effective interprofessional collaboration</td>
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<tr>
<td>Education</td>
<td>• Education principles related to the role of PT as educator of clients/</td>
<td>• Employs strategies to enhance professional communication and interprofessional</td>
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<td></td>
<td>patients, families, other professionals and students including those</td>
<td>practice e.g.:</td>
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<td>unique to adult learning</td>
<td>- inform/educate professional health care colleagues about PT scope of practice,</td>
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<td>service philosophy and educational preparation</td>
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<tr>
<td>Delegation</td>
<td>• Skills, knowledge and judgement of support personnel</td>
<td>• Assesses competence of support personnel with respect to readiness for delegation</td>
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<td>• Regulatory guidelines regarding acts that can/cannot be</td>
<td>• Assigns tasks to support personnel acting within established regulatory guidelines(^{41})</td>
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<td>delegated by the PT and</td>
<td>• Accepts responsibility for actions and responsibilities of those for whom the PT</td>
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<td>delegated to the PT</td>
<td>is accountable, including students(^{41})</td>
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<td>• Accepts delegation of acts from another health care professional within regulatory</td>
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<td>guidelines and personal competence</td>
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\(^{41}\) Dimension 7, Element 1: Essential Competency Profile for Physiotherapists in Canada (2004)
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<th><strong>Element</strong></th>
<th><strong>Knowledge</strong></th>
<th><strong>Skills &amp; Behaviour</strong></th>
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</table>
| Supervision    | • Educational background of rehabilitation and physiotherapist support personnel  
                • Performance expectations and appraisal guidelines of support personnel | • Assesses work performance of support personnel and provides constructive feedback  
                • Participates in constructive peer-reviews of non-PT colleagues, as required, with professionalism |
| Conflict        | management                                                                  | • Conflict management strategies                                                      | • Resolves conflict using mechanisms that demonstrate sensitivity and respect for opposing points of view, negotiation and problem-solving skills |
| Collaboration   | • **Interprofessional collaborative practice**[^42]                          | • Demonstrates collaborative team practice in support of client-focused care, interprofessional education and research e.g.:  
                • Effective team behaviour and team building skills                            | - demonstrates respect for other professional’s expertise and differing perspectives  
                                                                                   | - operates effectively in a range of professional teams and groups using principles of organizational behaviour with respect to leadership, initiative, roles and responsibilities |
| Referral        | practices                                                                    | • Demonstrate professionalism in the manner the referral is made regarding communication of facts and anticipated goals of the client |

**Context of Practice**

The **Context of Practice** Dimension (Figure 10) addresses curriculum content required of the entry-to-practice physiotherapist at the service and health system level. It is the environment in which physiotherapy practice exists. The Context of Practice includes the following Domains: *Health Care Environment, Health Care Models and Frameworks, Practice Management, Services Management and Practice Settings*.

![Context of Practice Diagram](image)

**Health Care Environment**

Effective delivery of physical therapy service requires that the entry-to-practice physiotherapist recognizes and responds to the influence of social, cultural, economic, legislative and demographic factors impacting the continuum of general health and physiotherapy care not only locally, but globally. Understanding the development of health and social policy and the related funding/delivery phenomena is fundamental to practicing effectively in the Canadian setting, whether in the private or public sector.

Curriculum content in the Health Care Environment Domain addresses the Knowledge, Skills and Behaviours associated with the global health environment and Canada’s health system including policy, legislation, funding, allocation and service delivery models. As with previously described Domains, the content listed is intended to provide guidance rather than prescribe minimum requirements.
<table>
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<tr>
<th>Health Care Environment</th>
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<td><strong>Element</strong></td>
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<td>Global Health Environment</td>
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<tr>
<th>Canada’s Health System: Policy and Legislation</th>
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### Health Care Environment

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<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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</table>
| **Canada’s Health System: Policy and Legislation contd.** | • Policy/practices and legislation regarding:  
  – consent to treat and delegation, power of attorney including personal care  
  – privacy, personal and health information  
  – violence in the family and/or workplace, abuse/harassment  
  – end of life, palliative care | • Practice reflects awareness of ethical and legal implications of limited resources, malpractice, confidentiality |
| **Canada’s Health System: Access, Funding, Allocation and Delivery** | At the macro level:  
  • Relevant health and social service organizations which influence Canada’s Health system e.g. provincial ministry’s of health, regional health organisations, Canadian Institute for Health Information, professional associations …  
  • Funding and allocation mechanisms (public, private, hybrid) in Canada and their impact on:  
    – access to health and social services by groups or populations  
    – service provider delivery parameters (opportunities, limitations)  
    – research in the health and social services fields  
  • Health and social service delivery mechanisms across the continuum of care e.g.:  
    – primary health care, acute and emergency care, rehabilitation, community and/or home care, palliative …  
    – the difference between “publicly-owned” and “private” organisations and the association with “for-profit” and “not-for-profit”  
    – Health Canada’s initiative\(^44\) to enhance interprofessional collaborative practice\(^45\) | • Able to differentiate between for-profit and not-for-profit organisations and identify examples in the so-called “public” and “private” healthcare sectors  
• Demonstrates ability to balance obligations to professional practice and regulatory standards with obligations to the client, funder(s) and employer(s)  
• Awareness of enhanced or emerging practice and/or scope opportunities and continuing/further education implications e.g. advanced practice, specialisation and expert clinical roles, and non-clinical roles  
• Understands the benefits and responsibilities of (student) membership in the national physiotherapy professional association (CPA) and other advocacy groups  
• Supports clients to ensure appropriate and timely access to and benefit from the healthcare system e.g. via physiotherapy and related services  
• Interacts and collaborates with other health care providers to provide a comprehensive health service, in both the public and private sectors |

\(^{44}\) [http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/interprof/index_e.html](http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/interprof/index_e.html)  
### Health Care Environment

<table>
<thead>
<tr>
<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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</table>
| Canada’s Health System: Access, Funding, Allocation and Delivery contd. | At the meso level:  
- Scope of practice of physiotherapy and other health care professions  
- Emerging physiotherapy service delivery mechanisms and role implications  
- Physiotherapy professional associations - roles and responsibilities  
- Non-clinical roles physiotherapists play and their impact on the health system | |
Health Care Models and Frameworks

Curriculum content in the Health Care Models and Frameworks Domain addresses the Knowledge, Skills and Behaviours associated with a range of models and frameworks applicable to physiotherapy. As with previously described Domains, the content listed is intended to provide guidance rather than prescribe minimum requirements.

<table>
<thead>
<tr>
<th>Health Care Models and Frameworks</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• The value and utility of constructs, models and frameworks to professional learning and practice in general and the physiotherapy profession in particular</td>
<td>• Applies evidence-based reasoning and principles to the selection of models and/or frameworks based on its intended purpose</td>
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<td>Examples may include/address:</td>
<td>• Use the selected model(s) and/or framework(s) effectively e.g. in:</td>
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<tr>
<td></td>
<td>• The continuum of health care service delivery e.g. from illness prevention/health promotion through acute to palliative care</td>
<td>- (clinical) measure selection e.g. outcome measures</td>
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<td></td>
<td>• The health of populations e.g. HIV/AIDS, COPD</td>
<td>- clinical decision making (e.g. ICF, CDM)</td>
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<td></td>
<td>• Chronic disease and management models e.g. diabetes, arthritis</td>
<td>- program/service development and evaluation</td>
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<td></td>
<td>• Enablement/disablement e.g. Quebec’s Disability Creation Process, the International Classification of Functioning, Disability and Health (ICF)</td>
<td>- clinical/professional role development and evaluation</td>
</tr>
<tr>
<td></td>
<td>• Client-focused/centred practice</td>
<td>- devising and implementing health promotion and illness prevention initiatives for individuals and populations</td>
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<td></td>
<td>• physiotherapy e.g. Movement Continuum Theory\textsuperscript{46}, C.O.Rx.E.\textsuperscript{47}</td>
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<td></td>
<td>• Professional practice including expanded, advanced or specialized practice</td>
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<td></td>
<td>• Collaborative practice and interprofessional practice</td>
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<td></td>
<td>• Scientific inquiry</td>
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<td></td>
<td>• Business and services management</td>
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<td></td>
<td>• Program (macro and meso) management</td>
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<td>• Continuing professional development</td>
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<td>• Adult learning or education</td>
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\textsuperscript{47} Client-Oriented Research and Evaluation
**Practice Management**

The provision of evidence-based, quality health care services involves a plan of care that is frequently part of a larger “program” plan. A program plan is directed towards the needs of a local population or a designated community of clients (e.g. cardiac, frail elderly, stroke). A program may be delivered in a range of settings, often by an interprofessional team that may/may not span the continuum of healthcare e.g. primary care, acute care, community, etc.

Curriculum content in this Domain addresses the physiotherapist’s professional responsibilities vis-à-vis the physiotherapist’s practice in the context of his/her contribution to a program of care. It includes the Knowledge, Skills and Behaviours necessary for an entry-to-practice physiotherapist to contribute to effective program management and practice management. As with previously described Domains, the content listed is not exhaustive and is intended to provide guidance rather than prescribe minimum requirements.

### Practice Management

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<tr>
<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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<tbody>
<tr>
<td>Program Management i.e.</td>
<td>• Selected population-based models of health care e.g. chronic disease/illness management, rehabilitation, primary and secondary prevention, wellness and health promotion</td>
<td>Contribution examples:</td>
</tr>
<tr>
<td></td>
<td>• Steps and rationale employed in the development, implementation, evaluation and modification of a program of healthcare</td>
<td>• Needs Assessment for a new or existing program of healthcare e.g. stroke rehabilitation</td>
</tr>
<tr>
<td></td>
<td>• Range of PT roles and responsibilities in a program plan as well as those of other team members.</td>
<td>• Objectives that are SMART, efficient and consistent with the stated purpose of the organization and safe physiotherapy practice</td>
</tr>
<tr>
<td></td>
<td>• Environmental factors that influence the availability and access to programs of healthcare.</td>
<td>• A PT role description within an interprofessional plan of care (e.g. a burn team) or for a program of healthcare (e.g. respiratory rehabilitation program)</td>
</tr>
</tbody>
</table>

48 Programs of care are not generally developed, implemented and evaluated by a single health care professional. An entry-to-practice physiotherapist needs knowledge and skills in this area so that he/she can contribute in a collaborative way: he/she would not be expected to do all aspects of program management independently.

## Practice Management

<table>
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<tr>
<th>Element</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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</thead>
<tbody>
<tr>
<td>Practice Management</td>
<td>• Leadership attributes, skills and behaviours</td>
<td>• Demonstrates leadership appropriate to the student/PT role in clinical, program and academic environments</td>
</tr>
<tr>
<td></td>
<td>• Relevant health human resource (HHR) policies and regulations, if any, regarding HHR mix, rights (e.g. workplace conditions) and obligations (e.g. professional standards)</td>
<td>• Practice reflects professionalism, respect for the employer-employee relationship and compliance with applicable policies, regulations and standards</td>
</tr>
<tr>
<td></td>
<td>• Program delivery parameters e.g. availability of resources and support services, type of setting</td>
<td>• Can communicate concerns regarding practice management issues to appropriately authorized person or agency in a professional manner</td>
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<tr>
<td></td>
<td>• Caseload management principles</td>
<td>• Practice demonstrates professionalism and accountability for achieving the goals and maximizing the opportunities posed by each program delivery parameter</td>
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<tr>
<td></td>
<td>• Health records management e.g. most up-to-date documentation guidelines that apply in the practice setting</td>
<td>• Demonstrates professional and ethical practice in the prioritization of time and resources (e.g. support personnel, interprofessional collaborative opportunities) and the application of clinical reasoning to achieve safe, effective and efficient caseload management</td>
</tr>
<tr>
<td></td>
<td>• Safety and risk management</td>
<td>• Systematically records and provides access to accurate, objective, relevant information about the client⁵⁰</td>
</tr>
<tr>
<td></td>
<td>• Responsibilities and accountabilities for delegation of physiotherapy tasks</td>
<td>• Uses available physical, material and financial resources to ensure client, provider and equipment safety and to minimize the occurrence of adverse events⁵¹</td>
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<td>• Practice evaluation principles employed by regulators and practice/program accreditation agencies</td>
<td>• Supervises personnel involved in the delivery of physiotherapy services including physiotherapy support workers, volunteers and students⁵²</td>
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<td>• Engages in reflective practice and professional self-regulatory activities</td>
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<td>• Can contribute to the self-study report of the practice in preparation for accreditation or evaluation initiative e.g. CPA, Commission on Accreditation of Rehabilitation Facilities (CARF)</td>
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⁵⁰ Dimension 7, Element 3: Essential Competency Profile for Physiotherapists in Canada (2004)
⁵¹ Dimension 7, Element 2: Essential Competency Profile for Physiotherapists in Canada (2004)
⁵² Dimension 7, Element 1: Essential Competency Profile for Physiotherapists in Canada (2004)
**Services Management**

As the range and complexity of physiotherapy practice settings continue to expand, the need for entry-to-practice physiotherapists to have knowledge of business, organisational and management principles intensifies accordingly. With this knowledge, the newly graduated physiotherapist will be able to further develop his/her acumen by accessing resources, mentoring and/or support as required.

While there is overlap between the curriculum content described in the Services Management and the Practice Management Domains, the emphasis here is on the acquisition of entry-level business principles and processes vis-à-vis service provision.

The entry-to-practice physiotherapist will contribute knowledgeably to the operation of a busy physiotherapy service, whether in a healthcare facility or in the community, in the public or private sector. Indeed, Knowledge, Skills and Behaviours in this Domain are of equal importance to successful practice in both the public and the private sector.

As with previously described Domains, the content listed is intended to provide guidance, in the form of examples, rather than prescribe minimum requirements.

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<th>Services Management</th>
<th>Knowledge</th>
<th>Skills &amp; Behaviour</th>
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<td><strong>Element</strong></td>
<td><strong>Knowledge</strong></td>
<td><strong>Skills &amp; Behaviour</strong></td>
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| Business Principles | • Financing sources available to healthcare businesses and their associated benefits/limitations  
• Business plan development  
• Business and financial concepts such as return on investment, efficiency, cost effectiveness, revenue, budget,  
• Business accountability to funders, regulators, clients e.g. accreditation, ISO certification  
• Marketing principles and best practices | • Able to explain the components of a business plan and request for proposal (RFP)  
• Able to contribute to/develop a business plan, financial plan (budget) or response to RFP.  
• Is aware of the elements required to develop a marketing plan for a professional business  
• Appreciates the preparations required for accreditation in a public/private practice setting |
| Organizational Principles | • Principles of:  
  – governance and organisational design/structure  
  – strategic vs. operations planning  
  – organisational change/restructuring  
  – change management  
• Health human resource (HHR) policy and planning e.g.:  
  – recruitment, selection, retention, evaluation  
  – credential, reference checks  
  – compensation systems  
  – employment equity  
  – work scheduling  
• Best practices in delegation and supervision | • Appreciates the organizational principles and implications for physiotherapy practice of different service structures (e.g. a home-based service versus a facility-based interdisciplinary program)  
• Able to explain the planning process and contribute to/develop a strategic/restructuring plan for a physiotherapy service in either the public or private sectors  
• Is aware of the elements required to develop a HHR plan for a new/existing PT practice/service in the public and private sectors  
• Applies best practices to delegation and supervision of support workers and students |

53 This curriculum will not prepare the entry-to-practice physiotherapist to operate or manage a practice (e.g. a hospital program or clinic) independently.
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<th>Services Management</th>
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<td>Management Principles</td>
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54 Dimension 7, Element 3: Essential Competency Profile for Physiotherapists in Canada (2004)
Practice Settings

The Practice Settings Domain addresses curriculum content that will prepare the entry-to-practice physiotherapist for “direct access” practice in a variety of populations (e.g. aboriginal, sports-related and the elderly) and settings (e.g. traditional health care facilities, community/home settings and clinics).

Curriculum content will also introduce the student to the credentials/education/ skills and behaviours required of more specialised settings (e.g. business/industrial worksites, education and research facilities) and the anticipated skills and behaviours necessary for new and emerging settings (e.g. primary care and telerehabilitation). It is anticipated that this content will be fully integrated across the curriculum, reflecting its contextual relevance to overall learning and the curriculum as a whole.
Conclusions & Recommendations

Project Process

In June 2006, the Canadian Universities Physiotherapy Academic Council (CUPAC)\(^{55}\) initiated a project to revise/update the 1995 document, *Entry-Level Curriculum for Canadian Physical Therapy Programs: Guidelines for Faculty*; the final Guidelines document was completed in November 2008.

It was initially projected that the four-phase project would take 18 months to complete, involving a maximum of four Working Group meetings and a large-scale consultation workshop – a similar process to that used to produce the original 1995 document. The actual project involved significantly greater levels of consultation and Working Group engagement and the number of edits to the draft document far exceeded the original estimate. These “overruns” resulted in considerable unbudgeted workload for the Working Group and the project consultant.

Deliverables

CUPAC’s Curriculum Revision Working Group developed:

- Curriculum Content Guidelines with graphic representations illustrating the framework
- Literature Review of national and international regulatory, curriculum and practice documents and websites
- Environmental scan involving feedback from stakeholder organisations and employers
- Design and use of an interactive method for engaging Canadian faculty members using Blackboard® technology

The 2008 Guidelines are current and are designed to adapt to future needs. By taking a non-prescriptive approach, they are intended to accommodate the many new and emerging trends that will occur in entry-level physiotherapy practice over time.

Recommendations

This body of work is part of a compendium of Canadian reference documents that are reviewed and revised regularly e.g. The Alliance’s *Analysis of Practice*, ACCPAP’s *Accreditation Standards for Physiotherapy Education Programs* and the *Essential Competency Profile* documents. CUPAC supports the National Physiotherapy Advisory Group’s (NPAG) planning related to a review cycle for national foundational documents. Within this planning cycle, a complete review of the Guidelines will occur within a 5 - 7 year time period.

CUPAC recommends regular monitoring of the document’s contents (e.g. at annual meetings) to identify significant changes in practice, regulation or credentials that should be incorporated in the next review. A mechanism that also supports ongoing modifications (e.g. using interactive technologies) between major reviews will keep the document current and “alive”.

For future complete reviews of the Guidelines, the Working Group recommends that CUPAC develops a long-term plan to accommodate the substantial paid/purchased resources as well as the considerable in-kind commitments required from members, programs and faculty members.

The Working Group also recommends that CUPAC incorporate the best available technological advancements (e.g. Blackboard\(^{6}\)) in future reviews/revisions to the curriculum. These technologies have the potential to dramatically enhance stakeholder input and will facilitate effective and efficient use of resources for the next complete review.

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\(^{55}\) See footnote in Acknowledgements
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