

The First Physical Therapy Summit on Global Health: Implications and Recommendations for the 21st century

Elizabeth Dean, PhD, PT¹ Saud Al-Obaidi, PhD, PT² Armele Dornelas De Andrade, PhD, PT³ Rik Gosselink, PhD, PT⁴ Gloria Umerah, PT⁵ Sami Al-Abdelwahab, PhD, PT⁶ Joseph Anthony, PhD, PT⁷ Anjali R. Bhise, PT⁸ Selma Bruno, PhD, PT⁹ Scotty Butcher, PhD, PT¹⁰ Monika Fagevik-Olsén, PhD, PT¹¹ Donna Frownfelter, DPT¹² Eduard Gappmaier, PhD, PT¹³ Sif Gylfadóttir, MSc, PT¹⁴ Mehrdad Habibi, PT¹⁵ Susan Hanekom, PT¹⁶ Scott Hasson, PhD, PT¹⁷ Alice Jones, PhD, PT¹⁸ Tanya LaPier, PhD, PT¹⁹ Constantina Lomi, Lic Med Sci, PT²⁰ Liz Mackay, PhD, PT²¹ Sunita Mathur, PhD, PT²² Grainne O'Donoghue, PhD (Candidate), PT²³ Kristen Playford, PT²⁴ Savita Ravindra, PT²⁵ Kanchan Sangroula, PT²⁶ Susan Scherer, PhD, PT²⁷ Margot Skinner, PhD, PT²⁸ and Wai Pong Wong, PhD, PT²⁹

¹Department of Physical Therapy, University of British Columbia, Vancouver, Canada

²Department of Physical Therapy, Kuwait University, Kuwait

³Departamento de Fisioterapia, Universidade Federal de Pernambuco, Brasil

⁴Faculty of Kinesiology and Rehabilitation Sciences, Katholieke Universiteit Leuven, Leuven, Belgium

⁵Physiotherapy Department, University of Nigeria Teaching Hospital, Enugu, Nigeria

⁶Department of Rehabilitation Sciences, King Saud University, Riyadh, Saudi Arabia

⁷Physiotherapy Department, St. Paul's Hospital, Vancouver, Canada, and formerly of the Royal Brisbane Hospital and the Redland Hospital, Brisbane, Australia

⁸Government Physiotherapy College, Civil Hospital, Ahmedabad, India

⁹Departamento de Fisioterapia, Universidade Federal do Rio Grande do Norte, Natal, Brasil

¹⁰Department of Physical Therapy, University of Saskatchewan, Canada

¹¹Department of Physical Therapy, Sahlgrenska University Hospital, Gothenburg, Sweden

¹²Department of Physical Therapy, Rosalind Franklin University, Chicago, Illinois, USA

¹³Department of Physical Therapy, University of Utah, Salt Lake City, Utah, USA

¹⁴Reykjalundur Rehabilitation Centre, Reykjavik, Iceland

¹⁵Physical Therapy Department, Tabriz Medical University, Iran

¹⁶Physiotherapy, Department of Interdisciplinary Health Sciences, Stellenbosch University, Tygerberg, South Africa

¹⁷Department of Physical Therapy, Angelo State University, San Angelo, Texas, USA

¹⁸Department of Rehabilitation Sciences, Hong Kong Polytechnic University, Hong Kong

¹⁹Department of Physical Therapy, Eastern Washington University, Spokane, Washington, USA

²⁰Department of Physiotherapy, Metropolitan College, Athens, Greece

²¹Physiotherapy, Rehabilitation Sciences, Leeds Metropolitan University, Leeds, UK

²²Department of Physical Therapy, University of Toronto, Toronto, Canada

²³Department of Physiotherapy, University College, Dublin, Ireland

²⁴Physiotherapist, Vancouver, Canada

Accepted for publication 21 November 2010

Address correspondence to Elizabeth Dean, PhD, Department of Physical Therapy, University of British Columbia, Vancouver, Canada. V6T 1Z3
E-mail: elizabeth.dean@ubc.ca

²⁵*Department of Physiotherapy, M. S. Ramaiah Medical College, Bangalore, India*

²⁶*Nepal Orthopaedic Hospital, Kathmandu, Nepal*

²⁷*School of Physical Therapy, Rueckert-Hartman School for Health Professions, Regis University, Denver, Colorado, USA*

²⁸*School of Physiotherapy, University of Otago, Dunedin, New Zealand*

²⁹*Rehabilitation Centre, Singapore General Hospital, Singapore*

ABSTRACT

The First Physical Therapy Summit on Global Health was convened at the 2007 World Confederation for Physical Therapy (WCPT) Congress to vision practice in the 21st century and, in turn, entry-level education and research, as informed by epidemiological indicators, and consistent with evidence-based noninvasive interventions, the hallmark of physical therapy. The Summit and its findings were informed by WHO data and validated through national databases of the countries of the five WCPT regions. The health priorities based on mortality were examined in relation to proportions of physical therapists practicing in the areas of regional priorities and of the curricula in entry-level programs. As a validation check and to contextualize the findings, input from members of the 800 Summit participants was integrated and international consultants refined the recommendations. Lifestyle-related conditions (ischemic heart disease, smoking-related conditions, hypertension, stroke, cancer, and diabetes) were leading causes of premature death across regions. Contemporary definitions of physical therapy support that the profession has a leading role in preventing, reversing, as well as managing lifestyle-related conditions. The proportions of practitioners practicing primarily in these priority areas and of the entry-level curricula based on these priorities were low. The proportions of practitioners in priority areas and entry-level curricula devoted to lifestyle-related conditions warrant being better aligned with the prevalence of these conditions across regions in the 21st century. A focus on clinical competencies associated with effective health education and health behavior change formulates the basis for The Second Physical Therapy Summit on Global Health.

INTRODUCTION

The First Physical Therapy Summit on Global Health (2007) was convened at the World Confederation for Physical Therapy Congress in Vancouver, Canada, to assess the alignment of regional health priorities, the evidence-based role for physical therapy and, based on this evidence, the degree to which the profession is targeting these priorities. More specifically, we investigated the current health priorities across regions of the World Confederation for Physical Therapy (WCPT); the role of noninvasive (i.e., nondrug and nonsurgical) interventions—the hallmark of physical therapy—in addressing these priorities; and the current profile of physical therapy, based on the proportions of physical therapists practicing in areas of priority and of physical therapy curricula devoted to them.

Global health priorities presently and for the foreseeable future have been well established by longitudinal surveillance by the World Health Organization (2006). With increasing economic development globally, the growing prevalence of noncommunicable lifestyle-related conditions witnessed in high-income countries over the past 60 years is now apparent in middle- and even low-income countries. These conditions include ischemic heart disease, smoking-related conditions, hypertension, stroke, cancer, and type 2 diabetes. These chronic conditions impose enormous social and economic burdens to families and societies.

Lifestyle-related conditions are largely preventable. Unequivocal evidence exists that the combination of health policy at the societal level and health education at the individual and family level related to smoking cessation, optimal nutrition, weight control, physical activity and exercise, optimal sleep, and stress management would largely prevent, manage, and in some cases reverse these conditions (Dean, 2009a; Dean, 2009b).

Although rising global affluence this past century has had undeniable benefits to health largely through improvement in the environmental and social determinants of health (e.g., clean water, waste disposal, sanitation, education, employment, and safety and security), affluence has also negatively impacted lifestyle in several ways (e.g., prevalence of tobacco products, convenience foods that are less nutritious, sedentary living, and increased stress). All of these negative factors are strongly associated with lifestyle-related conditions. Despite considerable information on the adverse effects of tobacco smoking, smoking remains prevalent in high- and middle-income countries and increasingly in low-income countries. Similarly, despite the plethora of information about nutritious eating and being physically active, poor nutritional choices and physical inactivity are common in these countries (World Health Organization, 2002).

Small changes in health behaviors result in major effect sizes. For example, Ford et al. (2009) studied over 23,000 people between 35 and 65 years of age.

Over an 8-year period, they found that people who did not smoke had a body mass index of less than 30; were physically active for a minimum of 3.5 hours a week; followed healthy nutritional principles; and had a 78% lower risk of developing a chronic lifestyle-related condition. Specifically, the risk of type 2 diabetes was reduced by 93%, myocardial infarction by 81%, stroke by 50%, and cancer by 36%. Even if not all four health factors were present, the risk of developing a chronic lifestyle-related condition decreased commensurate with an increase in the number of factors.

In a study of people diagnosed with cancers that have strong lifestyle correlates, less than 5% of them adhered to healthy living recommendations (i.e., don't smoke, eat five servings of fruits and vegetables daily, and exercise for 30 minutes daily) (Blanchard, Courneya, and Stein, 2008). The lack of adherence to evidence-based healthy living recommendations by individuals with the ultimate "wake-up call" is of considerable interest academically and clinically and supports an urgent need for clinical competency in effective multiple health behavior change across practice settings.

Since the first half of the 20th century, there has been a progressive shift away from acute infectious disease as the primary global health issue to management of complex lifestyle-related conditions (Wahdan, 1996) that commonly coexist and are often compounded by the aging process. This change in emphasis supports the need for an alternate more complex approach by health professionals that targets an individual's underlying health, health status, and health behavior.

This position is further supported by the persistent high prevalence and in some cases increasing prevalence of lifestyle-related conditions in adults and their risk factors now appearing in children and young adults (Berenson et al, 1998). Thus, on the basis of compelling epidemiological evidence, a paradigm of contemporary service delivery based on health vs. care based primarily on impairment is strongly supported. A health paradigm calls for a health assessment in every individual in combination with a traditional examination of illness, impairment, and/or disability as needed. By extension, physical therapy practice, entry-level education, and research need to be aligned with a health paradigm. Furthermore, if the tide is to be turned on these lifestyle-related conditions already dominating this century, the profession needs to implement a systematic bold approach targeted at the social and health policy levels and at the individual in conjunction with others within and outside traditional health professions.

At the social and health policy levels, health professionals, including physical therapists, based on their contemporary definition, need first to be active in supporting the millennium goals of the World

Health Organization. These goals include a person's fundamental right to a health through the provision of quality air, quality water, sanitation, education, employment, living above the poverty line, and being able to reside in a safe and secure environment (United Nations Millennium Summit, 2000). These rights are congruent with living in civil and just societies.

For over a century, physical therapy has been committed to noninvasive interventions (i.e., nonpharmacological and nonsurgical interventions and the use of these in the management of every client or patient). With the advent of evidence-based practice in the health professions, physical therapy as a profession has a unique role to play in the 21st century. Its philosophy of practice is highly congruent with the Hippocratic tenets of "First do no harm" and "It is better to prevent than to treat" whenever possible. When it comes to lifestyle-related conditions, their prevention, reversal, and management are no exception. Given their well-established effectiveness, noninvasive interventions need to be a priority and used to the greatest capacity possible. Their outcomes may not only be superior to biomedical interventions but may likely address the causes of or factors contributing to these conditions. These enhanced outcomes may include reducing related short- and long-term morbidity, improving lifelong health and health overall, and minimizing prolonged courses of biomedical care including reduced physician visits and hospital stays, reducing the need for fewer medications or less potent ones when needed, and reducing dosages of medications over shorter time frames. A closer working relationship between physical therapists and their medical colleagues is needed to affect these global outcomes.

The biomedical model that largely underpins contemporary Western medicine (and in turn, the basis for the care of illness) emerged from the era of acute infectious disease in which an intervention was often sought for a single microorganism. This was a model based on a cause and effect and the need to identify a specific countermeasure. This model has been called into serious question over the past 30 years, particularly in relation to its being the model of choice for addressing current health priorities (Engel, 1992; Engel, 1997; Hewa and Hetherington, 1995). Biomedical approaches to the risk factors and manifestations of lifestyle-related conditions warrant judicious and conservative application in situations where heroic aggressive measures are not indicated, given the potential for the cascade of iatrogenic outcomes (e.g., the need for additional medication to offset the adverse effects of another). The threshold for chronic lifestyle-related conditions is now lower across the life span (e.g., myocardial infarction and stroke occurring earlier in life and hypertension and type 2 diabetes

being diagnosed in children; hence, the latter can no longer be termed adult-onset diabetes) (Copeland, Becker, Gottschalk, and Hale, 2005). Although biomedicine may ensure a relatively normal longevity, one's quality of life while living with lifestyle-related morbidity throughout life may be less assured without attention to underlying lifestyle practices. Biomedical strategies may alter signs and symptoms, yet the underlying health behaviors are not likely to change without concerted attention and effort. Physical therapy is the fifth largest health profession and the primary noninvasive health profession. Over the past century, physical therapy practice has shifted in terms of the degree to which it addresses the societal concerns of the day. The proportion of articles in leading physical therapy journals, for example, in the first half of the 20th century, was highly related to medical and surgical issues that emanated largely from the ravages of war and the consequences of infectious diseases. Then, midcentury, the needs of children and some adults during the polio epidemics became a dominant focus of practice and in the professional literature. This focus may have been the driving force behind the evolution of neurological and musculoskeletal areas of specialized practice. In addition, the polio years provided impetus for the growth of respiratory support and mechanical ventilation. In the last half of the 20th century, however, attention within the profession to lifestyle-related conditions, their risk factors and manifestations, failed to become as dominant as might be predicted on the basis of the profession's response to either the war years or the polio years. In part, this discordance may reflect the trend within the profession, professional education curricula, and research directions to tighten practice standards by becoming more structured and formalized. In the United States, such standardized practice is perhaps the most extreme of any country in the world, given its commitment to a managed care structure and financial reimbursement structure over the past 30 years (Tufts Managed Care Institute, 1998). However, in high-income countries the common underlying assumption that biomedical intervention is equated to better health has little verifiable support, particularly with respect to the prevention, management, and reversal of lifestyle-related conditions. Countries with socialized systems of service provision may be able to adapt to their needs more readily with respect to an aggressive assault on lifestyle-related conditions, their manifestations, their risk factors, and their potential reversal. Thus, they may have the potential to provide a model for other countries. Mechanisms are needed to ensure that the profession can respond readily to changing health priorities over time without compromising standards of service delivery.

Because of the common health behaviors that underlie lifestyle-related conditions, addressing a single pathology with relative neglect of an individual's overall health, a vestige of the biomedical model, is no longer viable. The indications are that practitioners need to be directing their collective attention toward healthy environments and neighborhoods, healthy living, healthy lifestyle behaviors, and multiple health behavior change. Even in a conventional orthopedic physical therapy practice, the lifestyle-related conditions (their risk factors and/or manifestations) need to be the priority (within the context of addressing the orthopedic problem) given the short- and long-term consequences of lifestyle-related conditions for a client's or patient's health and well-being.

INDICATIONS FOR THE SUMMIT

Early in the 21st century it was timely to convene an international Summit (The First Physical Therapy Summit on Global Health convened at the World Confederation for Physical Therapy, Vancouver, Canada, 2007). Across WCPT regions, its goals were to evaluate contemporary global health priorities; the nature and amenability to the clinical skills of physical therapists based on contemporary professional definitions of physical therapy; the best evidence to support noninvasive, physical therapy approaches to these global priorities; and the current status of how well these priorities are being addressed with a view to aligning practice with need and, correspondingly, entry-level physical therapy education and research (Dean, 2009a; Dean, 2009b).

The Summit's guiding questions included the following:

- Who are we as a profession and what do we do?
- What "models" underlie our practice?
- What are global health needs and indications for promotion and service delivery?
- What is the evidence to support the exploitation of noninvasive interventions to address health priorities?
- How well is our practice aligned with health needs and indicators?
- What is the congruence of our professional education with health needs and indicators?
- What are our research priorities and directions?
- To what extent can the profession address escalating health costs and maximize its cost benefit to global health services?
- What are the implications of the Summit findings for an action plan to guide contemporary clinical practice, entry-level education, and research?

The findings of this Summit will be used to inform The Second Physical Therapy Summit on Global Health, which will convene at the WCPT Congress in 2011.

INFORMATION GATHERING AND FINDINGS

With respect to extracting data for the Summit, a research assistant and supporting contributor assembled the requisite databases over the year preceding the 2007 WCPT Congress and several months post-Congress. Representatives from the five WCPT regions (Africa, Asia Western Pacific, Europe, North America/Caribbean, and South America) examined the data to address their regional specific questions (i.e., to identify the leading causes of mortality in their regions; the proportion of physical therapists practicing in areas related to 10 health priorities extracted from the mortality data; the proportion of curriculum hours devoted to these priorities; and the overall implications for short-term regional action planning). Each representative presented the findings for his or her region. These presentations were followed by open floor discussion. Input from members of the 800 Summit participants was integrated into the implications and recommendations of this report. To contextualize the implications and recommendations further, these were refined by a panel of international consultants from the five WCPT regions.

THE SUMMIT'S GUIDING QUESTIONS AND FINDINGS

Who are we as a profession and what do we do?

On review of contemporary definitions of physical therapy from professional associations and societies, there appears to be no uniform definitions; however, commonalities appear. This is exemplified in the following definition from the Australian Physiotherapy Association Code of Conduct (1999):

... provides a holistic approach to the prevention, diagnosis and therapeutic management of disorders of movement and to the optimization of function to enhance the health and welfare of the community from the individual or population perspective. The practice of physiotherapy encompasses a diverse and very broad range of areas of clinical practice to meet the unique needs of client groups.

As in this definition, words and phrases that commonly appear in definitions of contemporary physical therapy include health, welfare, wellness, prevention, holistic, lifelong, community, and multiple problems (comorbidity) to name a few.

What “models” underlie our practice?

In the early physical therapy professional literature, attention focused on techniques with little mention of models of practice. Conventional practice in the 20th century was largely based on a reductionistic or biomedical model—an impairment orientation to management in that an impairment is identified and a targeted treatment administered. Various models of health practice have emerged in physical therapy and other health professions over the past 25 years (Cott et al, 1995; Dean, 1985; Engel, 1992; World Health Organization International Classification of Functioning, 2002). Contemporary models reflect physical therapy within a broader context of service delivery, including a focus on health, activity, participation, body structure, and function. Terminology that emerged in these models includes holistic care, people-first care, team management, and seamless and continuous care. Contemporary thought and terminology in the physical therapy professional literature (World Confederation of Physical Therapy, 2010) subsume ideologies including the WHO definition of health (World Health Organization Definition of Health, 1948) and the associated WHO International Classification of Functioning, Disability and Health (ICF) (World Health Organization, International Classification of Functioning, Disability and Health, 2002). The WCPT has adopted the ICF as a primary model underlying contemporary physical therapy, thus is being integrated by a growing number of professional associations and societies of its member countries.

The ICF (Figure 1) is a compelling framework for physical therapy practice for several reasons. First, the ICF emphasizes a person's health status or health condition foremost; health has been defined by the WHO since 1948 as a state of “physical as well as social and emotional wellbeing.”

Second, the model integrates body function and structure, activity and participation in conjunction with modifying environmental factors and personal factors.

Third, the ICF has facilitated the development, refinement, and systematic use of outcome measures in contemporary physical therapy practice. It has provided at least three levels at which the clinician can examine a client's or patient's status and evaluate it

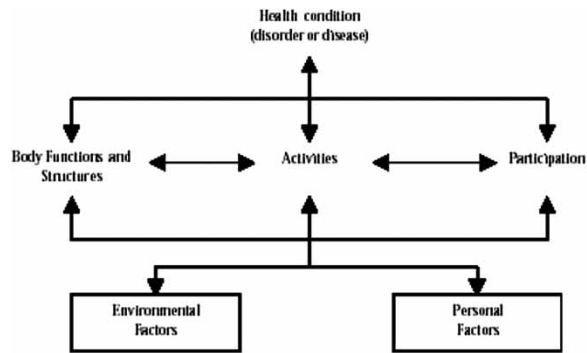


FIGURE 1 The WHO International Classification of Functioning, Disability and Health.

over time to establish a comprehensive profile of the individual's health, ill health and disability, and capacity to function in society (largely a function of activity and participation status) commensurate with an individual's needs and wants.

Fourth, the ICF has expanded the clinical lens to incorporate an assessment of environmental factors and personal factors (and identification of what can and cannot be readily modified within the social and physical environments and at the level of personal choice and health behavior).

Finally, the ICF has drawn attention to health being more than simply remediation of impairment, which has an imperfect and variable relationship with functional capacity, quality of life, subjective sense of well-being, and client/patient satisfaction. Thus, contemporary physical therapy examination and evaluation need to address all levels in the ICF to maximize health outcomes.

What are the global health needs and indications for health promotion and service delivery?

Health priorities based on epidemiological indicators that can inform priorities were assessed on the basis of the best available global data. To date, the social determinants of health are well established and have led to the eight Millennium Development Goals (MDGs) (Millennium Development Goals, 2000). Three of 8 goals, 8 of the 16 targets, and 18 of the 48 indicators relate directly to health. Health is also an important contributor to several other goals. The significance of the MDGs lies in the linkages between them; they are a mutually reinforcing framework to improve overall human development. Because physical therapists are committed to health as defined by the WHO, it would be appropriate that health is better

integrated into and reflected in practice, entry-level education, and research directions.

Subjective sense of well-being and perception of ability/disability are emerging as key health outcomes and indices; however, the data to support these across WCPT regions are inconsistent and unreliable. Mortality data, on the other hand, have been recorded for many decades and provide the most consistent and credible profile of health challenges worldwide. For the purposes of the Summit, we assumed that many of the contemporary leading causes of death are often associated with variable durations of morbidity that can be prolonged in chronic lifestyle-related conditions. Thus, WHO epidemiology databases were examined for the leading causes of death, and these were collated for the five WCPT regions.

From the leading causes of death across regions, the leading 10 conditions/practice areas were identified and included in a questionnaire designed to examine the degree to which these needs are paralleled by physical therapists whose practices primarily focus on these and the degree to which these are reflected in physical therapy curricula in the WCPT member countries. To capture the leading practice areas and examine their concordance with leading health priorities, we used the following seven classifications of practice areas: 1) cardiovascular conditions, 2) cancer (oncology), 3) respiratory conditions, 4) tuberculosis (infectious conditions were not included in respiratory conditions), 5) diabetes, 6) musculoskeletal/orthopedics conditions, and 7) neuromuscular/neurology conditions.

A questionnaire was developed on the basis of the data extracted from the WHO mortality data (Table 1) and other primary clinical physical therapy practice areas. One questionnaire was designed with four parts (Appendix):

- Part 1: demographic and contact information that was completed by all respondents
- Part 2: proportion (%) of physical therapists practicing primarily in areas related to the 10 conditions (areas informed by the WHO epidemiological databases and included 1) ischemic heart disease, 2) cancer, 3) chronic lung disease, 4) hypertension, 5) stroke, 6) diabetes, 7) obesity, 8) HIV/AIDS, 9) tuberculosis, and 10) accidents), which was completed by a representative or representatives of professional associations of WCPT member countries
- Part 3: proportion (%) of hours taught in each practice area in the curriculum of the school or program of physical therapy (in WCPT member countries)
- Part 4: prevalence of the 10 health priorities/conditions in each WCPT member country (this was done to cross reference the data extracted from the WHO).

TABLE 1 Leading causes of mortality across WCPT regions.

Region: Africa

1. HIV/AIDS
2. Lower respiratory infections
3. Malaria
4. Diarrheal diseases
5. Ischemic heart disease
6. Perinatal conditions
7. Cerebrovascular disease
8. Tuberculosis
9. Measles
10. Accidents*

*Includes road traffic accidents

Region: Asia Western Pacific

1. Ischemic heart disease
2. Cerebrovascular disease
3. Lower respiratory infections
4. Cancer*
5. Chronic obstructive pulmonary disease
6. Hypertensive heart disease
7. Accidents**
8. Perinatal conditions
9. Diabetes mellitus
10. Tuberculosis

*Includes all cancers

**Includes road traffic accidents

Region: Europe

1. Ischemic heart disease
2. Cerebrovascular disease
3. Cancer (all causes)
4. Lower respiratory tract infections
5. Chronic obstructive pulmonary disease
6. Alzheimer's and other dementias
7. Diabetes mellitus
8. Cirrhosis of the liver
9. Self inflicted injuries
10. Hypertensive heart disease

Region: North America Caribbean

1. Ischemic heart disease
2. Cerebrovascular disease
3. Cancer*
4. Diabetes
5. HIV/AIDS
6. Lower respiratory infections
7. Chronic obstructive pulmonary disorder
8. Perinatal conditions
9. Accidents**
10. Alzheimer's and other dementias

*Includes all cancers

**Includes road traffic accidents

Region: South America

1. Ischemic heart disease
2. Cerebrovascular disease
3. Respiratory infections
4. Diabetes mellitus
5. Cancer*
6. Perinatal conditions
7. Violence

8. Chronic obstructive pulmonary disease
9. Hypertensive heart disease
10. Tuberculosis

*Includes all cancers

Source: World Health Organization 2006
Mortality Country Fact Sheets. www.who.int/whosis/mort/profiles/en/

The summary data for the causes of mortality across regions appear in Table 1 (country-specific data can be accessed through the primary author).

What is the evidence to support the exploitation of noninvasive interventions to address health priorities?

For over 100 years, physical therapy has been hallmarked by its use of noninvasive approaches (i.e., nondrug and nonsurgical interventions including education and exercise). Physical therapy can be considered the quintessential established noninvasive health profession. With respect to global health priorities in the 21st century that largely reflect the effects of negative health behaviors, noninvasive interventions have been well established to prevent, to manage, and in some cases to reverse these conditions. The reader is referred to the Special Issue on "Physical Therapy in the 21st Century: A New Evidence-informed Practice Paradigm and Implications" (Physiotherapy Theory and Practice 25 (5-6), 2009).

This Special Issue provided a detailed assessment of global health priorities that were predominately lifestyle-related conditions in the 21st century and the need for multiple health behavior change examination to be a priority in health promotion and the management of every client/patient by a physical therapist (Dean, 2009a; Dean, 2009b). Part I outlines a paradigm of physical therapy practice that is informed by epidemiology and the crisis of lifestyle-related conditions. Part II provides a substantial evidence base for physical therapy practice within the context of evidence-informed practice. In the 21st century, physical therapists need to initiate and/or support one or more of the following health behaviors in their clients/patients: smoking cessation, optimizing nutrition, controlling weight, prescribing regular physical activity and exercise, optimizing sleep health, and reducing undue stress. The Special Issue provides evidence-based means of affecting multiple health behavior change.

In the 21st century, irrespective of a client's or patient's presenting diagnosis or concern, smoking history, basic nutrition, physical activity and exercise,

sleep-related conditions, and undue stress need to be assessed. If interventions are warranted, then these lifestyle-related conditions need to be evaluated over the episode of service delivery. Lifestyle behaviors have a profound effect on people's health and well-being overall; their signs and symptoms of a range of underlying conditions and comorbidity; and their health and impairment treatment outcomes. Interventions for lifestyle-related conditions consistent with physical therapy practice include smoking cessation counseling in the form of brief advice that is either initiated or supports other ongoing cessation strategies; basic nutrition advice with referral to a nutritionist or dietician if detailed assessment and intervention are needed beyond basic nutritional guidelines; physical activity and exercise prescription; basic sleep assessment and recommendations or referral to an appropriate professional; basic stress assessment and management strategies instituted as needed or referral made to another professional; or some combination of interventions.

Multiple health behavior change warrants being a primary physical therapy competency in the 21st century (Noar, Chabot, and Zimmerman, 2008; Prochaska, Spring and Nigg, 2008; Prochaska, 2008) that is either initiated or supports the efforts of other interprofessional team members.

An assessment of an individual's health establishes the backdrop for the presenting problems a client or patient reports. Health status confounds the clinical presentation. Knowledge of health status helps the physical therapist address the client's or patient's presenting problems by being able to address underlying health problems or contributing factors, as much as possible. For example, two thirds of patients who undergo joint replacement surgery are overweight or obese (Harms, Larson, Sahmoun, and Beal, 2007). Addressing this health problem may help avoid the need for surgery but can reduce surgical risk, hasten recovery, and minimize the need for repeated joint replacement (Jain et al, 2005). Furthermore, addressing the patient's weight will help reduce other major health risks associated with excessive body weight including ischemic heart disease, cancer, hypertension, stroke, and diabetes.

Consistent with the social network theory related to lifestyle-related conditions, the family and/or relevant social network of the client/patient warrant being included into comprehensive patient care. On the basis of the longitudinal data set from the Framingham Study, friends have been shown to be particularly influential in promoting positive health behaviors as well as negative ones (Christakis and Fowler, 2007). Thus, promoting a client or patient to socialize with friends with the health behaviors of interest and less

with those with less favorable health behaviors has compelling support.

How well is our practice aligned with health needs and indicators?

Access to respondents in professional associations and societies was limited by lack of or erroneous contact information; this necessitated extension of the data collection period. Despite this, our results supported remarkable consistency across WCPT regions for the proportion of physical therapists practicing in priority clinical areas. The proportion of physical therapists that primarily practice in the musculoskeletal/orthopedic area ranged from 30% to 60%; in the neurology area from 20 to 35%; in the cardiovascular area from 2% to 20%; and in the respiratory areas from 5% to 20%. The category of "other" included a multitude of practice areas such as research, ethics, leadership, communication, health promotion, and other specific practice areas, such as geriatrics and pediatrics.

What is the congruence of our professional education with health needs and indicators?

Data for Parts 2 and 3 of the questionnaire (Appendix) were particularly challenging to collect, thus the data were collected over two phases: pre- and post-Congress. Contact with representatives of physical therapy professional associations and societies (Part 2) and educators in entry-level education programs (Part 3) in low- and middle-income countries was challenging. At that time, website information recorded at WCPT had often not been updated, hence was inaccurate, and there was a paucity of websites for academic associations/societies and current contact information. Possibly because of limited resources, e-mail contact was less reliable even with confirmed details. Furthermore, we surmised that e-mail is a less common way of communicating (technically and socially) in some middle- and low-income countries. Although the data remained incomplete from a statistical point of view after the second systematic attempt (post-Congress) for Part 3, the findings confirmed the findings of the limited data that we were able to collect prior to Congress.

Across the five WCPT regions, the highest proportion of the curriculum taught in physical therapy schools and programs is the musculoskeletal/orthopedic practice area with a combined average of 31.9%. The second most taught practice area is

neuromuscular/neurology with a combined average of 24.3%. This pattern was consistent when we examined the results of each WCPT region individually. However, there is a range with the European Region spending 2.7% more time teaching musculoskeletal/orthopedics, and North America/Caribbean Region spending 14.3% more time teaching musculoskeletal/orthopedics over neuromuscular/neurology. Specifically, 9 of 36 academic schools and programs that responded teach the same proportion of musculoskeletal/orthopedics and neuromuscular/neurology and 5 of 36 schools and programs teach a higher proportion of neuromuscular/neurology than musculoskeletal/orthopedics practice areas.

The third highest practice area taught fell under the “other” category with a combined WCPT region average of 13.7% followed by the respiratory practice area at 9.8%. The “other” category indicated by several schools and programs included health promotion, research, professional issues, clinical reasoning, ethics, communication, and other specialty topics, such as women’s health, geriatrics, and pediatrics.

What are our research priorities and directions?

A hand tabulation of articles published in the leading generalist physical therapy journals (i.e., *Australian Journal of Physiotherapy*, *Physical Therapy*, *Physiotherapy*, *Physiotherapy Canada*, and *Physiotherapy Theory and Practice*) was conducted. The topics of articles were classified (e.g., cardiovascular, musculoskeletal, neurology, and respiratory). In summary, topics related to lifestyle-related conditions (specifically, prevention and management) were correspondingly low in proportion to the epidemiological indicators and also compared with articles on musculoskeletal and orthopedic topics, which were dominant. These findings were largely consistent with the proportions of physical therapists practicing in those areas and with the proportions of these topics reflected in entry-level physical therapy education across WCPT regions.

The health effects of exercise and the negative effects of low activity or inactivity on multiple organ systems have been well established (Astrand, 1992; Healy et al, 2008; Owen, Healy, Matthews, and Dunstan, 2010). A shift is indicated to translate this knowledge at the systemic level (social and health policy) and at the individual level with respect to promoting healthy neighborhoods, families, and individuals. Identifying the benefits of exercise and risks of lack of exercise has been relatively straightforward to study compared with effecting positive health behavior change and avoidance of negative health behaviors

both short term and long term over the life cycle. To translate this knowledge effectively will need the collective team efforts of urban planners, policy makers, legislators, experts in safety and security, and health professionals.

In physical therapy curricula, pediatric conditions remain largely focused on neurological and some respiratory conditions that may be a vestige of the polio era. In the 21st century, evidence-informed practice (based on epidemiological data) supports the need for a bold shift toward health promotion in children and families and reversing the poor health status in children that relates to smoking, obesity, high blood pressure, abnormal blood lipids, poor nutritional choices, inactivity (often in association with television watching and playing video games), sleep deprivation, and stress. The health of many children today is being severely challenged by the potential for chronic conditions associated with their lifestyles over the long term (Short, Blackett, Gardiner, and Copeland, 2009). Furthermore, sedentary lifestyles could mask health problems in children (O’Dowd, 2009) with more severe consequences for children with physical and mental challenges. Such negative health behaviors in childhood will contribute to ischemic heart disease, cancer, smoking-related conditions, high blood pressure, stroke, obesity, and diabetes because premonitory signs of these conditions are already apparent. The lifestyle behaviors underlying lifestyle-related conditions have also been associated with significant mental health problems such as anxiety, depression, social isolation, and poor social skills similar to that reported for adults (Thorp et al, 2010). Children who watch television or play video games for several hours a day may have less well-developed social skills than the previous generations when age and gender matched, as well as poorer physical health outcomes (Pagani, Fitzpatrick, Barnett, and Dubow, 2010). This may be the first generation of children who is not expected to live as long as their parents (Olshansky et al, 2010).

To what extent can the profession address escalating health costs and maximize its cost benefit to global health?

The Summit compared health costs across many member countries of the WCPT. These data were mostly from high-income countries where valid and reliable health statistics can be obtained. The cost per capita for health services ranged substantially and did not correspond to WHO indexes of health for those countries. In other words, the country with the highest cost per capita had poorer health outcomes

than a country whose outcomes were best, but its per capita costs were relatively low.

In high-income countries such as Canada, the majority of health budgets reflect the cost of doctors, hospital-based services and drugs (Report of the Kirby Commission, 2002; Romanow Report, 2002). Noninvasive interventions, in particular health education and exercise, are likely to have high cost benefit ratios, low absolute costs, and substantial support and are associated with minimal risks, if any, compared with the risks of drugs and surgery. Noninvasive interventions are further compelling because of their cumulative and systemic effects compared with drugs and surgery that in many cases address a specific impairment rather than the underlying health problem.

Countries with the highest investment in health do not necessarily have the best health outcomes and longevity. Health costs are largely associated with biomedical care, specifically, doctor- and hospital-based care and drugs. The leading causes of morbidity and mortality reflect preventable conditions with shared etiologies (i.e., negative health behaviors that can result in a cumulative effect [over multiple years]) and risk factors for manifestations of the lifestyle-related conditions, most notably the multisystem sequelae of atherosclerosis, elevated blood pressure, elevated blood sugars, and smoke exposure.

Noninvasive interventions in the prevention, management, and in some cases reversal of lifestyle-related conditions are effective, low risk and low cost compared with invasive care. They have a greater probability of contributing to lifelong health than with drug and surgery interventions that may address symptoms but not necessarily the underlying causes. Studies designed by interprofessional health teams will help establish the degree to which these approaches can best complement each other in isolation, concurrently, and in sequence. Mandatory inclusion of healthy control groups in biomedical research would augment our understanding of the power of health, particularly in effecting short- and long-term outcomes compared to drugs and surgery, and in turn the cost benefit could be readily calculated over the short and long term.

What are the implications of the Summit findings for an action plan to guide contemporary clinical practice, entry-level education, and research?

The analysis of the alignment of 1) contemporary definitions of physical therapy and the ICF that has been

adopted by the WCPT and the WHO definition of health on which it is predicated; 2) leading health priorities; and 3) evidence supporting the effectiveness of noninvasive interventions in the prevention, management, and in some cases reversal of health-related conditions all support a leadership role for physical therapy in the 21st century. The implications of the Summit's findings have been assembled for each WCPT region to review and incorporate into their short- and long-term planning for practice, professional education, research, human resource implications (e.g., numbers of physical therapists), settings, and range of practices. It is anticipated that these areas can provide a basis for discussion and regional action plans, the outcomes of which can provide the basis for subsequent Summits.

The data from the questionnaire survey were remarkably consistent despite the paucity of data from professional associations/societies and from physical therapy academic schools and programs in some WCPT regions at the time of this study. Because of this, the data collection was extended for several months after the Congress. The survey questionnaire was either mailed or e-mailed to contact people named on the WCPT registry and on website domains. This information was not reliably updated. Second, contact was limited because some countries do not typically use e-mail, and if used, has been reported to be unreliable in some countries. Third, some professional associations and societies do not maintain statistics regarding their members, or if they do, do not consistently update membership contact information.

For the purposes of the Summit, cross-regional statistics needed to be accessed. Morbidity and disability statistics central to physical therapy planning are less prevalent than mortality statistics. Given the mandate of the Summit, we argued that the leading causes of mortality would be preceded by a period of morbidity in most cases. We then extracted the leading causes of mortality and used these classifications as a basis for profiling clinical practice areas and profiling physical therapy entry-level education. Consistent with innovations in education and ostensibly with teaching clinical reasoning, physical therapy is being increasingly taught in an integrated manner in an increasing number of programs (i.e., problem-based learning, case-based courses, and integrative teaching vs. a primary biomedical pathology based approach). We appreciate the challenges in describing a curriculum on this basis and in terms of proportion of hours allocated to given categories of conditions when integrative models of teaching are used. We urged representatives from entry-level education programs to consult with their academic coordinators and other

TABLE 2 Examples of comprehensive outcomes that could be related to optimal contemporary physical therapy.

-
- Episodes and severity of illness/absenteeism
 - Doctor visits
 - Number of medications
 - Dosages of medications
 - Hospital visits
 - Length of hospital visits
 - Need for surgery or extent of surgery
 - Iatrogenic effects of biomedical care (untoward effects of drugs and surgery and errors)
 - Improve biomedical outcomes by reducing the signal-to-noise ratio contributed by risk factors and/or manifestations of lifestyle-related conditions (e.g., the person who is undergoing joint replacement but is overweight)
 - Earlier return to work and daily activities
 - Patient satisfaction with services rendered by health providers
 - Improved health status over the long term through mandated follow-up
 - Social burden of suboptimal health, illness, and disability
 - Economic burden of suboptimal health, illness, and disability
 - Prioritize ethical service delivery by exploiting conservative management
-

faculty members to provide the best estimates possible.

Standardized outcome measures have become a primary focus in the profession over the past 20 years. The development and refinement of these measures have been stimulated in part by the adoption of the ICF. Given the effectiveness of noninvasive interventions on risk factors and manifestations of lifestyle-related conditions that contribute substantially to the social and economic burdens of health care, physical therapy outcomes also need to reflect global outcomes related to service delivery and outcomes overall. With the advent of e-records, these will be more easily recorded over time. Examples of more comprehensive outcomes that may be related to optimal contemporary physical therapy are in Table 2.

RECOMMENDATIONS

Multiple themes emerged from The First Physical Therapy Summit on Global Health held at the 2007 WCPT Congress and related to physical therapy practice, entry-level education, and research. These provide a framework for the WCPT regions to help inform the requisite professional changes and physical therapy directed action planning for this century. These recommendations are based on both the evidence that informs the need to highlight noninvasive interventions and the evidence that supports their cost-effectiveness with respect to preventing,

managing, and in some cases reversing the risk factors and manifestations of chronic lifestyle-related conditions. In turn, these themes and recommendations will serve as the basis for The Second Physical Therapy Summit on Global Health to be convened in 2011 related to multiple health behavior change and physical activity and exercise as core clinical competencies in the 21st century.

Clinical Practice in the 21st century

Table 3 shows ideas and recommendations about how physical therapy clinical practice might be reconfigured to be better aligned with the priorities of the 21st century given the profession's hallmark of noninvasive practice.

Entry-level education in the 21st century

Table 4 shows ideas and recommendations about how physical therapy entry-level education might be reconfigured to be better aligned with the priorities of the 21st century given the profession's hallmark of noninvasive practice.

Research in the 21st century

Table 5 shows ideas and recommendations about how physical therapy research might be configured to be better aligned with the priorities of the 21st century given the profession's hallmark of noninvasive practice.

OVERALL CONCLUSIONS

The Summit's prevailing conclusions appear in Table 6. In sum, the WHO definition of health is germane to physical therapy and underpins the ICF that has been adopted by the WCPT and an increasing number of its member countries. As the fifth largest established health profession, physical therapy is the quintessential nonpharmacological and nonsurgical (noninvasive) profession. Such interventions have been shown unequivocally to underpin health promotion and the prevention of chronic lifestyle-related conditions and their management. That healthy people are sick less often and are likely to recover better and respond better to treatment than non-healthy people supports that maximizing health needs to be the goal in every client or patient irrespective of presenting complaint. The profession now has

TABLE 3 Ideas and recommendations about how physical therapy clinical practice might be reconfigured to be better aligned with the priorities of the 21st century given the profession's hallmark of noninvasive practice.

-
- Restructure practice such that evidence-based physical therapy is practiced within the context of evidence-informed health policy and priorities (i.e., based on epidemiological indicators)
 - Develop a collaborative triage model of client/patient management between noninvasive (physical therapy) practitioner and invasive (medical) practitioner and other health professionals to achieve the best evidence-based short- and long-term outcomes related to nonemergent chronic lifestyle-related conditions (triage system to examine the potential cost-effective benefits and ethics of noninvasive and invasive interventions, the types, and the timing of interventions that may make a cogent case for one intervention before the other, one intervention after the other, an interval between interventions, or interventions administered concurrently)
 - Promote greater interprofessional exchange among health professionals across all stages of patient/client management, namely, examination, evaluation, diagnosis, prognosis, intervention, and follow-up to promote effective streamlined health services delivery
 - Promote increased referral from and to other health professionals to expediently address a patient's or client's health priorities
 - Integrate the assessment of health status (e.g., body composition including waist and hip girths, waist to hip ratio, and body mass index) as a routine part of the physical therapist's initial examination for every client or patient, and outcome evaluation of health behavior change as indicated with or without formal intervention (e.g., formal intervention may not have been required initially, but over the episode of service delivery, a physical or psychosocial limitation could contribute to suboptimal health choices and behaviors related to smoking, nutrition, physical activity, sleep, and stress)
 - Integrate measures to assess subjective life satisfaction and quality of life in the physical therapist's examination
 - Ensure clinical competence using valid tools in the evaluation of and determination of lifestyle risk factors and conditions and systematically following up in every client/patient
 - Ensure clinical competence in risk factor reduction in every client or patient irrespective of primary problem or diagnosis
 - Ensure clinical competence in assessing self-efficacy for health behavior change and promoting it consistent with psychosocial and cultural factors unique to a given client/patient
 - Promote practice patterns designed to incorporate long-term examination, evaluation, and follow-up
 - Integrate sociocultural assessment as a basis for health education
 - Integrate learning assessment as a basis for health education
 - Integrate targeted health education to address risk factors for client/patient and family
 - Expand the role of physical therapy to include routine primary intervention and wellness visits
 - Ensure health education as a clinical competence in the 21st century
 - Develop tools for outreach to families and community health
-
- Promote commitment to taking care of our "village" through development and promotion of social and health policy by working with policy makers, legislators, and "one Person At a time"
 - Develop healthy communities through initiating or supporting social and health policies and the overall health of people in their neighborhoods and communities
 - Lead and actively participate in and support social and health policy related to the determinants of health within each region (e.g., potable water, sanitation, infection control, safety and security, education, and income equity)
 - Expand role of physical therapists as consultants to urban planners and government
 - Practice consistent with the International Classification of Functioning, Disability and Health (WHO, 2002) and maximize health and well being and quality of life over the life cycle (living and aging well without and with chronic conditions) in individual clinical practices
 - Engage the professional bodies (international, national, and regional) to continue to support evidence informed and evidence based practice using a multipronged approach
-

evidence to show a disparity between its current trajectory of practice with insufficient attention to health and chronic lifestyle-related risk factor and some ideas and recommendations to help address this gap to ensure the profession is as responsive to societal need as it was during the years of the Great Wars and the poliomyelitis era. Our recommendations provide some thoughts about how the profession may need to reconfigure itself to address current priorities to the best of its capacity.

SUMMARY

Physical therapy has evolved over the past century from being viewed as having an adjunctive "allied" role to medicine consistent with the biomedical model to a health profession composed of independent practitioners with a high level of clinical competence related primarily to the exploitation of nondrug and nonsurgical interventions. Physical therapists have evolved such that the lines of referral between invasive and noninvasive practitioners are bidirectional, and these approaches need to be viewed as completely interrelated in addressing 21st century health priorities.

Contemporary health priorities are dominated globally by the social determinants of health and lifestyle-related conditions (i.e., ischemic heart disease, cancer, smoking-related conditions, hypertension, stroke, obesity, and diabetes). These conditions can

TABLE 4 Ideas and recommendations about how physical therapy entry-level education might be reconfigured to be better aligned with the priorities of the 21st century given the profession's hallmark of noninvasive practice.

-
- Integrate epidemiological and public health trends over time into physical therapy curricula
 - Integrate constructs such as health, healthy aging, healthy living, and healthy dying into clinical competencies
 - Promote the role of other health professionals as collaborators rather than each profession working in isolation thereby promoting a model of true interprofessional practice vs. multiprofessional practice
 - Consider the clinical doctorate as the entry level professional degree to achieve parity with invasive care practitioners (correspondingly, the existence of a clinical doctorate in physical therapy may help to elevate the importance, hence, status of noninvasive intervention, given the generally unsupported beliefs around the superior effectiveness of biomedicine in preventing, reversing, and managing the risk factors and manifestations of lifestyle related conditions); use the unequivocal evidence base and priority of noninvasive interventions often in addressing the risk factors and manifestation of one or more lifestyle related conditions
 - Promote actively the role of physical therapists as “drivers of change” in clinical practice (e.g., integration of behavioral and social aspects of health)
 - Integrate multiple health behavior change as a clinical competency including the determination during the initial examination of smoking, basic nutrition, physical activity/exercise, sleep and stress management; initiate related interventions or support of ongoing interventions and ongoing outcome evaluation
 - Promote the role of physical therapists in the 21st century as “health advocates,” “health educators,” and “clinical exercise experts” with a view to use the effects of health education and physical activity for every client/patient and their families
 - Support physical therapist practice that screens for risks factors for lifestyle related conditions (e.g., conducting or ordering relevant lab tests)
 - Prepare proposals for stakeholder groups including Ministries of Health on the scope of physical therapy in addressing the health challenges of our time
 - Identify novel settings for physical therapy student fieldwork practice; nontraditional settings, social and health policy settings including those related to the social determinants of health, and more community settings to foster a model of interprofessional teamwork
 - Incorporate marketing skills in entry level education
 - Provide learning opportunities for development of leadership skills to petition and work with government and related ministries and services (e.g., housing, urban planning, access oriented 20 minute neighborhood initiatives, employment, workplace, and schools) or to increase existing profiles and presence of physical therapy within these areas
-

be prevented, managed, and in some cases reversed with noninvasive interventions: health education and exercise. Noninvasive interventions have been

TABLE 5 Ideas and recommendations about how physical therapy research might be configured to be better aligned with the priorities of the 21st century given the profession's hallmark of noninvasive practice.

-
- Promote the focus of health and the role of the healthy control group as a requirement in health research designs to showcase health and the impact of healthy living and provide health benchmarks
 - Translate the substantial body of knowledge supporting the priority and role of noninvasive interventions in preventing, managing, and reversing in some cases lifestyle related conditions
 - Emphasize evidence based practice in the context of evidence informed health policy and priorities and foster physical therapy research priorities focused on leading health priorities that are unequivocally amenable to noninvasive physical therapy interventions
 - Foster physical therapy research that reflects regional epidemiological and health indicators and priorities
 - Assess the specific effects of health (e.g., absence of history of smoking, optimal nutrition, normal body weight, regularly physical active, optimal sleep, and moderate stress levels, in relation to the intervention of interest) and exclude these confounding factors in the presentation of conditions that are not primarily associated with lifestyle related behaviors and choices
 - Identify the core elements for which noninvasive interventions vs. drugs and surgery will be most effective that in turn may enable physicians and surgeons to apply their expertise more judiciously
 - Grow the evidence to support health and optimizing health as a bona fide clinical goal vs. a primary focus on impairment focused outcomes
-

demonstrated to be highly effective in addressing lifestyle-related conditions and can have superior outcomes to invasive interventions (i.e., drugs and surgery). Thus, when maximally used, noninvasive interventions can be highly cost-effective, minimize the cascade of iatrogenic risk, enable physicians and surgeons to use their skills more judiciously and to greater effect, and minimize health costs. In addition, noninvasive interventions are highly ethical. Given the physical therapy profession's commitment to health and the evidence supporting the effectiveness of noninvasive approaches to contemporary health priorities, physical therapists are uniquely positioned to lead the assault on these conditions that have been and continue to be associated with enormous social and economic burdens. Recommendations have been made for aligning practice with these trends in the 21st century and for aligning entry-level physical therapy education and research so that physical therapists across WCPT regions can further use their expertise to effect global change.

TABLE 6 The Summit's prevailing conclusions.

-
- The 1948 WHO definition of health continues to be germane in contemporary health service delivery and embraced by the WCPT
 - The 1948 WHO definition of health is the foundation of the WHO supported ICF model underlying contemporary health service delivery and has been adopted by the WCPT and many of its member countries
 - Physical therapy is the fifth largest established health profession and, of these, is the primary health profession committed to noninvasive interventions (i.e., nondrug and nonsurgical interventions) including health education and exercise; thus, the profession is uniquely qualified and strategically positioned to lead in the assault on lifestyle related conditions in the 21st century
 - Healthy people are sick less often and, when they are sick, they recover faster with fewer complications; their health costs are proportionally less
 - The evidence supporting the role of positive health behaviors and the effectiveness of multiple health behavior change to promote health and well being and minimize illness and disability is well established and irrefutable
 - Based on a substantial body of evidence, noninvasive interventions can address the causes of and many contributing factors underlying lifestyle related conditions and, in turn, contribute to lifelong health in a way that invasive interventions (drugs and surgery) may be limited and often cannot
 - The leading causes of morbidity and mortality in high income countries are the noncommunicable lifestyle related conditions, and these are increasingly the leading causes of morbidity and mortality in middle and low income countries commensurate with their economic development (thus, may be expected to escalate in these countries with poor economic means to support prohibitive biomedical interventions)
 - Healthy living is the best way to promote healthy aging and functional independence, which is often associated with health related quality of life
 - There is a discrepancy between the leading causes of morbidity and mortality and the proportion of physical therapists in these areas of priority practice
 - There is a discrepancy between the leading causes of morbidity and mortality and the proportion of physical therapy curricula devoted to them
 - There is irrefutable evidence supporting the need for congruence of physical therapy practice in the 21st century, entry level education and research, with contemporary health priorities, supporting the effectiveness of noninvasive interventions regarding their capacity to prevent, at times reverse, as well as manage lifestyle related conditions
 - The use of noninvasive intervention (either individually or in conjunction with invasive care when judiciously applied) is more ethically defensible with respect to avoiding the need for a patient to take medication or undergo surgery unnecessarily and exposing a patient to iatrogenic risks.
 - Judicious noninvasive services pale in comparison to invasive care with respect to cost, thus the health delivery system is substantially less costly with the use of noninvasive interventions wherever possible (either individually or in combination with drugs and/or surgery)
-

The Second Physical Therapy Summit on Global Health is scheduled for 2011 during the next WCPT Congress in Amsterdam. Representatives from the WCPT regions in consultation with international consultants and other stakeholders will address social and health policies across the countries in their regions and status and/or changes in physical therapy practice since the first Summit. Given the demands on physical therapists as noninvasive practitioners in the 21st century, entry-level educational standards need to be revisited (e.g., the doctor of physical therapy would enable physical therapists to practice shoulder-to-shoulder and collaboratively with invasive care practitioners using a horizontal vs. vertical relationship of communication). This arrangement would enable the best combination of noninvasive and invasive interventions in the long-term health and well-being interests of the client or patient and family. As a profession, we need to move beyond the age-old and rather mute argument of "over credentialing." Rather, the requisite level of the entry-level degree and its rigor need to be solely informed by the demands of 21st century priorities and commensurate with the evidence-based competencies and standards needed to unequivocally address these. This is more in line with the requisite question of *What is the power of noninvasive practices consistent with noninvasive physical therapy values in addressing the leading priorities of our day that have been shown to be evidence-based and the competencies of choice?*

Acknowledgements

The authors gratefully acknowledge the valuable discussion with international colleagues who participated in The First Physical Therapy Summit on Global Health and those individuals who have agreed to serve as International Consultants for The Second Summit.

REFERENCES

- Astrand P-O 1992 Why exercise? *Medicine and Science in Sports and Exercise* 24: 153-162
- Australian Physiotherapy Association 1999 Code of Conduct. <http://www.physiotherapy.asn.au>
- Berenson GS, Srinivasan SR, Bao W, Newman WP, Tracy RE, Wattigney WA for the Bogalusa Heart Study 1998 Association between multiple cardiovascular risk factors and atherosclerosis in children and young adults. *New England Journal of Medicine* 338: 1650-1656
- Blanchard CM, Courneya KS, Stein K 2008 Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: Results from the American

- Cancer Society's SCS-II. *Journal of Clinical Oncology* 26: 2198–2204
- Christakis NA, Fowler JH 2007 The spread of obesity in a large social network over 32 years. *New England Journal of Medicine* 357: 370–379
- Copeland KC, Becker D, Gottschalk M, Hale D 2005 Type 2 diabetes in children and adolescents: Risk factors, diagnosis and treatment. *Clinical Diabetes* 23: 181–185
- Cott C, Finch E, Gasner D, Yoshida K, Thomas S, Verrier M 1995 The movement continuum theory of physical therapy. *Physiotherapy Canada* 47: 87–95
- Dean E 1985 Psychobiological adaptation model for physical therapy practice. *Physical Therapy* 65: 1061–1068
- Dean E 2009a Physical therapy in the 21st century (Part I): Toward practice informed by epidemiology and the crisis of lifestyle conditions. *Physiotherapy Theory and Practice* 25: 330–353
- Dean E 2009b Physical therapy in the 21st Century (Part II): Evidence-based practice within the context of evidence-informed practice. *Physiotherapy Theory and Practice* 25: 354–368
- Engel GL 1992 How much longer must medicine's science be bound by a seventeenth century world view? *Psychotherapy and Psychosomatics* 57: 3–16
- Engel GL 1997 From biomedical to biopsychosocial: Being scientific in the human domain. *Psychosomatics* 38: 521–528
- Ford ES, Bergmann MM, Kroger J, Schienkiewitz A, Weikert C, Boeing H 2009 Healthy living is the best revenge. *Archives of Internal Medicine* 169: 1355–1362
- Harms S, Larson R, Sahmoun AE, Beal JR 2007 Obesity increases the likelihood of total joint replacement surgery among younger adults. *International Orthopaedics* 31: 23–26
- Healy GN, Dunstan DW, Salmon J, Cerin E, Shaw JE, Zimmet PZ, Owen N. 2008 Breaks in sedentary time: Beneficial associations with metabolic risk. *Diabetes Care* 31: 661–666
- Hewa S, Hetherington RW 1995 Specialists without spirit: Limitations of the mechanistic biomedical model. *Theoretical Medicine* 16: 129–139
- Jain NB, Guller U, Pietrobon R, Bond TK, Higgins LD 2005 Comorbidities increase complication rates in patients having arthroplasty. *Clinical Orthopaedics and Related Research* 435: 232–238
- Noar SM, Chabot M, Zimmerman RS 2008 Applying health behavior theory to multiple behavior change: Considerations and approaches. *Preventive Medicine* 46: 275–280
- O'Dowd A 2009 Sedentary lifestyle could be masking serious health problems in children. *BMJ* 339: b5646
- Olshansky SJ, Passaro DJ, Hershow RC, Layden J, Carnes BA, Brody J, Hayflick L, Butler RN, Allison DB, Ludwig DS 2010 A potential decline in life expectancy in the United States in the 21st century. *New England Journal of Medicine* 352: 1138–1145
- Owen N, Healy GN, Matthews CE, Dunstan DW. 2010 Too much sitting: the population health science of sedentary behavior. *Exercise and Sport Sciences Review* 38: 105–113
- Pagani LS, Fitzpatrick C, Barnett TA, Dubow E 2010 Prospective associations between early childhood television exposure and academic, psychosocial, and physical well-being by middle children. *Archives of Pediatrics and Adolescent Medicine* 164: 425–431
- Prochaska JO 2008 Multiple health behavior research represents the future of preventive medicine. *Preventive Medicine* 46: 281–285
- Prochaska JJ, Spring B, Nigg CR 2008 Multiple health behavior change research: An introduction and an overview. *Preventive Medicine* 46:181–188
- Report of the Kirby Commission 2002. <http://www.parl.gc.ca/37/2parbus/commbus/senate/com-e/soci-e/rep-e/repoct-02vol6-e.thm>
- Romanow Report 2002. http://www.cbc.ca/healthcare/final_report/pdf
- Short KR, Blackett PR, Gardiner AW, Copeland KC 2009 Vascular health in children and adolescents: Effects of obesity and diabetes. *Vascular Health and Risk Management* 5: 973–990
- The First Physical Therapy Summit on Global Health 2007 WCPT Congress. Vancouver, Canada. www.wcpt.org/common/docs/2007/Symposia%20&%20Workshop%20Presentations/GlobalHealth.pdf
- Thorp AA, Healy GN, Owen N, Salmon J, Ball K, Shaw JE, Zimmet PZ, Dunstan DW 2010 Deleterious associations of sitting times and television viewing time with cardiometabolic risk biomarkers. *Diabetes Care* 33: 327–334
- Tufts Managed Care Institute 1998 A brief history of managed care
- United Nations Millennium Summit 2000 Millennium Development Goals. <http://www.undp.org/mdg/basics.shtml>
- Wahdan MH 1996 The epidemiological transition. *Eastern Mediterranean Health Journal* 2: 8–20
- World Confederation for Physical Therapy Website 2010 International Classification of Functioning, Disability and Health
- World Health Organization 1948 Definition of Health. <http://www.who.int/about/definition>
- World Health Organization 2002 International Classification of Functioning, Disability and Health. <http://www.sustainable-design.ie/arch/ICIDH-2PFDDec-2000.pdf>
- World Health Organization 2002 World Health Report 2002: Reducing Risks, Promoting Healthy Life. Geneva
- World Health Organization 2006 Mortality Country Fact Sheets. <http://www.who.int/whosis/mort/profiles/en/>

APPENDIX. The summit four-part survey questionnaire completed by representatives from professional associations (parts 1 and 2; 4. optional) and from physical therapy entry-level education programs (parts 1 and 3; 4 optional)

EPIDEMIOLOGY AND STATUS OF RELATED PHYSICAL THERAPY PRACTICE IN EACH WCPT REGION

E. Dean, PhD, PT (WCPT Summit Leader)

Forward to your Summit Contact or

**Elizabeth Dean, PhD, School of Rehabilitation Sciences, University of British Columbia,
T325-2211 Wesbrook Mall, Vancouver, British Columbia, Canada V6T 2B5
elizabeth.dean@ubc.ca**

THANK YOU VERY MUCH FOR YOUR CO-OPERATION WITH THIS WCPT INITIATIVE TO HELP US ALL SERVE OUR GLOBAL VILLAGE BETTER

1. ALL RESPONDENTS TO COMPLETE.

WCPT REGION (PLEASE CHECK ONE AND SPECIFY YOUR COUNTRY) :

CHECK YOUR REGION	WCPT REGION	YOUR COUNTRY IN THIS REGION
	Africa	
	Asia Western Pacific	
	Europe	
	North America and the Caribbean	
	South America	

2. FOR A REPRESENTATIVE OF THE PROFESSIONAL ASSOCIATION or A GROUP TO COMPLETE.

IN YOUR COUNTRY, GIVE THE PROPORTION (%) OF PHYSICAL THERAPISTS PRACTICING IN THE FOLLOWING PRACTICE AREAS AS A PRIMARY AREA OF PRACTICE :

PRIMARY PRACTICE AREA	% OF PHYSICAL THERAPISTS	PRIMARY PRACTICE AREA	% OF PHYSICAL THERAPISTS
Cancer (oncology)		Musculoskeletal/ Orthopedics	
Cardiovascular		Neuromuscular/ Neurology	
Diabetes		Respiratory	
HIV/AIDS		Tuberculosis	
Accidents		Other	

3. FOR A PHYSICAL THERAPY EDUCATOR OF A SCHOOL OR PROGRAM

TO COMPLETE. PROPORTION OF HOURS (%) TAUGHT IN EACH PRACTICE AREA IN THE CURRICULUM OF THE SCHOOL OR PROGRAM OF PHYSICAL THERAPY (LIST BY EACH SCHOOL/PROGRAM to be completed from someone knowledgeable with the curriculum at each given school/program):

Name of School/Program: _____

Contact Person: Name: _____
 e-mail: _____ Phone number: _____

PRIMARY PRACTICE AREA	% OF CURRICULUM HOURS (CLASSROOM AND PRACTICAL TOGETHER)	PRIMARY PRACTICE AREA	% OF CURRICULUM HOURS (CLASSROOM AND PRACTICAL TOGETHER)
Cancer (oncology)		Musculoskeletal/ Orthopedics	
Cardiovascular		Neuromuscular/ Neurology	
Diabetes		Respiratory	
HIV/AIDS		Tuberculosis	
Accidents		Other	

4. WE SHALL ATTEMPT TO RETRIEVE THIS INFORMATION FROM WORLD HEALTH ORGANIZATION STATISTICS BUT IF OTHERS COULD RETRIEVE IT ALSO, WE CAN CROSS REFERENCE FOR ACCURACY

PREVALENCE OF THE FOLLOWING CONDITIONS IN YOUR COUNTRY (OR NUMBER OF DEATHS IN A GIVEN YEAR) :

CONDITIONS	PREVALENCE OR DEATHS PER YEAR (GIVE YEAR)	SOURCE OF DATA
Ischemic heart disease		
Cancer		
Chronic lung disease		
Hypertension		
Stroke		
Diabetes		
Obesity		
HIV/AIDS		
Tuberculosis		
Accidents		

Physiotherapy Theory Pract Downloaded from informahealthcare.com by Dr. Elizabeth Dean on 06/15/11 For personal use only.