



Canadian Interprofessional Health Collaborative
Consortium pancanadien pour l'interprofessionnalisme en santé

*learning to work together, working to learn together
apprendre à collaborer, collaborer pour apprendre*

Interprofessional Education & Core Competencies

LITERATURE REVIEW



The *Canadian Interprofessional Health Collaborative (CIHC)* is made up of health organizations, health educators, researchers, health professionals, and students from across Canada. We believe interprofessional education and collaborative patient-centred practice are key to building effective health care teams and improving the experience and outcomes of patients. The CIHC identifies and shares best practices and its extensive and growing knowledge in interprofessional education and collaborative practice.

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In March 2007, the CIHC Curricula Committee commissioned an updated synthesis of IPE competency literature and statements, and identification of continuing gaps in research and literature related to IPE competencies. This literature review is a compilation from the published and grey literature that was available at the time of the review. There are likely other sources that the author was unable to access during the timeline.

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Table of Contents

Acknowledgements	3
Interprofessional Education (IPE).....	5
IPE Around the World	6
Operational Definition: IPE	8
What is Competency?	9
Core Competencies.....	10
Table 1: Core Competencies.....	11
Universities Implementing IPE	13
Table 2: Universities Adopting Core Competencies	13
Core Competencies: Similarities & Differences.....	14
Table 3:Evidence in the Literature: Similarities of Core Competencies	14
Conclusion.....	16
References	17

Interprofessional Education (IPE)

Interprofessional education (IPE) is not a new concept for researchers and professionals in the health care sector. However, after conducting a comprehensive review of the literature pertaining to IPE, it became clear that among the proponents of IPE initiatives, there is a lack of clarity surrounding the concept of IPE. There were several definitions of IPE that span disciplines and geographic locations. Although there may have been overlap in the terminology used to define IPE, in many instances terms were used interchangeably. For example, terms such as 'team-approach' and 'collaboratively' were used in some definitions while other definitions used, 'multi-disciplinary' and 'group-based.' While there were frequent interchanging of terms, their meanings varied in interpretation both 'within' and 'across' health care professionals.¹

In order to attempt to create a common language throughout this paper, operational definitions will be used for the sake of clarity and continuity. The term 'within' will refer to one discipline, for example 'nursing,' whereas the term 'across' will refer to multiple disciplines.

IPE Around the World




According to The World Health Organization (WHO), IPE is “the process by which a group of students or workers from the health-related occupations with different backgrounds learn together during certain periods of their education, with interaction as the important goal, to collaborate in providing promotive, preventive, curative, rehabilitative, and other health-related services.”²

The Center for the Advancement of Interprofessional Education (CAIPE) defines IPE as, “two or more professions learn with, from and about each other to improve collaboration and the quality of care.”³

In the United Kingdom, IPE is being used as a vehicle to drive health care-related policy goals. For example, there is a plan within National Health Service (NHS) in the Department of Health (DOH) that is requesting the creation of a single program for all health care professionals. The goal of the program is to lay a foundation to provide students and staff with the resources they need to be able to change career paths with ease. This initiative will also promote collaboration, team work, and creation of new working atmospheres.⁴

Other international organizations including Organization for Economic Co-operation and Development (OECD) and the World Federation of Medical Education (WFME) have embraced strategies that foster experiences in IPE.⁵

According to Health Canada, “changing the way we educate health providers is key to achieving system change and to ensuring that health providers have the necessary knowledge and training to work effectively on interprofessional teams within the evolving health care system.”⁶ The goals, which are listed on the government’s web site include:

-  Socializing health care providers in working together, in shared problem solving and decision making, towards enhancing the benefit for patients, and other recipients of services;
-  Developing mutual understanding of, and respect for, the contributions of various disciplines; and
-  Instilling the requisite competencies for collaborative practice.⁶

The Canadian government has furthered the concept of IPE to include the patient in their outline of collaboration in the health care sector. Appropriately termed ‘Interprofessional Education for Collaborative Patient-Centred Practice (IECPCP),’ is described as a method of learning together to promote collaboration. IECPCP initiatives will facilitate the implementation of interprofessional education (IE) for collaborative patient-centred practice. Overall, the goals of IECPCP are to improve patient and provider satisfaction and improve patient outcomes.⁶

According to the Interprofessional Education Consortium (IPEC), a funded group of educators, administrators, and evaluators from the United States, IPE is a holistic concept and is defined as “a learning process that prepares professionals through interdisciplinary education and diverse fieldwork experiences to work collaboratively with communities to meet the multifaceted needs of children, youth, and families. It provides the knowledge, skills, and values individuals need to collaborate effectively with others as they serve communities and families.”⁷

D'amour et al defined the term ‘interprofessionality’ in the health domain as “the development of a cohesive practice between professionals from different disciplines. It is the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population.”⁸

Another definition of IPE that appeared in the Journal of Interprofessional care is, “Students from various professions learn together as a team. Their collaborative interaction is characterized by the integration and modification of different professions' contributions in light of input from other professions.”⁹

During an extensive review of the literature related to IPE, it became clear that there were several closely related terms that organizations, such as education institutions, specific health care sectors, researchers and professionals use in order to define or expand on the concept of IPE. It is necessary to explore some of the terms. They include:

COLLABORATIVE PATIENT-CENTERED PRACTICE is “designed to promote the active participation of each discipline in patient care. It enhances patient and family-centred goals and values, provides mechanisms for continuous communication among caregivers, and optimizes staff participation in clinical decision making within and across disciplines fostering respect for disciplinary contributions of all professionals.”¹⁰

COLLABORATION IN HEALTH CARE TEAMS is “an interprofessional process of communication and decision making that enables the separate and shared knowledge and skills of health care providers to synergistically influence the client/patient care provided.”¹¹

EDUCATIONAL CONTINUUM is the movement through the continuum that allows for increased complex knowledge and appreciation of other professions.¹²

Definitions of terms relating to IPE have been born based on previous education, geographic location, and discipline. For example, Watkins et al describe teamwork and its relationship with collaboration as, “the interaction or relationship of two or more health professionals who work interdependently to provide care for patients.”¹³

Pre-licensure and post-licensure education

IPE can take place at any level during a learner’s education. In order to understand the terms related to when IPE takes place, the literature breaks down education into pre and post licensure.

PRE-LICENSURE EDUCATION takes place during formal learning, before being licensed to practice independently, whereas **POST-LICENSURE EDUCATION** refers to education that takes place during independent practice as a health care professional. This would also include continuing professional or graduate-level education.¹⁴

While there are many definitions of what IPE is around the world, it is apparent that in order for educators of learners both within and across health care systems, there is a need for a shared language and interpretation of IPE goals and definition. Since there are many similar definitions that exist relating to IPE, having a single definition and interpretation will alleviate the many questions that exist surrounding IPE goals and boundaries.

Operational Definition: IPE









An operational definition of IPE will be used throughout this article.

IPE – through interdisciplinary education, health care professionals learn collaboratively within and across their disciplines in order to gain the knowledge, skills, and values required to work with other health care professionals.

What is Competency?

Before discussing core competencies within health care, a clarification of terminology is warranted. In the health care literature, the term *competency* is often used to describe the knowledge to be able perform at a particular task. According to Norman,¹⁵ *competency* is more than knowledge. It includes the understanding of knowledge, clinical, technical, and communication skills, and the ability to problem solve through the use of clinical judgment.¹⁵ Competencies are used to create unique standards within disciplines and specialties. This encompasses educators, learners, and practitioners. According to Verma,¹⁶ “competencies in education create an environment that fosters empowerment, accountability, and performance evaluation which is consistent and equitable. The acquisition of competencies can be through talent, experience, or training.”¹⁶

Interprofessional education helps students develop the following collaborative competencies According to Barr,¹⁷ they include:

-  Describe one's roles and responsibilities clearly to other professions.
-  Recognize and observe the constraints of one's role, responsibilities and competence, yet perceive needs in a wider framework.
-  Recognize and respect the roles, responsibilities and competence of other professions in relation to one's own.
-  Work with other professions to effect change and resolve conflict in the provision of care and treatment.
-  Work with others to assess, plan, provide and review care for individual patients.
-  Tolerate differences, misunderstandings and shortcomings in other professions.
-  Facilitate interprofessional case conferences, team meetings, etc.
-  Enter into interdependent relations with other professions.¹⁷

With variations in IPE definitions around the globe, a mutual agreement of core competencies does not exist in the health care sector. By having a consensus on core competencies, the education environment can create a framework. The benefit of such a framework consistency is common core competencies that would create a shared understanding of the language and requirements needed in order to teach and implement IPE goals.

Core Competencies

In 2001 the Institute of Medicine (IOM) published the report *Crossing the Quality Chasm: A New Health System for the 21st Century*. The conclusion of this report was that all health care professionals, in all disciplines, should receive specific education regarding patient-centered care.¹⁸ The training that these professionals receive should be via an interdisciplinary team, with emphasis on evidence-based practice, quality improvement approaches, and information.¹⁸ The IOM report compared competencies both within and across health professionals, which focused on the efforts of the American Board of Internal Medicine Foundation (ABIMF),¹⁹ the American Association of Medical Colleges,²⁰ and the Center for the Advancement of Pharmaceutical Education Advisory Panel on Educational Outcomes.^{21,22} As well, the Pew Health Professions Commission was noted to have several organizations, including the National League for Nursing Accreditation Commission (NLNAC), who reported to be using the Pew's twenty-one competencies for future clinicians.^{16,23} See Table I. In another report by the IOM—*Health Professions Education: A Bridge to Quality*, five core competencies were identified for all clinicians, regardless of discipline. The core competencies as proposed were: *provide patient-centered care, work in interdisciplinary teams, employ evidence-based practice, apply quality improvement, and utilize informatics.*²⁴

Other interprofessional competency statements that have been developed include:

The American Council on Pharmaceutical Education (ACPE) focused on eighteen professional competencies, three of which related to interdisciplinary practice.²⁵ See Table I. One of the competencies created by The Accreditation Council for Graduate Medical Education (ACGME) relates to interpersonal and communication skills that “result in effective information exchange and teaming with patients, their families, and other health professionals.”²⁶ See Table I.

Throughout the search of ‘core competencies’ within the literature, it became evident that organizations including governments, educational institutions, and privately funded groups have developed their own list of competencies. Some of these competencies relate to specific disciplines, and others provide a general list of competencies. For example, seven core competencies were defined by the Interprofessional Education Consortium (IPEC), a privately funded group whose members comprise of five U.S. schools.⁷ See Table I. In the IPEC manual, which provides great detail about each competency, it is noted that, “these are broad, general abilities essential to the practice of interprofessional education.”⁷ As well, there is recognition by the board of directors that, “it is likely these competencies will be modified, interpreted, and/or embellished by individual programs as well as by the changing new field of interprofessional education itself.”⁷

In a review of Ontario-based competencies, Verma et al outlined discipline-specific competencies that exist in the health care sector.¹⁶ Her report outlined the key elements of core competencies for professionals in medicine, nursing, physiotherapy, and occupational therapy. Each discipline was broken down into ‘professional (including health advocate), expert, and scholar.’¹⁶ The key elements of core competencies were then broken down into categories, which included, ‘manager, communicator, and collaborator.’¹⁶ While there was some overlap in the key characteristics of core competencies between the disciplines, there wasn't one definition

or outline of core competencies that all disciplines could share. According to Verma et al, “a common understanding of terms is required beyond the care of patients – indeed even before care is introduced – and this happens at the prelicensure and post-licensure educational environment”¹⁶ Verma et al stated that in order for learners to be able to move toward collaborate practice, there has to be an understanding of core competencies. “The next step would be to develop curricula that allow learners to be educated together so they can work together.”¹⁶

TABLE I: CORE COMPETENCIES

The Pew Health Professions Commission²³	American Council on Pharmaceutical Education (ACPE)²⁵
<ul style="list-style-type: none"> ▪ Embrace a personal ethic of social responsibility and service. ▪ Exhibit ethical behavior in all professional activities. ▪ Provide evidence-based, clinically competent care. ▪ Incorporate the multiple determinants of health in clinical care. ▪ Apply knowledge of the new sciences. ▪ Demonstrate critical thinking, reflection, and problem-solving skills. ▪ Understand the role of primary care. ▪ Rigorously practice preventive health care. ▪ Integrate population-based care and services into practice. ▪ Improve access to health care for those with unmet health needs. ▪ Practice relationship-centered care with individuals and families. ▪ Provide culturally sensitive care to a diverse society. ▪ Partner with communities in health care decisions. ▪ Use communication and information technology effectively and appropriately. ▪ Work in interdisciplinary teams. ▪ Ensure care that balances individual, professional, system and societal needs. ▪ Practice leadership. ▪ Take responsibility for quality of care and health outcomes at all levels. ▪ Contribute to continuous improvement of the health care system. ▪ Advocate for public policy that promotes and protects the health of the public. 	<ul style="list-style-type: none"> ▪ Evaluate drug orders or prescriptions, accurately and safely compound drugs in appropriate dosage forms, and package and dispense dosage forms ▪ Manage systems for storage, preparation, and dispensing of medicines, and supervise technical personnel who may be involved in such processes ▪ Manage and administer a pharmacy and pharmacy practice ▪ Apply computer skills and technological advancements to practice ▪ Communicate with health care professionals and patients regarding rational drug therapy, wellness, and health promotion; ▪ Design, implement, monitor, evaluate, and modify or recommend modifications in drug therapy to insure effective, safe, and economical patient care ▪ Identify, assess, and solve medication-related problems, and provide a clinical judgment as to the continuing effectiveness of individualized therapeutic plans and intended therapeutic outcomes ▪ Evaluate patients and order medications and/or laboratory tests in accordance with established standards of practice ▪ Evaluate patient problems and triage patients to other health professionals as appropriate ▪ Administer medications ▪ Monitor and counsel patients regarding the purposes, uses, and effects of their medications and related therapy ▪ Understand relevant diet, nutrition, and non-drug therapies ▪ Recommend, counsel, and monitor patient use of nonprescription drugs

<ul style="list-style-type: none"> ▪ Continue to learn and help others learn. 	<ul style="list-style-type: none"> ▪ Provide emergency first care ▪ Retrieve, evaluate, and manage professional information and literature ▪ Use clinical data to optimize therapeutic drug regimens ▪ collaborate with other health professionals ▪ Evaluate and document interventions and pharmaceutical care outcomes
Accreditation Council for Graduate Medical Education (ACGME) ²⁶	Interprofessional Education Consortium (IPEC) ⁷
<ul style="list-style-type: none"> ▪ Patient care ▪ Medical Knowledge ▪ Interpersonal and communication skills ▪ Professionalism ▪ System-based practice 	<ul style="list-style-type: none"> ▪ family-centered practice ▪ integrated services collaboration/group process ▪ leadership ▪ communication ▪ assessment and outcome ▪ social policy issues

Universities Implementing IPE

While learning more about IPE and core competencies, internet-based searches revealed that universities are involved in IPE initiatives. During a narrow-based search, isolated cases were found and two are reported. They include:

The University of Toronto's Council of Health Science and Social Work Deans have taken a proactive stand on creating an environment that will force students to work collaboratively. "...beginning September 2009, all health professional learners must be competent in collaboration by the time they graduate. According to the University of Toronto's Office of IPE web site, the goal of interprofessional education is to prepare health professional students with the knowledge, skills and attitudes necessary for collaborative interprofessional practice."²⁸ See Table 2.

The Task Force on Interdisciplinary Health Team Development at the University of Minnesota developed ten core competencies in response to the question, "What are the competencies necessary to a good team?"²⁹ The competencies were created for the following departments at the university: medicine, nursing, pharmacy, and public health.²⁹ See Table 2.

TABLE 2: UNIVERSITIES ADOPTING CORE COMPETENCIES

U. Minnesota 29	U. Toronto 28
<ul style="list-style-type: none"> ▪ Patient Centered Focus ▪ Establishment of a Common Goal ▪ Understanding of Other Members' Roles ▪ Confidence in Other Team Members ▪ Flexibility in Roles ▪ Joint Understanding of Group Norms ▪ Mechanism for Conflict Resolution ▪ Development of Effective Communications ▪ Shared Responsibility for Team Actions ▪ Evaluation and "Feedback" 	<p>KNOWLEDGE</p> <ul style="list-style-type: none"> ▪ roles of other health professionals <p>SKILLS</p> <ul style="list-style-type: none"> ▪ communicating with others and reflecting upon my role and others <p>ATTITUDES</p> <ul style="list-style-type: none"> ▪ mutual respect ▪ willingness to collaborate ▪ openness to trust

Core Competencies: Similarities & Differences

Within the literature certain concepts were mentioned repeatedly in definitions surrounding the concept of IPE. Definitions taken from different organizations around the globe commonly used the terms, ‘collaboration’ and ‘team work.’ When outlining and defining core competencies, some of the most common terms included, ‘problem-solving,’ ‘decision-making,’ ‘respect,’ ‘communication,’ ‘shared knowledge and skills,’ and ‘patient-centered practice’ frequently arose throughout the global literature. Of the definitions outlined in this paper, the commonly used terms are summarized in Table 3.

TABLE 3: EVIDENCE IN THE LITERATURE: SIMILARITIES OF CORE COMPETENCIES

Core Competencies	ACGME	Barr	Health Canada	IOM	IPEC	U. Minnesota	U. Toronto
Problem Solving		✓	✓			✓	
Decision Making			✓				
Respect		✓	✓			✓	
Communication	✓				✓		✓
Shared Knowledge and Skills		✓				✓	✓
Patient-Centered Practice			✓	✓	✓	✓	
Work collaboratively (or as a team)		✓	✓	✓	✓	✓	✓

There were several commonalities amongst core competencies between organizations. It was noted that throughout the literature review, several organizations followed some, if not all of the Pew Health Professions Commission list of core competencies to some degree. However, it was noted that far more differences existed between competencies, which may have been due to the level of specificity that organizations used, making their competencies very discipline-specific. For example, the ACPE competencies: *evaluate drug orders or prescriptions, accurately and safely compound drugs in appropriate dosage forms, and package and dispense dosage forms, manage systems for storage, preparation, and dispensing of medicines, supervise technical personnel who may be involved in such processes, and manage and administer a pharmacy and pharmacy practice*,²⁵ would not be suitable for a professional outside of the discipline of pharmacy. Although the ACPE have created very discipline-specific competencies, it is possible to argue that the above mentioned competencies are simply an expansion of the generalized competencies devised by the Pew Health Professions Commission. For example: the ACPE’s *evaluate drug orders or prescriptions, accurately and safely compound drugs in appropriate dosage forms, and package and dispense dosage forms*, could arguably be categorized under any one of the following competencies outlined by

the Pew, which include: *embrace a personal ethic of social responsibility and service, exhibit ethical behavior in all professional activities, provide evidence-based, clinically competent care, and demonstrate critical thinking, reflection, and problem-solving skills.* ²⁵

Even though there were similarities found amongst various organizations' lists of core competencies, there was a lack of consistency in how they were presented, opening the door to multiple interpretations. There were far more differences found amongst lists of core competencies devised by organizations. These differences were mainly due to discipline-specific goals and variations in terminologies used.

Conclusion

IPE was constructed in order to meet the challenges of creating a common platform on which health care professionals can work as a team. Around the globe, several definitions exist, many of which overlap one another. However, in the literature there is evidence that mounting barriers exist with the successful implementation of IPE programs. The first barrier is the lack of uniformity with varying definitions of IPE around the world.³⁰ There is growing number of definitions of IPE in the health care field and while they all may describe similar goals, there is not a common set of goals that every discipline can adhere to. The second challenge is that the intended audience has differing interpretations of what IPE is. In order to develop effective education strategies, there must be agreed upon goals that educators, learners, and professionals understand. It is not enough that discipline-specific core competencies exist or even that general core competencies are formulated for groups of schools or within a particular organization because while the learning done in a protected environment may be transferred, it may not be maintained because of the lack of uniformity.²⁴ In order to create a solid platform on which all health care professionals can relate to, some researchers and professionals believe that a set of global core competencies would solve the growing issues surrounding IPE. However, today those common goals do not exist. The same issues that surround IPE are also a concern when it comes to core competencies.¹⁶ Although clearly-defined competencies do exist, they are bounded to disciplines, geographical locations, and varying interpretations. Throughout the literature, it became evident that there is a lot of useful information about IPE and less about core competencies. While it is admirable that disciplines within the health care system are taking the initiative to develop and implement core competencies, it is simply not enough. The lack of common language and openness for interpretation begs the question, how useful is the information in the literature if the benefits are simply interpreted? The following three recommendations make up a recipe for successful IPE understanding and implementation. First, a global definition of IPE should exist that encompasses every health care discipline. This definition should be detailed enough so that it leaves no room for interpretation is Second, IPE should be comprised of a common set of goals that every discipline can adhere to. Third, one set of core competencies should exist, regardless of discipline and geographic location. Creating a common platform for educators, learners, and professionals is the start to moving toward a unified health care system.

References

1. Barr, H. (2005). *Interprofessional education. Today, yesterday and tomorrow. A review.* UK Centre for the Advancement of Interprofessional Education. Oxford, UK: Blackwell Publishing Ltd.
2. *Learning together to work together for health. Report of a WHO study group on multiprofessional education of health personnel: the team approach.* World Health Organization Technical Report Series. Geneva: World Health Organization, 1988;769:1-72.
3. Centre for Advancement in Interprofessional Education (CAIPE 2002) *Interprofessional education – a definition.* Retrieved April 5, 2007 from <http://www.caipe.org.uk/>
4. Department of Health (2000) *A Health Service for all the talents: developing the NHS workforce.* London: Department of Health
5. Oandasan, I., Reeves, S. Key elements for interprofessional education. Part 1: The learner, the educator and the learning context. [Electronic version]. *Journal of Interprofessional Care*, 19:2, 21 - 38
6. Health Canada: *Interprofessional Education on Patient Centered Collaborative Practice (IECPCP).* Available at <http://www.hcsc.gc.ca/english/hhr/research-synthesis.html>; accessed April 15, 2007.
7. Interprofessional Education Consortium (IPEC). (June, 2002). *Creating, Implementing, and Sustaining Interprofessional Education, volume III of a series.* [Electronic version]. San Francisco, CA: Stuart Foundation.
8. D'amour, D., Oandasan, I. (2005). *Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept.* *Journal of Interprofessional Care*, 19 (2), 1356-1820. Retrieved May 4, 2007 from <http://www.informaworld.com.proxy1.lib.uwo.ca:2048/10.1080/13561820500081604>
9. Clark, P.G. (1993), *Journal of Interprofessional Care*, 7(3), p. 219-220.
10. Health Canada (2001) *Social accountability: A vision for Canadian medical schools.* Ottawa: Health Canada.
11. Way, D., L. Jones, et al. (2001). *Improving the effectiveness of primary health care through nurse practitioner / family physician structured collaborative practice.* University of Ottawa: 1-57.
12. Adapted from Clark, P.G. (1993), *Journal of Interprofessional Care*, 7(3), p. 219-220.
13. Poulton, B. *Teamwork and team development in health care social care.* In Watkins D, Edwards J, Gastrell P (2003). *Community Health Nursing Frameworks for Practice*, 2nd edition. Edinburgh: Bailliere Tindall.
14. Oandasan, I., Reeves, S. (2005). *The learner, the educator and the learning context.* *Journal of Interprofessional Care (Volume 19) Supplement 1*: 39 – 48
15. Norman GR: *Assessing Clinical Competence.* New York: Springer; 1985: pp 330-341
16. Verma, S., Paterson, M., & Medves, J. (2006). *Core Competencies for Health Care Professionals: What Medicine, Nursing, Occupational Therapy, and Physiotherapy Share.* *Journal of Allied Health*, 35, 2, 109-116.
17. Barr, H. (1998). *Competent to collaborate: towards a competency-based model for interprofessional education.* *Journal of Interprofessional Care*, 12(2):181-186
18. Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century.* Washington, DC: National Academies Press, 2001.
19. ABIM Foundation. *Medical professionalism in the new millennium: a physician charter.* *Ann Intern Med* 2002; 136:243-6.
20. American Association of Medical Colleges. *Medical school objectives project, 2001.* At: www.aamc.org/meded/msop/start.htm. Accessed: April 12, 2007.

21. Center for the Advancement of Pharmaceutical Education [CAPE] Advisory Panel on Educational Outcomes. Educational outcomes, 2004. At: www.aacp.org. Accessed: April 12, 2007.
22. Halpern R., Lee, M.Y., Boulter, P.R. & Phillips, R.R. A synthesis of nine major reports on physicians' competencies for the emerging practice environment. *Acad Med* 2001; 76: 606-15.
23. O'Neil, E.H. and the Pew Health Professions Commission (1998). *Recreating health professional practice for a new century: the fourth report of the PEW Health Professions Commission*. San Francisco: Pew Health Professions Commission.
24. Institute of Medicine (2003). *Health professions education: a bridge to quality*. Washington, DC: National Academies Press.
25. American Council on Pharmaceutical Education. *Accreditation standards and guidelines for the professional program in pharmacy leading to the Doctor of Pharmacy degree*. 1997. At: www.acpe-accredit.org. Accessed: April 17, 2007.
26. ACGME 2002. At: www.acgme.org. Accessed: April 17, 2007.
27. National League for Nursing Accrediting Commission. At: www.nlnac.org. Accessed: April 17, 2007.
28. University of Toronto. *Health Professional Collaborator Competencies*. Accessed April 19, 2007, from <http://ipe.utoronto.ca/Educators/competencies.htm>
29. University of Minnesota. (1996, September 1). *A Report by the Academic Health Center Task Force on Interdisciplinary Health Team Development*. Accessed April 19, 2007, from <http://www.ahc.umn.edu/tf/ihtd.html>
30. Shewchuk RM, O'Connor SJ, Fine DJ (2005). Building an understanding of the competencies needed for health administration practice. *Journal of Healthcare Management*, 50(1): 32-47.