

PHYSIOTHERAPY COMPETENCY EXAMINATION

BACKGROUND ON THE PHYSIOTHERAPY COMPETENCY EXAMINATION

Establishment of the Physiotherapy Competency Examination

Beginning in the 1980's, physiotherapy regulators across Canada identified an interest in and the need for the development of a national regulation examination for physiotherapists. Efforts towards developing such an examination were, in part, meant to ensure that regulators had the direct responsibility to evaluate the entry to practice competency for all Canadian-educated and non Canadian-educated physiotherapists. Having a national standard for entry into practice also meant promoting equity and fairness in the regulation process and facilitating mobility of the physiotherapy labour force across the country.

In the mid-1980's, physiotherapy regulators formed an organization now known as the Canadian Alliance of *Physiotherapy* Regulators (The Alliance). The federation was established through a memorandum of agreement and involved the ten provincial regulatory agencies.

Soon after its formation, The Alliance (incorporated in 1992) established an examination committee, which began a systematic research process. This work led to the development and implementation of the Physiotherapy National Examination (PNE) in 1994, which, following revisions in 1998 and 1999, became the Physiotherapy Competency Examination (PCE).

The Alliance is committed to the development and improvement of regulatory standards of practice for physiotherapists. The Alliance works in the areas of national consistency of registration requirements, national consistency of standards, and administers the Physiotherapy Competency Examination used by most provincial physiotherapy regulators as the entry to practice standard.

The Alliance's member regulators are:

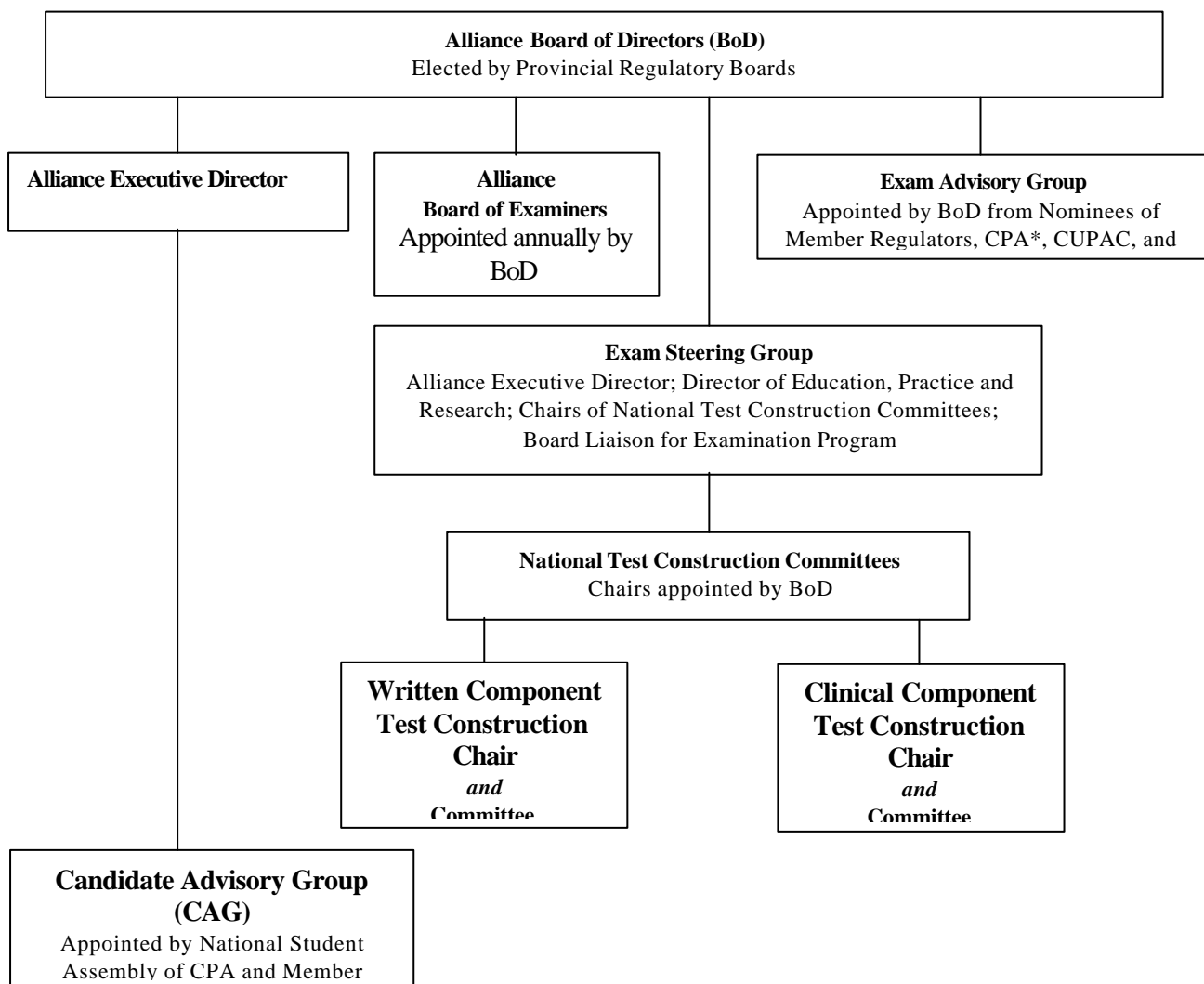
- College of Physical Therapists of British Columbia
- College of Physical Therapists of Alberta
- Saskatchewan College of Physical Therapists
- The College of Physiotherapists of Manitoba (CPTMB)
- College of Physiotherapists of Ontario
- Ordre professionnel des physiothérapeutes du Québec
- New Brunswick Association of Physiotherapists/L'Association des physiothérapeutes du Nouveau Brunswick
- Nova Scotia College of Physiotherapists
- Prince Edward Island College of Physiotherapists
- Newfoundland & Labrador College of Physiotherapists

Who Uses the Physiotherapy Competency Examination

The number of Canadian physiotherapy regulators that use the PCE as part of their registration process has grown since 1994. All provinces except Québec use the PCE as part of the registration process for non Canadian-educated candidates. In addition, currently six regulators use the PCE for Canadian-educated candidates; these are the physiotherapy regulators in British Columbia, Alberta, Ontario, Nova Scotia, Prince Edward Island, Newfoundland and Labrador. The regulator in Manitoba has had the enabling legislation passed and is considering the development of the associated regulation to begin its use.

Governance of the Physiotherapy Competency Examination

The Alliance is governed by a Board of Directors whose members are elected by The Alliance member regulators. There is an extensive structure of committees and groups that ensures input from customers (i.e. candidate and member regulator) and stakeholders (i.e., educational programs and professional association) and the administration and maintenance of a quality examination program. The mandate and accountability of each committee/group are explicitly stated in their terms of reference. The diagram below illustrates the governing structure.



AN OVERVIEW OF THE PHYSIOTHERAPY COMPETENCY EXAMINATION

Purpose of the Physiotherapy Competency Examination

The purpose of the Physiotherapy Competency Examination (PCE) is to determine that a minimal entry-level standard of practice has been acquired by Canadian-educated and non Canadian-educated physiotherapists. The purpose of the PCE is met by conducting a fair and accurate assessment of candidate readiness for independent physiotherapy practice (Canadian Alliance of *Physiotherapy* Regulators, 2000a).

The PCE is designed to evaluate knowledge, skills, attitudes and behaviors at the entry-level of physiotherapy practice. The skills that the examination is designed to evaluate include history taking, physical examination, data interpretation, clinical problem solving, management skills, ethics, safety, interviewing and communication. The examination covers the core clinical practice areas of musculoskeletal, neuromuscular and cardiorespiratory.

Description of the Physiotherapy Competency Examination

Given the purpose of the PCE and what competencies it needed to evaluate, The Alliance worked with testing and measurement experts to identify the most appropriate examination formats to implement. The selected formats were identified as those that could provide the most valid and reliable measures of candidates' readiness to practice safely and effectively, while being practicable.

The PCE is a criterion-referenced examination, which means that it is designed to measure an explicitly specified content domain. Candidates who take the examination either meet or do not meet the established minimal standard for entry-level physiotherapy practice. The Physiotherapy Competency Examination has two components:

1) The Written Component, also called Part 1: Qualifying Exam, evaluates a candidate's knowledge about entry-level physiotherapy skills, behaviours and abilities. It evaluates the candidate's understanding of the principles and processes of entry-level physiotherapy practice. Candidates must successfully complete the Written Component before advancing to the Clinical Component of the PCE.

The Written Component consists of approximately 200 multiple choice items which are administered in one 4 hour session.

2) The Clinical Component, also called Part 2: Physiotherapy National Examination, evaluates the knowledge and application of entry-level skills, behaviours and abilities. It also evaluates a candidate's understanding and performance of safe, effective application of the principles and processes of entry-level physiotherapy practice.

The Clinical Component is an Objective Structured Clinical Examination (OSCE) comprised of 16 stations depicting various clinical scenarios. Eight stations involve a 10-minute encounter with a standardized client and eight other stations involve a 5-minute encounter with a standardized client, followed by a 5-minute written station. It is administered in a 4 hour session.

How the Physiotherapy Competency Examination is Administered

The Alliance administers the PCE and issues a Certificate of Completion of the PCE to all successful candidates. To practise as a physiotherapist in Canada, candidates must apply for registration to the regulator in the province in which they wish to practise and, where it is required, submit the Certificate of Completion as one of the registration requirements.

Eligibility requirements must be met by each candidate prior to writing the PCE. The requirements to be eligible for the PCE are the same for Canadian-educated applicants and non Canadian-educated applicants and include supervised clinical practice, educational credentials, language proficiency and eligibility to practice as a physiotherapist in their country of education. The Written Component is offered 4 times per year at up to 13 sites across Canada; the Clinical Component is administered two times per year at up to eight sites.

Key Examination Policies

The Alliance has created policies and procedures to ensure that the most valid, reliable and fair examination results are obtained. The Physiotherapy Competency Examination is designed to ensure consistency with established standards for examinations (American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education, 1999), meeting accepted testing principles and psychometric properties, with specific attention to candidate fairness and ensuring program sustainability through a well developed program of quality control, research and program renewal.

Evidence of consistency with examination standards, testing principles and psychometric properties include the well documented and practiced policies and procedures and the two separate positive external reviews done by experts in licensure examinations (Norcini, 1998; Page, 1996).

Attention to candidate fairness includes having a Candidate Advisory Group to provide input and advice on administrative and operational matters, in addition to providing an explicit code of behavior for candidates to protect against unfair advantages among candidates and maintain the security of the examination. Other elements with respect to candidate fairness include providing accommodations for candidates with special needs, communicating all requirements to all candidates (e.g., strict deadlines for application, established examination sites, etc.) to take the examination. Most importantly there are standardized security, administration, scoring and evaluation protocols (guidelines, incident reports, statistical analysis, etc.) that ensure that a result obtained by a candidate on the Written Component or on the Clinical Component would be the same regardless of the particular form of the Written Component a candidate writes or of the particular site and set of physiotherapist examiners for the Clinical Component.

The well established efforts for program sustainability are described later in the paper (see page 7). The quality control and research is found in the section on the Monitoring and Evaluation Program of the Physiotherapy Competency Examination.

VALIDITY EVIDENCE

Exam Development

The validity of the PCE results can be best demonstrated through evidence of content validity. In this regard, the entire examination development framework relies on extensive input and feedback from content experts who confirm that what is being measured is precisely what the exam intends to measure.

The process begins with the identification of what the PCE needs to measure. The examination is based on a thorough analysis of the practice requirements of the entry-level physiotherapist in Canada. This analysis is updated periodically to ensure that the exam measures a complete and relevant set of competencies or “activities” required for safe and effective practice. In the latest updating exercise, in 2000, over 1,000 Canadian physiotherapists were invited to evaluate the activities that were being proposed as essential for safe and effective entry-level physiotherapy practice.

From these competencies, the PCE blueprint is updated to reflect how the examination is to be developed. One means used to ensure that any form of the exam is comparable to the next is by clearly delineating the percentage of the exam that will be dedicated to the different physiotherapy functions and to the different areas of practice. The blueprint also specifies which component(s) of the PCE (i.e., Written, Clinical or both) will serve to measure each entry-level “activity” that the analysis of practice identified as essential. In addition, the blueprint specifies what percentage of the PCE will be dedicated to measuring each “activity”.

From this point on, the development of the Written Component and the Clinical Component are separate lines of activity. In each case the Item Generation Sub-committees produce exam content that is subsequently reviewed by the Test Construction Committees. Formatting and copy editing are performed before initiating a thorough translation process.

In 1998, the College of Physiotherapists of Ontario independently commissioned Dr. John Norcini, an established expert in licensure examinations, to evaluate the national examination program. In his review of the program, Dr. Norcini (1998, p.3) commented on the development of the PCE:

“This is a textbook example of the way to develop test specifications. It is thorough, convincing, and sophisticated. Moreover, the list of the entry level activities includes certain aspects of competence that can only be assessed in an examination format like the Objective Structured Clinical Examination.”

The work of staff and of the committees/working groups is supported on a regular basis by external testing and measurement experts. Specifically, Dr. Ernest Skakun of the University of Alberta and Dr. Arthur Rothman of the University of Toronto provide services for the development and administration of the Written Component and the Clinical Component, respectively. This includes assisting in the production of appropriate guidelines for meeting the requirements of the generally accepted measurement and testing standards (American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1999). Once the exam content is produced, it is fully verified for accuracy and for whether it conforms to the blueprint criteria. The exam is then ready for administration.

Exam Administration and Scoring

To have confidence in the validity (appropriateness) including the reliability (or dependability) of the exam results produced, it essential to have standardized administration conditions and scoring protocols. Some of the steps taken in this regard by The Alliance include the development and consistent use of decision rules for the Board of Examiners; standardized, quality control of examination administration and scoring of results to ensure equity and fairness for all candidates; standardized communication of exam information to candidates; selection of testing sites according to set criteria; training of exam site coordinators, of the standardized clients, and of the physiotherapist examiners; verification of the quality of the multiple choice questions through statistical analysis; verification of borderline results; documentation of all procedures; standardized data collection/evaluation sheets; and many more. As with the development of the exam, testing and measurement expertise is provided by Drs. Skakun and Rothman.

Number of Candidates and Pass Rates on the PCE

The number of candidates taking the exam has been growing since its introduction. In 1995 just over 300 candidates wrote the Written Component of the PCE. By the end of 1999, 561 candidates had taken the written component, almost doubling the initial numbers.

Presently most entry-level Canadian-educated physiotherapists now do the Physiotherapy Competency Examination upon graduation. In 2000, 480 or approximately 70.1% of the graduates of the 13 Canadian accredited physiotherapy programs (Canadian Physiotherapy Association, 1998) registered for the Written Component and/or the Clinical Component. With the exception of graduates of the education programs in Quebec, the registration is generally consistent for most candidates regardless of whether the province of education requires the exam for licensure.

While the province of education is not an indicator of present or future work locations, it is likely reasonable to assume that a majority of entry-level Canadian-educated graduates work in the province of education. In 2000, 391 or approximately 81.5% of all Canadian-educated candidates were educated in provinces that require the examination for licensure.

There is also a growing number of candidates from provinces that do not require the PCE (i.e., Québec, New Brunswick, Manitoba and Saskatchewan). It is unclear what is driving this action but likely includes choosing to take the PCE in anticipation of one day moving to a province that requires it for registration. Indeed, the statistics show that of the graduates of English physiotherapy education programs from provinces not requiring the PCE, 55 to 87% have selected to take the national examination in 2000. This does not appear to be a trend for graduates of French programs. The following two tables provide the available statistics.

PROGRAM	ANNUAL # OF GRADUATES (Canadian Physiotherapy Association, 1998)	NUMBER OF GRADUATES TAKING THE EXAMINATION FOR THE FIRST TIME			
		1999		2000	
Université Laval	70	0	0%	2	2.9%
Université de Montréal	62	3	4.8%	2	3.2%
McGill University	60	30	50.0%	33	55.0%
University of Manitoba	30	18	60.0%	19	63.3%
Univ. of Saskatchewan	30	23	76.7%	26	86.7%

There is no physiotherapy program located in the province of New Brunswick. An estimate of the numbers was obtained by comparing the number of examination candidates residing in New Brunswick with the number of new registrants in the province of New Brunswick.

	1999		2000	
Number of New Brunswick residents taking the examination for the first time	13		14	
Estimate of new registrants in New Brunswick	25		25	
Number of new registrants in New Brunswick who took the examination	18	72%	18	72%

Over the past five years (i.e., 1995-1999), the pass rates for the Written Component have remained very stable for the Canadian-educated candidates with 99% passing¹. The pass rates fluctuate more for the non Canadian-educated candidates (i.e. 64.5 to 81.5%) but this is reasonable given the heterogeneity of this group and the small and varying numbers (typically between 7.5 to 12.8% of the total candidate population in a year).

The number of candidates taking the Clinical Component has also almost doubled with 330 candidates taking the Clinical Component in 1995 and 602 candidates in 1999. The passing rate on the Clinical Component (i.e., 84.4% to 95.9 %) is lower than on the Written Component, both for the Canadian-educated and non Canadian-educated candidates. As with the Written Component, fluctuations are more pronounced for candidates educated outside Canada (42 to 67.9 %) which can be also be attributed to the variance in the preparation and number of candidates taking the exam.

The pass rate information for the Physiotherapy Competency Examination is similar to pass rate information available from other entry-level licensure examinations.

MONITORING AND EVALUATION PROGRAM FOR THE PHYSIOTHERAPY COMPETENCY EXAMINATION

Overview

In 1996, The Alliance introduced a formal research and quality assurance program. Although on-going monitoring and evaluation was occurring before this time, the Monitoring and Evaluation Framework that was developed as part of this initiative made for more structured and long term plans for these activities. It also was established to allow The Alliance to incorporate the research and monitoring priorities of the PCE stakeholders and provide for regular reports of results in this area.

¹ The overall passing score for the Written Component is under review and scheduled for recalibration. During 1999 and 2000 the Written Component Test Construction Committee has reviewed and recalibrated the passing score for each of the questions in the examination bank. In 2000, the Board of Examiners will review and recalibrate the overall passing score for the Written Component, which may effect the overall passing rates for 2001 and beyond.

Norcini Report and Follow-up

Dr. Norcini (1998, p.13) summarized his review of the adequacy of the exam from a psychometric perspective (i.e, the science of performance evaluation) by noting the national exam program was:

“...adequate from a psychometric perspective. There is an explicit purpose for the PNE that is clearly stated and widely communicated. It is supported by a thorough and sophisticated set of test specifications. The members of the writing committees represent the important content of physiotherapy practice and their training and on-going support is adequate to the task. Likewise, the selection and training of standardized clients and examiners has been done well. There are clear lines of authority, central control, proper criteria for selection, adequate time devoted to training and good training materials.”

His review did uncover some areas that he suggested warranted further consideration. Eight specific suggestions were made in his report. Since that time, The Alliance, in addition to the regular evaluation and research activities, has addressed or has made plans to address all eight of the comments made by Dr Norcini (Canadian Alliance of *Physiotherapy* Regulators, 2000b).

The Study to Examine the Structure and Cost of the Examination

Also in 1998 and as part of the Monitoring and Evaluation Program, a comprehensive study on the national examination program examined the structure and cost of the examination. The study was undertaken to evaluate the effectiveness and efficiency of the examination program in meeting the future needs of The Alliance and its member regulators. More specifically, the study examined the current program and alternative examination models, with associated resource implications, in view of reducing, if possible, the overall costs for operating and maintaining a valid, reliable and fair examination program.

The study, which was conducted by Assessment Strategies Inc. included: a report on the environmental factors affecting the need for the exam; a review of recently published evaluation literature; data collection and analysis on the activities performed by entry-level physiotherapists and their link to the two components of the examination; a review of current practices of other national examination programs; a survey of recent candidates on the timing of the administration of the examination; advanced statistical analysis of the examination; stakeholder feedback on alternative models; and recommendations. One of the key findings of this study was the strong evidence of the continued need for a two-component format for the national examination program, with a prominent role for the Clinical Component.

After consideration of the recommendations made in the report, the member regulators approved that The Alliance implement the Physiotherapy Competency Exam, a staged evaluation with a written component (a shorter multiple choice exam) and the clinical component (an OSCE of fewer stations).

Future Plans for the Physiotherapy Competency Examination

In the 2000 plans, The Alliance has twenty-four (24) projects and activities that are either on-going or are to be initiated before the year ends. This extensive plan for monitoring and evaluating the Physiotherapy Competency Examination examines issues such as gender bias in the assessment, appropriateness of the safety/professionalism criterion, complaints and incidents management, and many more.

One major project that is being finalized is the re-validation of the analysis of practice that has been determining what the PCE measures since 1997. Re-validating the foundation of the exam will ensure that what will be in the 2001 exam (and beyond) is current and directly relevant to the safe and effective practice of the entry-level practitioner.

For the planned research and monitoring activities, The Alliance makes full use of its internal expertise in the area of measurement and testing and establishes contracts with external testing and measurement agencies and individuals when specific expertise and/or additional resources are required. This has proven to be an effective approach for meeting the research and monitoring goals.

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Prepared by Assessment Strategies Inc.
for the Canadian Alliance of *Physiotherapy* Regulators
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