Literature Review, Environmental Scan and Report on Continuing Education for Health Care Providers in Canada

Final Report

Submitted to:

Health Canada
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Executive Summary

A key principle of continuing education (CE) is that learning must be viewed as a lifelong endeavor, something which professionals aspire to in pursuit of knowledge and skills in order to maintain competency in their field of practice. Another important principle is that ultimate responsibility for learning should rest with the individual practitioner. It is the ideal of every profession that each professional should maintain a continuing concern for his or her own education and that CE should be something which is carried out throughout a lifetime of practice. Obstacles to CE access and participation are of great concern for rural, remote and northern health care professionals who are expected to maintain their skills in an ever-changing and developing field of practice.

The retention of health care professionals, especially those working in rural, remote, inner city, and Aboriginal communities, has been identified as a key issue for the sustainability of the Canadian health care system. Factors associated with professional isolation, as well as access to continuing education, are believed to have significant influence on recruitment and retention of health care professionals in these various communities. The objectives of the environmental scan and literature review study presented in this report are to:

- provide an overview of the nature and characteristics of the continuing education system for health care professionals in Canada;
- identify barriers to access to continuing education for health care professionals in rural, remote, northern, Aboriginal and inner city communities in Canada; and
- produce an inventory of best practices for improving access to and delivery of continuing education to health care professionals in rural, remote, northern, Aboriginal and inner city communities in Canada.

A variety of methodologies were used to gather information as part of the environmental scan which was conducted for this study. The key methodologies used were: key informant interviews; Web-based online surveys; Web site review; and follow-up telephone consultations. The information gathered from these methodologies was reviewed and analyzed in order to provide an overall view of the continuing education (CE) system in Canada for family physicians, specialists, nurses, licensed practical nurses, pharmacists, mental health workers (i.e. psychologists and social workers), rehabilitation workers (i.e. occupational therapists, physiotherapists, speech language pathologists and audiologists), medical diagnostic technologists (i.e. medical laboratory technologists and medical radiation technologists), and home support workers.

Key informant interviews were conducted with senior organizational representatives representing a variety of national organizational bodies. Requests for interviews were distributed via e-mail to twenty-four (n = 24) different organizations. Key informant interviews were conducted with twenty-one (n = 21) individuals, each of whom responded to our request and consented to be interviewed. Two versions of a Web-based online survey were developed and distributed to provincial bodies representing professional associations, licensing and professional regulatory bodies. Survey respondents were asked to describe the general nature of the continuing education system at the

provincial level for their respective profession. As part of this description they were also asked to indicate whether the CE system was mandatory (i.e. CE is required to maintain certification or licensure to practice) or voluntary; the regulatory nature of the system within their jurisdiction; and the organizations/providers that organize and deliver CE to health professionals in their field. Data collected through the environmental scan was verified and validated by follow-up telephone calls with the respective health professional association and/or regulatory body for clarification. The Web sites of the regulatory and licensing organizations contacted for this environmental scan were also reviewed in order to validate the information gathered and presented in this report. The information compiled and presented in this report is up-to-date as of October 15, 2004.

A literature search and review was also conducted of both the English and French peer-reviewed and "grey" literature. The searches were conducted using the following databases: MEDLINE, CINAHL, IPA, the Canadian Research Index, Health Business Full Text Elite, CISTI Source, WHO Catalogue, CBCA-Education, and EMBASE. The following key criteria were used in selecting articles for inclusion in the study:

- access to CE and retention of health care workers;
- rural, remote, aboriginal or inner city health care workers;
- physicians, nurses, nurse practitioners, mental health care workers, rehabilitation professionals, medical laboratory and radiological technicians.

The findings of the environmental scan provide a view of the nature and characteristics of the CE system for health care professionals in Canada. National systems of continuing education were found to exist for family physicians, medical specialists, and speech language pathologists and audiologists. These particular CE systems are regulated and monitored by a national professional body and are based on re-certification, not re-licensure. The voluntary vs. mandatory nature of CE systems for the professions of Nursing, Pharmacy, Social Work, Occupational Therapy, Physiotherapy, Psychologists, Medical Laboratory Technologists, and Medical Radiation Technologists varied across provincial jurisdictions. Some professions appeared to have well established or developed systems of CE across the provinces, in particular Nursing and Pharmacy.

Geographic isolation was identified as a key barrier to participation in CE and in access to CE through the environmental scan. This was a more prominent barrier for health care professionals in rural, remote, northern and Aboriginal communities. Poor technological and telecommunications infrastructure was perceived as an important barrier to delivering CE to rural and Aboriginal communities. Financial factors also appeared to be a major barrier to the effective delivery of CE to health professionals in rural, remote, northern, Aboriginal and inner city communities. Financial barriers included factors that affected both the delivery of programs from a provider perspective, as well as the ability of health professionals to access and participate in programs.

As part of the environmental scan, key informants and survey respondents were asked to report on their knowledge of 'best practices' for improving access to and delivery of CE in rural, remote, Aboriginal and inner city communities. Distance learning and telehealth projects were two 'best practice' areas which were identified by most respondents. The delivery of regional CE activities and the implementation of self-directed learning programs as components of mandatory CE systems were also identified as best practice strategies. Employer-sponsored initiatives were also believed

to be important and specific aspects were described as including but not limited to: staff coverage or locum support; remuneration for time off - particularly important for fee-for-service practitioners; and paid travel expenses for health professionals participating in CE.

The majority of indicators described by the respondents for measuring success fell within two broad themes: (1) improved CE involvement; and (2) improved practice by health professionals. Greater attendance at CE events and increased participation in CE were identified by a large number of respondents as key indicators of improved access to and participation in CE. Indicators of improved practice by health professionals were also identified by a number of respondents. Improved knowledge/skills, application of new knowledge to practice, positive changes in behavior, and ultimately improved patient/health outcomes were the main indicators identified in this area.

The results of the literature review suggest there is a general lack of rigorous evidence across the professions, as well as national and international jurisdictions, to support a link between access to continuing education and retention of health professionals in rural, remote, northern, Aboriginal and inner city communities. Anecdotal evidence reported in the literature and numerous descriptive studies suggest overwhelming support for the importance of CE access in reducing professional isolation, enhancing recruitment and retention of rural health care professionals, and supporting rural and remote health professionals in their practices. No evidence does not suggest that a relationship does not exist. Studies do demonstrate that rural and remote health professionals are less satisfied with their CE access than urban counterparts, identify professional isolation as a key problem and challenge, and report professional isolation and lack of CE access as being related to dissatisfaction with rural or remote practice. There is a need for more research in this area.

1.0 Introduction

> *Anybody who has been taught only what to learn has been prepared for the present, which will soon be the past; anybody who has been taught how to learn has also been prepared for the future. (Cyril Houle, 1980)*

Continuing professional education (CPE) or continuing education (CE) is described as comprising all those formal, informal and nonformal learning activities which are intended to enhance and maintain the competencies of professionals. It is learning which takes place once a professional has completed pre-service education and has entered practice. CE may include mandated participation in learning activities in order to maintain licensure or registration, as in mandatory continuing education (MCE), or learning which takes the form of a self-directed nature.

A key principle of continuing education is that learning must be viewed as a lifelong endeavor, something which professionals aspire to in pursuit of knowledge and skills to maintain competency in their field of practice. Another important principle is that ultimate responsibility for learning should rest with the individual practitioner. It is the ideal of every profession that each professional should maintain a continuing concern over his or her own education and that CE should be something which is carried out throughout a lifetime of practice. In many professions such a commitment is explicit in a code of ethics or practice. Mott (2000, p.30) suggests that effective CPE should be:

- Dynamic and reflective of the changing environments presented in professional practice;
- Authentic, with an emphasis on relevant formative and summative self-assessment;
- Practice-based, situated in and drawn from the complexities of practice itself;
- Collaborative, with the focus on communities of practice rather than on individual practitioners;
- Future oriented, ensuring effective practice and competence.

A number of formal, informal and nonformal continuing education methods are used by health professionals to continue with their professional education. Journal reading, collaboration and discussion with colleagues, interactions with pharmaceutical or equipment representatives, utilization of audiotapes, videotapes, or computer software, researching the World Wide Web for lecturing or writing, and attendance at formal educational activities all constitute continuing education activities. Common methods across the professions include attendance at formal CE activities, such as conferences, meeting, workshops and seminars. The use of distance learning to provide CE programming to health professionals is also a common method across professions and jurisdictions.

Nowlen (1988) argues that most CE has traditionally been based on an *update model* which promotes information-intensive, "highly didactic short courses [with the] central aim of keeping professionals up to date in their practices" (p.24). The update model, however, is grounded in a "centuries old positivist paradigm in which knowledge is thought to be in external commodity, a paradigm in which most of us are not taught to be the creators of knowledge used in practice, but merely consumers" (Mott, 1998, p.672). A newly emerging paradigm is one based on a

performance model of continuing education. The performance model is based on "three basic precepts of professional practice: first, practicing professionals are individuals, influenced by their environments, self-images, roles, and values; second, professionals practice in complex networks of interdependent systems; and third, complex performance cannot be significantly affected by any single form of intervention" (Mott, 2000, p.25). This model engages professionals in a critical self assessment and incorporates principles of both the update model and a competence model of professional development. The performance model places greater emphasis on the needs of the professional within his or her context of practice, and promotes the notion of CE as something which supports practitioners within their practice environment.

Many systems of accounting for continuing education are based on clock hours, that is the number of credit hours which an individual has accumulated as evidence of attendance or participation in certain CE activities. While such a system is reported as administratively efficient and manageable, critics argue that measures of extent of participation carry no assurance that desired changes in the competence or performance of participants have occurred. This is the fundamental challenge confronting the continuing education field. Another criticism of the use of participation as a standard is it tends to limit CE to the update model or the 'instructional' mode. The basis for this criticism is that fundamental principles of adult learning suggest that adults are self-directed by nature and that the majority of adult learning is that which is of a self-directed nature. In an update model then, the scope of continuing education is narrowed so that "keeping up to date" is the only purpose. A small number of professions recommend self-assessment tools and some have introduced self-directed learning activities as part of continuing competency plans. Proactive models combine evaluation methods such as continuing education, peer evaluation, professional portfolios, and other professional improvement goals, such as specialty certification.

1.1 Participation in Continuing Education

According to Cervero (1988) a number of characteristics of professionals affect their participation in continuing education. The five key factors which Cervero identified as affecting professionals' participation in continuing education include:

(1) reasons for and deterrents to participation;
(2) professionals' zest for learning;
(3) professionals' ages and career stages;
(4) the basic settings in which professionals work;
(5) requirements for mandatory participation in continuing education.

Professionals report traditional reasons (such as improving professional service) as well as nontraditional reasons (such as personal benefits and job security) for participating in continuing education. Studies across the professions suggest the most important cluster of reasons is professional improvement and development, followed by professional service, collegial learning and interaction, professional commitment and reflection, and personal benefits and job security (Cervero, 1988). A main deterrent to participation in CE has been described as "disengagement" or a general apathy toward participating in continuing education (Cervero, 1988). Dissatisfaction with the quality of available CE, as well as family constraints such as parenting responsibilities, are other

deterrents. The cost of attending programs, the failure to see the relative worth of CE participation, and conflicting demands on professionals' time, particularly scheduling difficulties, are other deterrents as well.

For rural health care professionals a critical issue and challenge is the difficulty they encounter in receiving and participating in CE (Byers, Hilgenberg, & Rhodes, 1996; Latchem & Rapley, 1992). Geographic distance contributes to the cost of attending selected activities and increases the time required to be away from family and work. Arranging the necessary locum or replacement coverage also makes "getting away" difficult. Other barriers cited in the literature include work commitments (i.e. unable to take time away from practice); lack of encouragement from senior staff; lack of information; lack of access to relevant CE courses; the cost of CE courses; lack of compelling goals; and low confidence (Acquilla, O'Brien, & Kernohan, 1998; Furze & Pearcey, 1999; Lazarus, Permaloff, & Dickson, 2002; Leggate & Russell, 2002; Cleaver, 2003; Garrison, Schardt, & Kochi, 2000; Brown, Belfield, & Field, 2002).

Obstacles to CE access and participation are of great concern for rural health care professionals who must maintain their skills in an ever-changing and developing field of practice. Physicians, for example, often report that the potential barriers to accessing continuing medical education in rural areas includes ongoing practice responsibilities, travel distance, and cost. According to McDowell et al. (1987) because of the rural physician's isolation, CE activities are often restricted to individualized reading, completion of self-assessment programs, and participation in the very occasional workshop which involves a guest speaker who visits the community (McDowell et al., 1987). When rural practitioners seek out and make attempts to attend CE conferences in major urban centres, the logistics of arranging practice or hospital coverage, accommodations, and transportation makes participation very difficult.

Several studies have confirmed the existence of unique and varied continuing medical education needs among rural physicians (Rourke, 1988; Woolf, 1991; Kamien & Buttfield, 1990; Gill & Game, 1994). Some studies have also investigated the differences between the rural and urban physician's CE needs (Woolf, 1991; Lott, 1995; Rosenthall & Miller, 1982) and indicate significant differences. A large number of these studies suggest that these differences are influenced by the nature of medical practice and, in some instances, by the distance of a rural medical practice from major urban areas. The further a rural physician is from an urban area and large urban health care resources, the more knowledgeable and competent he/she must be in a greater number of clinical areas. Other rural health care professionals also face barriers in accessing quality CE. Bhatara et al. (1995) surveyed rural mental health professionals and found that the greatest source of job dissatisfaction was lack of CE opportunities. According to Treloar (1985), it is difficult and costly for many rural nurses to travel to high quality CE programs. This is particularly true in areas where travel may be seasonally restricted due to climatic conditions or where educational resources are sparse or poorly distributed. Rural nurses sometimes find it difficult to travel to distant sites to attend CE offerings because staffing and financial constraints often restrict the number of nurses that health care agencies can send to outside courses (Clark & Cleveland, 1984). Providers, as well, often find themselves limited as to the number of workshops that can be presented in multiple locations throughout a large geographic area.

Pharmacists practising in rural areas also report that access to CE opportunities is few and far between. According to Fielding and Dinning (1981) there are a large number of pharmacists who practice in smaller urban centres and rural areas of Canada whose professional development needs are simply not being met. DeMuth (1996) reports that the major barriers for pharmacists' participation in CE are related to time constraints, job constraints (such as lack of relief staff), the scheduling and location of group learning, and family commitments. One of the greatest barriers for rural pharmacists is the centralized location of most face-to-face CE programs. This is a major problem for practising pharmacists because it requires them to travel long distances from their community in order to participate.

Houle (1980) suggests that professionals may also have personality or attitudinal traits that either foster or inhibit their participation in CE. A category of these traits, termed one's 'zest for learning', is believed to be centrally related to participation (Houle, 1980). Zest for learning has been described as "the extent or the desire of an individual to learn ultimately controls the amount and kind of education he or she undertakes". Houle has suggested that practitioners in any profession can be divided into four general groups based on their attitudes toward practice. At the upper limit are the *innovators*, who make up about 2.5 percent. Below them on the curve are: the *early adopters*, 13.5 percent (respectable); the *early majority*, 34 percent (deliberate); the *late majority*, 34 percent (skeptical); and the *laggards*, 16 percent (traditional). Innovators continually seek to improve their performance and are likely to participate extensively in educational activities. They tend to favor sophisticated learning pursuits and have clear-cut plans of independent learning. *Pacesetters,* the next grouping of practitioners, while wanting to be progressive in their practice, are not usually the ones to be first to try a new idea. They value opportunities to be exposed to new ideas and techniques and strongly support group-learning endeavors. A profession's *middle majority* make up most of those in active practice. The rate of participation in continuing education varies, from enthusiasm for gaining new information to apathy toward learning. The *laggards* learn only what they must in order to stay in practice: "Their ideas have hardened: Their old skills deteriorate and they adopt few new ones" (Houle, 1980, p. 159). Their resistance to learning is high.

Oddi (1987) argues that an important dimension of professionals' zest for learning is the extent to which they possess a trait called self-directedness in learning. She hypothesizes that three dimensions underlie the extent of one's self-directedness. The first is focused on the professionals' ability to initiate and persist in educative activities without immediate or obvious external reinforcement. The second attribute is the extent to which professionals are open to change. The third dimension is professionals' commitment to learning, the valuing of learning for its own sake. There is evidence to support the notion that professionals' participation in educative activities is related to their zest for learning. Those who have a great deal of interest in learning participate in a greater number of activities, as well as different types of activities. The stages of career and life development also appear to be important factors in the extent and nature of professionals' participation in educative activities. A nearly universal finding is that older professionals' tend to participate in fewer formal educational activities than younger professionals.

1.2 Credentialing and the Professions

According to Houle (1980) a key characteristic of professionalization is that formal means are normally used to assess the capacity of individual practitioners to perform their duties at an acceptable level and, in some cases, to license those who are qualified to do so. A recognition of the need for formal credentialing systems was a key element in the evolution from individualized and unregulated practice to modern professionalism (Houle, 1980). The development of formalized regulatory systems for credentialing has established basic levels of competence that individuals entering any profession must reach before being allowed to work as a fully qualified practitioner. Becoming a professional also implies a commitment to continuing one's education. As a result of advances in knowledge and technology, as well as public demands for accountability and consumer protection, the number of jurisdictions requiring mandatory continuing education for various professions has significantly increased over the years (Queeney & English 1994).

A professional license is normally issued by a government body, whereas a certificate is issued by a private organization or association. In contrast to a statutory or regulatory requirement, certification is a voluntary program that confers recognition of excellence. Specialty credentials are granted to practitioners who voluntarily meet additional requirements beyond the minimum competencies required for licensure, thus ensuring that they meet the high standards in an area of specialization. In some instances advanced credentialing is largely under the control of private associations (sometimes called “colleges” or given other special designations), which may elaborate requirements for further study, experience, and examination beyond that deemed essential for initial practice. Normally, the resulting credentials are certificates of specialized competence. This advanced credentialing exemplifies the type of certification which is provided by the Royal College of Physicians and Surgeons of Canada (RCPSC) to medical specialists.

In most instances, both licensing and/or certification are based on an examination of whether individuals meet predetermined criteria established by the granting agency. Entry to practice in most professions is based upon affirmation of competency to practice in that particular profession. Competence can be measured in a number of ways: achievement of at least a passing score on an examination; completion of an approved program of study; demonstration of satisfactory performance; and testimony from a recognized authority that the individual should have the right to practice. Sometimes two or three basic methods are used; for example, completion of an approved program of study may be required before an applicant is admitted to an examination that measures knowledge of competence.

The concept of re-credentialing has also developed into a regulatory system of its own and as a means for monitoring professional practice. Also know as re-accreditation, re-licensure, and re-certification, these systems are adaptations of the regulatory mechanisms that have been established to govern entry into a profession. Cervero (2000) suggests that continuing education is being used more frequently as a tool for re-credentialing and regulating professional practice. However, while participation in CE has become the most widely accepted mechanism to monitor professional practice, the literature suggests that this does not always guarantee competence throughout a person’s career. With some exceptions, the licensee has only demonstrated that he or she has attended the course; there is no assessment of performance and no requirement to determine

whether the information is relevant to the practitioner's specific work responsibilities or the information has been understood.

Mandatory continuing education (MCE) has become widely accepted across professions and jurisdictions as a re-credentialing mechanism. In these professions and jurisdictions, mandatory continuing education has been linked with re-licensure, re-certification or re-registration and failure to participate may mean that the professional could lose the right to practice, lose membership, and/or not gain re-registration, re-licensure or re-certification. A number of MCE proponents have suggested that it is easier to legislate seat time, clock hours, and classroom time than it is to create and operate systems for measuring competent professional performance. Governmental bodies, professional associations and employers of professionals have supported MCE as a means for addressing public concern about professional incompetence.

1.3 Mandatory Continuing Education

Mandatory continuing education is defined as continuing professional educational courses and/or programs, beyond the entry-level educational requirements, that are taken for credit as required by a licensure board, professional organization, or the workplace, in order to maintain competence or retain licensure, certification, and/or employment. These requirements are usually expressed in terms of contact hours (e.g., 40 hours of continuing education activity) per annual basis (Little, 1993). The impetus for MCE has come from three major sources:

1. Governments and licensing bodies;
2. Professional associations; and
3. Consumer groups.

An increased level of consumer awareness and greater pressure for accountability has brought with it a growing realization that competence must be addressed and a corresponding growth for some demonstration of competence in many professions. In recent decades, exponential increases in knowledge and the advent of technology have altered the expectation that pre-professional education was good for a lifetime. The role of pre-professional education has changed from one of knowledge dissemination to one of exposing students to the basic information and parameters of their chosen field and providing them with the skills to pursue additional education throughout their lives. The notion of CE as being an integral part of their professional lives is a basic message that begins to be delivered with the first pre-professional education courses in many professions. Legislative bodies and professional associations striving to provide increased accountability most frequently turn to MCE as the strategy of choice, considering it the best alternative available to enable them to meet their responsibility of ensuring provision of competent services to society.

Proponents of MCE argue that professionals need to participate in regular CE activities to update their knowledge, skill, and abilities in order to remain competent. In order to ensure the participation of all professionals, they also argue that CE should be mandated as a condition of continued practice. Proponents of MCE also argue that it can result in more efficient, effective practice and can weed out incompetent professionals. Without MCE mandates, those needing CE may be the least likely to pursue it. The result of MCE is that it may motivate participation and

commitment among professional 'laggards' and it may develop in them a renewed enthusiasm for maintaining competence. MCE is believed to be a better alternative than periodic examination or review of practice and mandating continuing education does not lessen its effectiveness.

Opponents to MCE argue that by moving control from the individual, MCE violates fundamental adult learning theory and principles. Professionals should be considered independent, mature, and capable of making wise educational decisions. Professional autonomy means exercising control over one's own education to ensure that it provides experiences that can enhance daily practice. Opponents suggest that MCE has not substantially increased the participation rates of practitioners. Studies of physicians' and of nurses' CE participation have observed that appreciable changes in time spent in CE activities were not found when mandated CE was enacted. Opponents also argue that the quality of participation may be questionable. They believe that intrinsic motivation is critical to the learning process. MCE stifles that motivation and may create a punitive, rather than a positive, context for learning.

Another line of criticism suggests that no evidence exists to indicate that participation in MCE ensures effective or competent performance. Education does not ensure competence and learning cannot be legislated. Few studies have demonstrated a causal relationship between CE and improved practice (Collins, 1991). Attendance at CE programs, which in reality is all that is mandated, is only a measure of time spent and by itself does nothing to improve performance. Performance is influenced by numerous variables (i.e., education, work environment, colleagues), therefore isolating the direct outcomes is a challenge. Yet, if CE is to be mandated, should its effect on competence not be demonstrable?

Opponents also argue that MCE results in 'mass mandated education' which provides inferior learning opportunities as programs are geared towards the median of all. Opponents argue that MCE providers focus on profit-making rather than on the provision of high quality education. A further and more important argument made by opponents against mandatory CE is related to 'access'. Educational opportunities are not readily and equally available to all who may be required to participate in them. They are not available in the formats, locations, time frames, and price ranges that make them accessible to the full range of practitioners. Financial implications can be substantial and especially troublesome for individuals, small organizations, and solo practitioners.

1.4 Continuing Education Providers

The responsibility for providing CE is assumed by wide variety of organizations, institutions, and individuals. The most commonly thought of are professional associations and formal educational institutions. CE opportunities are also developed and implemented by independent education and training brokers, by manufacturers and suppliers of professional supplies and equipment, and by professionals themselves, either individually or in small groups as well as in employment settings.

Cervero (2000) identifies universities and professional associations as important providers, with an increasing number of programs being offered in distance education formats. Nearly every university sponsors continuing education programs either through its various professional schools, such as medicine, social work and engineering, or through a university wide continuing education

unit. Professional associations are also a major provider of continuing education. In fact, education is a major if not the primary function of many associations. More than 5,000 American and Canadian associations and many more state, provincial, and local associations are either organized independently or affiliated with a national body (Cervero, 2000).

Cervero (2000) also suggests there has been an increase in the number of collaborative arrangements among providers, especially between universities and workplaces. Studies of universities and professional schools indicate that anywhere from 60 to 85 percent of their programs involve some form of collaboration. Similar studies have also found that about 50 percent of professional associations and 85 percent of independent providers engage in collaborative programming (Cervero, 2000).

1.5 Purpose of Environmental Scan and Literature Review Study

The retention of health care professionals, especially those working in rural, remote, inner city, and Aboriginal communities, has been identified as a key issue for the sustainability of the Canadian health care system. Factors associated with professional isolation, as well as access to continuing education, are believed to have significant influence on the recruitment and retention of health care professionals in these various communities. The objectives of the environmental scan and literature review presented in this report are to:

- provide an overview of the nature and characteristics of the continuing education system for health care professionals in Canada;
- identify barriers to access to continuing education for health care professionals in rural, remote, northern, Aboriginal and inner city communities in Canada; and
- produce an inventory of best practices for improving access to and delivery of continuing education to health care professionals in rural, remote, northern, Aboriginal and inner city communities in Canada.

2.0 Study Methodology

A variety of data gathering methodologies were used to gather information as part of the environmental scan which was conducted for this study. The key methodologies used were: key informant interviews; Web-based online surveys; Web site review; and follow-up telephone consultations. The information gathered from these methodologies was reviewed and analyzed in order to provide an overall view of the continuing education (CE) system in Canada for family physicians, specialists, nurses, licensed practical nurses, pharmacists, mental health workers (i.e. psychologists and social workers), rehabilitation workers (i.e. occupational therapists, physiotherapists, speech language pathologists and audiologists), medical diagnostic technologists (i.e. medical laboratory technologists and medical radiation technologists), and home support workers. Data collected through the environmental scan was verified and validated by follow-up telephone calls with the respective health professional association and/or regulatory body for clarification. The Web sites of the regulatory and licensing organizations contacted for this environmental scan were also reviewed in order to validate the information gathered and presented in this report. The information compiled and presented in this report is up-to-date as of October 15, 2004. This report also includes an overview of an extensive literature search and review which was undertaken to gather articles and reports on access to continuing education for health care providers in Canada, and other countries such as Australia, the United States, the United Kingdom, and New Zealand. As well, materials from international organizations such as the World Health Organization (WHO) were also reviewed.

2.1 Key Informant Interviews

Key informant interviews were conducted with senior organizational representatives representing a variety of national organizational bodies. Key informants included senior administrators or directors of professional bodies responsible for accrediting or administering CE programs (i.e. College of Family Physicians of Canada), as well as national health professional associations (i.e. Canadian Nurses Association, Canadian Physiotherapy Association, Canadian Pharmacists Association, Canadian Association of Occupational Therapists), national organizations representing health care institutions (i.e. Canadian Healthcare Association) and academic institutions (i.e. Association of Canadian Medical Colleges[1]). Interviews were conducted by telephone and tape-recorded with the permission of the informant. **Appendix A** provides a listing of organizations and individuals contacted as part of key informant interviews. Key informants were asked to describe the general nature of the continuing education system in Canada for their respective profession. They were also asked to describe the particular characteristics of their CE system, including: whether the system was mandatory (i.e. CE is required to maintain certification or licensure to practice) or voluntary; the regulation of their profession's CE system; and the organizations/ individuals that provide CE to health professionals in their field. The key informant interview script is presented in **Appendix B**. Requests for interviews were distributed via e-mail to twenty-four (n = 24) different organizations. Key informant interviews were conducted with twenty-one (n = 21) individuals, each of whom responded to our request and consented to be interviewed.

[1] Recently became known as the Association of Faculties of Medicine of Canada (AFMC).

2.2 Web-based Online Surveys

Two versions of a Web-based online survey were developed and distributed to provincial bodies representing professional associations, licensing and professional regulatory bodies. Survey respondents were asked to describe the general nature of the continuing education system at a provincial level for their respective profession. As part of this description they were also asked to indicate whether the CE system was mandatory (i.e. CE is required to maintain certification or licensure to practice) or voluntary; the regulation of the system; and the organizations/providers that organize and deliver CE to health professionals in their field. The main goals of the online surveys were to supplement the information gathered via the key informant interviews and to examine in greater depth the structure of the CE system for health professionals at the provincial level.

The surveys were designed using a combination of closed and open-ended question types. As mentioned, two versions of the online survey were developed. The first (Web Survey I) was designed to collect data related to the general nature of the CE systems at the provincial level, as well as the barriers in accessing CE and delivering CE to health care workers in rural, Aboriginal communities and inner cities. Best practices for addressing these challenges and key indicators of success were also explored. The survey was distributed to provincial academic institutions, health professional associations, and regulatory bodies. The second survey (Web Survey II) was designed to supplement some of the information collected from the first survey, such as information on the barriers in accessing CE, as well as suggestions for best practices and key indicators of success. It was distributed to national specialty societies; associate, affiliate and emerging groups of the Canadian Nurses Association; national nursing groups; provincial non-governmental associations (NGOs); health organizations; and members of the Canadian Healthcare Association. Copies of Web Survey I and Web Survey II are included in **Appendices C** and **D**, respectively. The complete list of online survey respondents is presented in **Appendix E**. Drafts of both surveys were distributed to Health Canada for review and validation.

Surveys were posted in both English and French during August 2004 using *SurveyMonkey.com* (www.surveymonkey.com), an online Website/service that facilitates the creation and distribution of online surveys. Potential respondents were contacted via e-mail with a message describing the purpose of the environmental scan study and containing a hyperlink to either of the Web-based surveys. In cases where the names of the appropriate contacts were known, surveys were directed towards specific individuals (i.e., Dean, Director, Manager, Registrar) or departments (i.e., CME, Professional Development). In an attempt to increase the survey response rate, the e-mail included a deadline for submission. A second e-mail was disseminated shortly after the first submission deadline had passed. Follow-up telephone calls were also made to non-respondents. The survey findings are detailed in Section 3.3. The data collected related to barriers/challenges in accessing and delivering CE was analyzed using the Statistical Package for the Social Sciences (SPSS 11.0 for Windows). Cross-tab analysis was also used to determine and compare the responses to individual survey items.

2.3 Website Reviews

The purpose of the Website reviews was to verify and validate the information which had been collected via the key informant interviews and from the Web-based online surveys. Each of the Websites for the national and provincial health professional associations, as well as for national and provincial health professional regulatory bodies, was reviewed. Websites were scanned for documents and information related to *"continuing education," "professional development," "education," "continuing competence," "licensure," "registration,"* and *"standards of practice"*. Website reviews were not possible for some provincial associations and/or regulatory bodies. Furthermore, not all provincial associations and/or regulatory bodies included information on CE/professional development. See **Appendix F** for a complete listing of Websites which were reviewed for validation purposes.

2.4 Literature Search and Review

A literature search and review was conducted of both the English and French peer-reviewed and "grey" literature. The searches were conducted using the following databases: MEDLINE, CINAHL, IPA, the Canadian Research Index, Health Business Full Text Elite, CISTI Source, WHO Catalogue, CBCA-Education, and EMBASE. The 'Google' search engine was also used to search the French terms listed in Table 1. The following key criteria were used in selecting articles for inclusion in the study. Studies and/or reports were required to include an explicit and specific focus on:

- access to CE and retention of health care workers;
- rural, remote, aboriginal or inner city health care workers;
- physicians, nurses, nurse practitioners, mental health care workers, rehabilitation professionals, medical laboratory and radiological technicians.

The following steps were taken in conducting this literature search:

- identification of key words and search strategies;
- searches of online databases for potentially relevant articles;
- review of references already in our possession to identify potentially useful studies;
- screening of abstracts to identify articles and reports for further review;
- compilation of the articles and reports listed in the reference list;
- review and classification of the studies collected; and
- review of the reference sections of selected articles and reports for additional studies.

2.4.1 Strategies and Keywords

The following terms were used for the English and French online searches. These terms were usually combined in order to refine the search results:

Table 1
Keywords

English Terms	French Terms
➢ Education-Medical-Continuing	➢ éducation permanente (continuing education)
➢ Education-Continuing	➢ éducation permanente + médicale (continuing medical education)
➢ Education-Nursing-Continuing	➢ éducation permanente + Québec (continuing education in Quebec
➢ Rural Health Personnel	➢ éducation permanente + médicale + centre urbain (continuing medical education inner city)
➢ Outcomes of Education	➢ éducation permanente + médicale + des régions rurales (continuing medical education (rural communities))
➢ Employee Incentive Programs	➢ éducation permanente + médicale + communautés autochtones (continuing medical education (aboriginal communities)
➢ Barriers	➢ éducation permanente + médicale + Québec (continuing medical education (Quebec))
➢ Access	➢ éducation permanente + fournisseurs de soin de santé (continuing education for health care workers)
➢ Accreditation or Credentialing	➢ Télésanté (telemedicine)
➢ Rural	➢ télésanté + Québec (telemedecine in Quebec)
➢ Program Development	➢ obstacles à l`accès à l`éducation permanente (obstacles in access to continuing education)
➢ Program Evaluation	➢ dispensation efficace de l`education permanente (efficient delivery of continuing education)
➢ Physician Incentive Plans	➢ obstacles + éducation permanente + travailleurs de santé (challenges in continuing education for health care workers)
➢ Outcome Assessment Health Care	➢ éducation permanente + infirmières + Québec
	➢ éducation permanente + pharmaciens + Québec
	➢ éducation permanente + psychologues + Québec
	➢ éducation permanente + personnel de la santé et des services sociaux + Québec

2.4.2 Other Searches

Literature database searches are often constrained by the coverage of the databases, the keywords adopted, and the journals indexed. The research team therefore conducted additional searches for information. Searches were conducted of the following potentially relevant sources:

- The online table of contents of the *Canadian Journal of Rural Medicine*, the *Australian Journal of Rural Health*, the *Journal of Rural Health*, and the *Rural and Remote Health Online Journal*.

- Internet – Several relevant Websites were explored for potentially relevant information and/or reports.

Table 2
Relevant Websites

Website	Website URL
Rural Family Medicine	http://www.ruralfamilymedicine.org/
Health Canada – Telehealth	http://www.hc-sc.gc.ca/ohih-bsi/theme/tele/index_e.html
Canadian Rural Information Service	http://www.rural.gc.ca/cris/directories/health_e.phtml
Centre for Rural and Northern Health Research	http://cranhr.laurentian.ca/
Office of Rural Health	http://www.hc-sc.gc.ca/english/ruralhealth/index.html#publications
Office of Rural and Northern Health	http://www.ornh.mb.ca/
Society of Rural Physicians of Canada	http://www.srpc.ca/
WONCA Rural Information Technology Exchange	http://www.globalfamilydoctor.com/aboutWonca/working_groups/write/library.htm
Office of Health and the Information Highway	http://www.hc-sc.gc.ca/ohih-bsi/menu_e.html

3.0 Findings from the Environmental Scan

3.1 Continuing Education System in Canada

A main goal of this study is to describe the general nature of the continuing education system in Canada for each of the following health professions: family physicians, specialists, registered nurses, licensed practical nurses, pharmacists, psychologists, social workers, occupational therapists, physiotherapists, speech language pathologists and audiologists, medical laboratory technologists, medical radiation technologists, and home support workers.

Key informant interviews with representatives of national organizational bodies and online Web-based surveys of provincial bodies representing professional associations and regulatory bodies were undertaken to collect this descriptive information on the nature of both national CE systems and provincial CE systems. A key descriptor which was asked of both the interview respondents and the survey respondents was whether a formalized system of continuing education existed for the profession, whether at a national or provincial level, and whether that system was mandatory or voluntary in nature. The following definitions were included on both the key informant interview script and online surveys as a guide to respondents:

> *Continuing education is defined as the participation in formal, informal or nonformal learning activities which are of an organized or self-directed nature, occur after one has completed their pre-professional education for licensure or practice, and may be voluntary or mandatory.*
>
> *Mandatory continuing education is required by a licensure board, professional organization, or the workplace in order to maintain competence, retain licensure, certification, registration and/or employment.*

The results of the environmental scan suggest that different interpretations and perceptions of 'continuing education' exist across the country. This interpretation varies depending on profession and region. A key distinguishing factor which the study authors were interested in identifying across professions and jurisdictions was whether the CE system was voluntary or mandatory. Mandatory CE is required for re-licensure (other terms used in some professions were re-registration or re-certification), whereas voluntary CE is not. The study findings indicate that mandatory CE is a component of re-licensure, re-registration or re-certification for a number of professions. For national CE systems, such as those found in continuing medical education (CME), the mandatory nature is applicable across jurisdictions. In professions with provincial CE systems, there also appears to be some consistency across jurisdictions in terms of the mandatory nature, and for some professions more so than others. Some professions, particularly those for which licensure is regulated at a provincial level, are moving away from the continuing education unit (CEU) as the basis for meeting re-licensure requirements and are moving towards continuing education in the form of 'continuing competency' or 'quality assurance' programs. This system of continuing competency is very evident for provincial CE systems in the nursing profession. In Ontario, the Regulated Health Professions Act, 1991 (RHPA) requires all regulatory health colleges to administer a mandatory Quality Assurance Program. The program, as defined in the RHPA, is to

"assure the quality of practice of the profession and to promote continuing competence among members" (College of Psychologists of Ontario, 2004). What is considered as formal CE (i.e. attendance in programs, workshops, etc.) serves as an important component of many of these programs, but is not the sole component.

3.1.1 National Continuing Education Systems

Family physicians, medical specialists, and speech language pathologists and audiologists have CE systems that are regulated and monitored at a national level. The nature of the systems, its requirements and monitoring structure are outlined in Table 4. CE for each of these professions is associated with re-certification and not re-licensure. In this regard certification is voluntary and license to practice is not dependent on re-certification. These health professionals are required to participate in continuing education in order to be re-certified as a member of a college or other professional body. As well, registered nurses in Canada have the opportunity to voluntarily receive a specialty certification credential via a certification program offered by the Canadian Nurses Association (CNA).[2] This re-certification suggests that the health professional has met or meets certain standards, criteria or requirements in order to use a particular certification or designation. Each of the professions which have a national CE system in place also have a formalized infrastructure which organizes and monitors the level and type of CE activities required by members.

Family Physicians

Presently, family physicians registered as members of the College of Family Physicians of Canada (CFPC) are required to participate in continuing education. The CFPC CE system is known as Mainpro (Maintenance of Proficiency / Maintien de la compétence professionnelle). The program is based on several guiding principles (College of Family Physicians of Canada, 2004):

- The maintenance of effective, patient-oriented family practice depends on the ongoing responsibility of physicians both individually and collectively to maintain and enhance their knowledge and skills.
- Members of the CFPC continuously maintain and improve the quality of care they offer to their patients as defined by the four principles of family medicine.
- Mainpro should reinforce family medicine as a distinct medical discipline.
- Physicians should plan their own programs of self-directed, practice-based lifelong learning.
- Family physicians should be at the centre of education for themselves and their colleagues.
- All aspects of Mainpro should be developed and managed by practicing family physicians.
- Effective CME for family physicians requires active planning.

Every five years, CFPC members are required to complete 250 credits, 125 of which must be from accredited CME (Mainpro-M1 and/or Mainpro-C credits). The remainder can be of a non-accredited CME nature (Mainpro-M2 credits).

[2] Registered nurses also have provincial CE systems. A majority of the provinces and territories have legislation that mandates nurses to participate in some form of continuing education for re-registration (re-licensure) in their respective provinces. See section 3.1.2.

- Mainpro-M1 Credits: Includes group learning activities, such as conferences, courses, workshops, scientific assemblies, lectures and seminars; advanced life support programs; hospital and clinical rounds; journal clubs; online CME; academic activities (i.e. faculty development, research, publications); contributing to the medical community (i.e. participating on committees, being an examiner for family medicine or emergency medicine examinations, being a peer-reviewer for medical journals; and self-learning activities (usually allotted Mainpro-M2 credits, but there are some exceptions).

- Mainpro-C credits: All activities address, in some way, the key elements of practice-linked reflective learning. Activities can be divided into two main groups: (1) specific activities that are pre-accredited by the CFPC (i.e. conferences, courses, workshops, practice-based small group learning programs, clinical traineeships and fellowships, advanced life support programs, etc.); and (2) activities that can be used by members to generate their own Mainpro-C credits. The latter includes practice audits and quality assurance programs, as well as programs such as Pearls™ (a self-learning activity that helps physicians take their own clinical questions, decide on a course of action supported by the literature, and then reflect on the effectiveness of the process).

- Mainpro-M2 credits: Any CME activity not approved for Mainpro-M1 or Mainpro-C credits can be claimed by members if they believe it was pertinent to their practice.

The CFPC follows a self-reporting monitoring structure. Members are responsible for maintaining their own CME records and can accumulate credits at any time during the five-year cycle (although they are encouraged to plan activities throughout the cycle). Regular reporting is not required, but members may report their credits to the CFPC at any time by mail, fax, e-mail, telephone, or online through a secure "Members Only" access area. While proof of participation is only required for Mainpro-C credits, the CFPC may request further information on participation in any CME activity.

Medical Specialists

Medical specialists in Canada who are Fellows (i.e. members) of the Royal College of Physicians and Surgeons of Canada (RCPSC) are required to participate in continuing education for re-certification as a member of the RCPSC. Medical specialists are expected to adhere to a five-year cycle. The CE system of the RCPSC is known as Maincert (Maintenance of Certification). The objectives of the program are as follows (Royal College of Physicians and Surgeons of Canada, 2004a):

- To ensure that Fellows are engaged in professional development endeavours that are directed at enhancing the quality of specialty care.
- To provide standard documentation for Fellows to demonstrate their participation in professional development activities for purposes such as licensure or privileges to practice.

Fellows are able to design their own program of professional development based on practice needs using their preferred learning methods. Fellows are required to complete 400 credits over the five-year cycle. The following six-section framework outlines Fellows' options for continuing professional development (Royal College of Physicians and Surgeons of Canada, 2004b).

Table 3
CPD Options for Medical Specialists

Section	Activities	Assignment of credits
1 **Accredited Group Learning Activities**: Education sessions produced by accredited providers of CPD activities.	Rounds; journal clubs; workshops; courses; conferences; distance education programs.	1 credit per hour No maximum
2 **Other Learning Activities**: Learning activities that are not necessarily affiliated with an accredited provider.	Non-accredited rounds & meetings; reading journals and texts; information (MEDLINE) searches; audiotapes/ videotapes; computer/Internet CME	1 credit per hour Maximum of 100 credits/ 5 years
3 **Accredited Self-Assessment Program**: Programs designed to assist the specialist to identify his/her educational needs.	Self-assessment program developed or sponsored by NSS, faculties and colleges; training or virtual reality simulators used for the purpose of self-assessment.	2 credits per hour No maximum
4 **Structured Learning Projects**: Learning activities are planned and the outcome is recorded and evaluated.	Personal learning projects generated from participating in a CPD activity in another section; keeping a learning portfolio; traineeships; preceptored courses; Master's & PhD studies.	1 credit per hour No maximum
5 **Practice Review and Appraisal**: Activities that assist specialists to review their practice.	Practice audits and patient surveys; institution audits; incident reports; utilization studies; other care appraisal studies (based on the practices of peers).	2 credits per hour No maximum
6 **Educational Development, Teaching & Research**: Activities that involve setting standards for practice.	Publications (e.g., manuscript reviews); preparation of presentations; teaching; examinations (question writing); research (e.g., grant proposals & trials).	1 credit per hour Maximum of 100 credits/5 years

Like the CFPC, the RCPSC also adheres to a self-reporting monitoring structure. Fellows annually submit their own hours. Those who are non-compliant are monitored and provided advice on an annual basis. As well, the RCPSC randomly audits approximately 3% of its members annually and asks them to provide documentation as evidence of their CE activities.

Speech Language Pathologists and Audiologists

Licensure or registration to practice as a speech language pathologist or audiologist is currently only required in six provinces (Alberta, Saskatchewan, Manitoba, Ontario, Québec, and New Brunswick) (Canadian Association of Speech Language Pathologists and Audiologists, 2004a). However, approximately 70-80% of speech language pathologists and audiologists in Canada are certified by the Canadian Association of Speech Language Pathologists and Audiologists (CASPLA). The CASPLA requires members to collect and report a minimum of 45 hours of continuing education equivalents (CEEs) over a three-year cycle. The CE system for speech language pathologists and audiologists is similar to that of family physicians and medical specialists in the sense that CE is required for members seeking re-certification in CASPLA.

For speech language pathologists and audiologists certified by CASPLA, the CE system is regulated and monitored at the national level. While the provinces referred to above act as independent regulatory bodies and license members provincially, the majority of them mandate their members meet continuing education requirements that are the same as, or similar to, those outlined by CASPLA. The Saskatchewan Association of Speech Language Pathologists and Audiologists, the College of Audiologists and Speech-Language Pathologists of Ontario, and the Ordre des orthophonistes et audiologists du Québec do not require its members be certified with CASPLA. However, it is mandatory for speech language pathologists and audiologists in these provinces to participate in continuing education and meet CASPLA's standard of 45 CE credits over three years in order to be re-licensed to practice. The New Brunswick Association of Speech Language Pathologists and Audiologists have adapted CASPLA's CE program and it is mandatory for its members to participate for re-licensure. The Manitoba Speech and Hearing Association only requires its members to obtain 30 hours of CE over a two-year period, but requires it members to adhere to the list of eligible continuing education activities as outlined by the national association (see below) for re-licensure. The Alberta College of Speech Language Pathologists does not require its members to participate in continuing education for re-licensure, nor does it require them to be certified by CASPLA.

CASPLA's certification program has two components: (1) the certification exam; and (2) a continuing education program. Eligible activities which meet continuing education requirements are as follows (The Canadian Association of Speech Language Pathologists and Audiologists, 2004b):

a. Education Activities Specific to Speech Language Pathology/Audiology (SLP/AUD):

- Conferences, conventions, workshops, lectures, rounds, seminars, teleconferences/telerounds in SLP/AUD (no maximum).
- University/college course in SLP/AUD (each course given or taken for audit or credit will count for 15 continuing education equivalents (CEEs). No maximum).
- Study/interest group in SLP/AUD (maximum 5 CEEs per year).
- Self-study in SLP/AUD (maximum 5 CEEs per year).
- Supervision/mentoring in SLP/AUD (maximum 8 CEEs per year).
- Professional publications in SLP/AUD (maximum 8 CEEs per year).
- Presentations given in SLP/AUD (for the first time only) (maximum 8 CEEs per year).
- Special projects in SLP/AUD (maximum 10 CEEs per year).

b. Education Activities in Related Topics Relevant to SLP/AUD (maximum of 15 CEEs per three-year period):

- Conferences, conventions, seminars, lectures, rounds, workshops, teleconferences on a related topic.
- University/college courses on a related topic relevant to SLP/AUD (a single course, taken for audit or credit, will count for 15 CEEs in the year in which it is completed).
- Presentations in related topics relevant to SLP/AUD (maximum 8 CEEs per year).
- Special projects in related area relevant to SLP/AUD.

The CASPLA monitoring structure is similar to that of the RCPSC as described earlier. The onus is placed on members to annually submit their list of activities and hours completed. CASLPA will then send each member an annual report of where they stand in the 3 year cycle. The association also randomly audits 5-10% of its members.

Registered Nurses

Registered nurses (RNs) in Canada have the opportunity to obtain specialty certification through the Canadian Nurses Association's (CNA) Certification Program. This is a voluntary program that allows registered nurses to build on their Canadian RN registration, as well as on clinical experience gained in their specialty. Specialty certification confirms that the RN has demonstrated competence in a nursing specialty by meeting pre-determined standards of that specialty. The purpose of this certification is threefold (Canadian Nurses Association, 2004):

- To promote excellence in nursing care for the people of Canada through the establishment of national standards of practice in nursing specialty areas.
- To provide an opportunity for practitioners to confirm their competence in a specialty.
- To identify through a recognized credential, those nurses meeting the national standards of their specialty.

There are currently 17 designated areas of nursing in the CNA Certification Program:

1. Cardiovascular
2. Critical care – adult
3. Critical care – pediatrics
4. Emergency
5. Gastroenterology
6. Gerontology
7. Hospice Palliative Care
8. Nephrology
9. Neuroscience
10. Occupational Health
11. Oncology
12. Perinatal
13. Perioperative
14. Psychiatric/Mental Health
15. Rehabilitation*
16. Community Health*
17. Orthopedic nursing*

**Examinations are currently being developed for these areas.*

To be eligible for initial certification, a registered nurse must meet the eligibility criteria as outlined by the CNA. This includes: being an RN with a current registration/licence in Canada; having

accumulated a minimum of 3900 hours as a registered nurse in one's specialty over the past five years (or a minimum of 1950 hours over three years if one has successfully completed a nursing degree or a post-basic nursing course of at least 300 hours in his/her specialty). The initial certification credential is valid for five years, after which participants are required to be recertified to maintain the credential. A nurse can only recertify in an area in which he/she is currently certified.

To be eligible for recertification, a registered nurse must meet the hours of experience required for recertification and either re-write the certification exam or complete a minimum of 100 hours of continuous learning activities in the nursing specialty during the five year certification term. A number of activities can be counted towards continuous learning hours. For instance, university courses taken towards completion of an undergraduate nursing degree, Master's or PhD can count towards recertification, but content must relate to the nursing specialty. To date, 20 Canadian universities recognize CNA certification in certain specialties and give credit towards a nursing baccalaureate degree if a nurse has successfully passed a certification exam. Nurses also have the option to use non-nursing courses towards continuous learning hours, if their coursework focuses on their specialty area. As well, attending conferences related to the specialty area can be used towards hours.

Participation in this program is regulated and monitored at the national level by the CNA. Those applying for re-certification are required to complete and submit the application form for re-certification. As well, they are required to either re-write the certification exam or submit a record of their continuous learning activities. The CNA conducts a random audit of approximately 10% of candidates applying for re-certification.

Table 4
National CE Systems

Target Group	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
Family Physicians	➢ Mandatory - for members of the College of Family Physicians of Canada (CFPC).	➢ Five-year cycle. ➢ Requirements: 250 credits (125 must be Mainpro-MI or Mainpro-C).	➢ CFPC ➢ Self-reporting - members have to submit credits every 5 years.
Specialists	➢ Mandatory - for fellows of the Royal College of Physicians and Surgeons of Canada (RCPSC).	➢ Five-year cycle. ➢ Requirements: 400 credits from a six-section framework	➢ RCPSC ➢ Self-reporting - fellows annually submit hours. Receive maintenance of certification certificate and cumulative report. Those who are non-compliant are monitored and provided advice on an annual basis. ➢ Random annual audit - 3% sample asked to provide documentation.
Speech Language Pathologists and Audiologists	➢ Mandatory - for those certified by the Canadian Association of Speech Language Pathologists and Audiologists (CASLPA).	➢ Three-year cycle ➢ Requirements: 45 hours of Continuing Education Equivalents (CEEs)	➢ CASLPA ➢ Self-reporting - members annually submit a list of activities and hours completed. CASLPA sends each member an annual report of where they stand in the 3 year cycle. ➢ Random audit - audit 5-10% of members.
Registered Nurses	➢ Voluntary	➢ Five-year cycle ➢ Requirements: (1) Initial certification: - Current registration/licence in Canada - Minimum of 3900 hours as a registered nurse in your specialty over the past five years (or a minimum of	➢ CNA ➢ Complete and submit the application form for re-certification to the CNA. ➢ Write the exam or submit a record of your continuous learning activities. ➢ Random audit (approximately 10% of candidates applying for re-certification).

Target Group	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
		1950 hours over three years if you have successfully completed a nursing degree or a post-basic nursing course in your specialty of at least 300 hours). - Write the certification exam. (2) Re-certification: - Meet the specified hours of experience (minimum of 3900). - Re-write the certification exam or participate in 100 hours of continuous learning activities.	

3.1.2 Provincial Continuing Education Systems

Registered nurses, licensed practical nurses, pharmacists, social workers, occupational therapists, physical therapists, medical laboratory technologists, and medical radiation technologists have provincial CE systems. Table 5 presents an overview of the provincial CE systems across each of these professions, its requirements and monitoring structure.

Registered Nurses (RNs)

At present, six provinces (British Columbia, Saskatchewan,[3] Manitoba, Ontario, Nova Scotia, and Prince Edward Island) and two territories (Northwest Territories and Nunavut) have legislation that mandates nurses to participate in some form of continuing education for re-registration (re-licensure). Prince Edward Island, the Northwest Territories, and Nunavut have only recently implemented such requirements. In all but one of these provinces and territories, this mandatory continuing education system is based on "Continuing Competence" Programs (known as "Reflective Practice" in Ontario, the program components emulate those of the other provinces). The key elements of these programs are similar across provinces. In most cases, nurses are required to conduct some form of self-assessment in which they determine their own learning needs. This assessment may also include consultation with peers for further clarification of these needs. The underlying philosophy behind this principle of self-assessment and self-directedness is autonomy in the identification of personal learning needs and autonomy in the selection of educational activities to address personal learning needs. Learning activities may be formal or non-formal. Formal learning opportunities may include courses, in-services, workshops, etc. Non-formal learning opportunities may include a wide variety of activities such as gathering information via the literature, the Internet, colleagues, clients, attending health related meetings in the community as well as learning from peers. Evaluation approaches, a third key element of most personal learning plans, may be formal (certificate from a workshop, mark from a course, workshop goals, etc.) or non-formal (feedback from a colleague, self assessment, improved practice, etc). The evaluation phase begins the process of self-assessment again, leading to a continuous learning cycle.

As an example, the Continuing Competence Program of the Registered Nurses Association of British Columbia (RNABC) requires nurses to annually complete three continuing competence requirements for re-registration: (1) Self-assessment; (2) Peer feedback; and (3) Continued Learning. The first component, 'self-assessment' requires nurses to assess their knowledge, performance, and practice as a guide to their development of a personal learning plan and activity. While nurses are free to use any resources/tools to aid in their assessment, it must be based on the Standards for Registered Nursing Practice in British Columbia. The second element requires nurses to obtain feedback from their peers. Nurses choose their own peers and ask them to review their self-assessment and provide them with feedback. The third program element 'Continued Learning' requires that nurses participate in a variety of learning activities to meet their self-assessed needs.

[3] Program is mandatory for Registered Nurse (Nurse Practitioners), i.e. RN (NPs) – licensed RNs who also hold a current and active RN (NP) license. RN(NP)s are RNs with enhanced knowledge of nursing, gained through additional clinical practice, education and experience. RNs are currently participating in a trial run of the program and it is expected to be mandatory for them in 2006.

Each province's respective regulatory/licensing body monitors that the continuing competency requirements are met at the time of registration renewal. Members are asked to submit signed declarations that they have met the requirements. In addition, random audits are conducted to confirm compliance. Nurses are not required to submit any documentation unless requested by their respective college.

In the remaining provinces and territory (Alberta, Québec, New Brunswick, Newfoundland and Labrador, and Yukon), continuing education is not required for re-registration. However, CE for nurses will become mandatory in Alberta pending final approval of the Health Professions Act (HPA) for nurses. Once approved, all registered nurses in Alberta will be required to engage in the Alberta Association of Registered Nurses (AARN) Continuing Competence program and report their continuing competence activities each year in order to be re-registered. However, until legislation is approved, participation in continuing education is not required for re-registration.

Licensed Practical Nurses (LPNs)

In the majority of provinces (Manitoba, Québec, New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador) and in the territories (Northwest Territories, Nunavut, and the Yukon) LPNs are not required to participate in continuing education for re-registration (re-licensure). The College of Licensed Practical Nurses of Manitoba is in the final development stage of a continuing competence program. The College is currently conducting focus groups and planning to implement a pilot program in fall 2005, with the hopes of complete implementation (i.e. mandatory for licensure) by 2006.

Four provinces (British Columbia, Alberta, Saskatchewan, and Ontario) currently have legislation that mandates licensed practical nurses to participate in some form of continuing education for re-registration. The nature of these CE systems varies. Each year, over a five year cycle, the College of Licensed Practical Nurses of British Columbia randomly chooses 20% of its registrants to participate in its Continuing Competency (GROWTH Program) review. All registrants will therefore be chosen once over the five year cycle; participation is mandatory for re-licensure. The program currently requires registrants to complete and submit a 'Practice Questionnaire' (i.e. Growth document). Completion of this questionnaire enables registrants to self-reflect on their education and practice. Maintenance of a professional portfolio is also required, but the College does not require its submission nor does it audit registrants at this time. According to the College, this program is currently under review so changes may be forthcoming.

The College of Licensed Practical Nurses of Alberta (CLPNA) and the Saskatchewan Association of Licensed Practical Nurses (SALPN) both require mandatory continuing education annually for re-registration, but their requirements differ. As part of its 'Continuing Competence' program, CLPNA requires LPNs to complete: a self-assessment; learning plan; and list of continuing competence activities undertaken during the year. Submission of the continuing competence learning plan must be submitted along with the annual registration form. SALPN requires that registrants complete five continuing education credits, which can be earned through: (1) employment related education (i.e., a 2-day course is equal to 5 credits; 1 to 2 days is equal to 3 credits); (2) articles/audiovisual, Internet material, etc. (0.5 credits per article; maximum of 2 credits); and (3) professional participation (i.e. 13 days or more is equal to 1 credit; maximum of 1

credit). Registrants are required to complete and submit the 'Record of Education Credits' on the annual renewal form. Random audits are conducted by both organizations to confirm compliance. Licensed Practical Nurses who work in Ontario are subject to the same regulations and legislation as nurses. Therefore, they are regulated and monitored by the College of Nurses of Ontario and participation in the 'Reflective Practice' program for nurses, described earlier, is mandatory for LPNs for re-registration.

Pharmacists

Presently, nine provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador) have legislation that mandates pharmacists' participation in some form of continuing education for re-licensure. The nature of these CE systems varies by province. Some provinces have developed systems which take the form of continuing competency programs and are self-directed in nature. Others mandate the collection of a specific number of continuing education units (CEUs). The length of cycles for meeting CE requirements ranges from one year to six years across the jurisdictions. The College of Pharmacists of British Columbia, for instance, mandates that pharmacists participate in its Professional Development and Assessment Program (PDAP) over a six year cycle. Half the pharmacists in the province are randomly chosen to participate in the program during the first half of the cycle (years 1-3); the remaining pharmacists participate in the program during the second half of the cycle (years 4-6). Every pharmacist in the province will therefore be chosen, and is required, to participate in the program once every six years. Participants complete a self-assessment, the choose one of two options: (1) the Learning and Practice Portfolio whereby pharmacists choose activities that best meet their learning needs; or (2) the Knowledge Assessment - an open-book exam that measures pharmacy practice knowledge and problem-solving skills. Participation in the program is mandatory. Participants have 18 months to prepare for and complete their chosen option, and are provided with options and assistance to help them complete the program so they will not lose their license. If unable to successfully meet program requirements, participants can choose to retake the same option or try an alternate over 12 months. If they are still unsuccessful, the College of Pharmacists will work with them to create an individualized program.

The Manitoba Pharmaceutical Association and the Ontario College of Pharmacists mandate that pharmacists participate in their respective continuing education programs over a cycle of five years. Both programs require the maintenance of a learning portfolio that documents professional development activities undertaken be members. By contrast, pharmacists in Alberta, Saskatchewan, and the Atlantic provinces are required to complete 15 CEUs every year and, with the exception of Newfoundland and Labrador, also complete a learning portfolio that includes a professional development log or learning record.

Each province's respective professional association or body monitors the continuing education system to ensure CE requirements are met at the time of re-licensure. Yearly submission of respective professional development logs, learning records, CEU transcripts, etc. is required. Random audits are also conducted to confirm compliance in some instances. Although the CE system in Manitoba runs over a five-year cycle, the Manitoba Pharmaceutical Association still requires yearly submission of learning portfolios and conducts random audits. The Newfoundland Pharmaceutical Association does not conduct random audits. However, the association does

maintain and review records on behalf of pharmacists in the province and contacts those who may be having difficulty meeting the CE requirements for licensure.

In Québec and the territories (Northwest Territories, Nunavut and the Yukon), continuing education is not required for re-licensure. Québec pharmacists have a 'moral and ethical obligation' to maintain their level of competency and do participate in professional development sessions (according to a survey respondent), but no specific number of CE units or hours is required.

Mental Health Workers

a. Psychologists

The Canadian Psychological Association's Code of Ethics states that psychologists should "participate in and contribute to continuing education and the professional and scientific growth of self and colleagues" (Canadian Psychological Association, 2000). However, continuing education is not required for re-licensure in the majority of the provinces and territories (Alberta, Saskatchewan, Manitoba, Québec, New Brunswick, Nova Scotia, Newfoundland and Labrador, the Northwest Territories, Nunavut, and the Yukon). Beginning in 2005, the Saskatchewan College of Psychologists will require its members to document and report continuing education credits as recommended by its Professional Practice & Ethics Committee. An implementation plan will be finalized by November 2004 by the College in this regard. In a similar manner and like the Alberta Association of Registered Nurses, the College of Alberta Psychologists is waiting for proclamation of the Health Professions Act before implementing any program changes in the province of Alberta.

Presently, three provinces (British Columbia, Ontario, and Prince Edward Island) have legislation that requires psychologists to participate in some form of continuing education for re-licensure purposes. The College of Psychologists of British Columbia have implemented a 'Continuing Competency Program' which mandates psychologists to complete 35 hours of CE per year (5 hours of which explicitly address issues related to ethics) comprised of: 12 hours direct participatory experience (e.g., workshops, conferences); 11 hours self-study or reading; and 12 hours structured/ interactive activities (i.e. study groups, supervision). BC Psychologists are required to record their activities on the "Continued Competency Activities Log". The College of Psychologists of Ontario requires all its members who hold Certificate of Registration, regardless of their status (i.e. regular, academic, or inactive), to complete the "Self-Assessment Guide" and "Professional Development Plan" every other year. Members are expected to determine their own continuing education needs and to address these learning and professional development needs in a way which is best suited for them, whether it is CE of a formal or informal nature. The 'Self Assessment Guide' is designed to assist members in evaluating their current level of knowledge and skill. Following the completion of the self-assessment, members are expected to create a Professional Development Plan to address continued professional development objectives identified in the self-review. In both provinces, members are required to submit a signed declaration that they have completed the required program components. Random audits are conducted to confirm compliance with the regulations. The Prince Edward Island Psychologists Board requires its members to complete 40 hours of continuing education per year. The board simply requires that members submit their number of hours and the nature of CE at the time of registration renewal. There is currently no process in place to conduct random audits.

b. Social Workers

According to a key interview informant, the Canadian Association of Social Workers (CASW) recommends that social workers participate in 40 hours of continuing professional development each year. Presently, six provinces (Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, and Newfoundland and Labrador) mandate social workers to participate in some form of continuing education for re-licensure. Each of these provinces also adheres to the national CASW standard. While Manitoba social workers are mandated to participate in continuing education for re-licensure, licensure of social workers in Manitoba is voluntary. This implies that participation in mandatory continuing education is only applicable to those who are licensed to practice.

Both formal and informal methods of continuing education are generally acceptable across most provinces, with some restrictions. In Newfoundland and Labrador, at least 20 of the 40 continuing professional education (CPE) credits are 'required'. These include participation in certificate/diploma programs; formal courses; conferences, field instruction; in-service programs; seminars; or workshops. At least 20 credits can be classified as elective and include: self-directed learning; mentoring; committee work; and public education service. Social workers in Alberta are required to complete a self-assessment, develop and implement a learning plan, and record their professional development opportunities.

In the remaining provinces and territories (British Columbia, Ontario, Québec, Prince Edward Island, Northwest Territories, Nunavut, and the Yukon), continuing education is not required for re-licensure purposes. The Association of Social Workers in Northern Canada (ASWNC) represents social workers that practice in the Northwest Territories, Nunavut, or the Yukon, but it is currently only a membership organization. According to the ASWNC, legislation surrounding the regulation of social work profession does not exist in any of the three Territories. However, legislation which supports mandatory continuing education for social workers is pending in several provinces, specifically Ontario and Prince Edward Island.

Rehabilitation Workers

a. Occupational Therapists

In December 2000, the Association of Canadian Occupational Therapy Regulatory Organizations (ACOTRO), with participation from representatives appointed by the Canadian Association of Occupational Therapists (CAOT) and the Association of Canadian Occupational Therapy University Programs (ACOTUP), released the document, *Essential Competencies of Practice for Occupational Therapists in Canada*. This document describes the essential competencies (knowledge, skills, and abilities) required for occupational therapists to practice safely, effectively, and ethically in any province in Canada (Association of Canadian Occupational Therapy Regulatory Organizations [ACOTRO], 2000). "Engages in professional development" is one of the key competencies advocated by ACOTRO. According to the document, occupational therapists should demonstrate participation in ongoing professional development by identifying professional areas requiring new learning; identifying learning strategies for professional growth; actively participating in the acquisition of new knowledge and skills; demonstrating the integration of new

knowledge, skills and behaviour into practice; and identifying and utilizing appropriate resources to advance professional knowledge, skills, and behaviour (ACOTRO, 2000).

The results of the environmental scan indicate that continuing education for the occupational therapy profession is not required for re-licensure in the majority of provinces and territories (British Columbia, Alberta, Saskatchewan, Manitoba, Québec, New Brunswick, Nova Scotia, Newfoundland and Labrador, Northwest Territories, Nunavut, and the Yukon). One key interview informant suggested that although continuing education is highly valued by occupational therapists, it is difficult to have a formal system in place due to their small numbers in Canada. As well, according to CAOT, occupational therapy is currently not a regulated health profession in the territories. The Northern Association of Occupational Therapists in the Northwest Territories, for example, is an association only, not a licensing body. Discussions are currently underway in several provinces, specifically British Columbia and Alberta, regarding the implementation of continuing competence programs for the OT profession. The College of Occupational Therapists of British Columbia's (COTBC) Quality Assurance Committee and its subcommittee, the Continuing Competence Committee, are currently developing criteria to define continuing competency requirements for registrants, as well as programs and resources to help registrants meet those requirements. The Alberta Association of Registered Occupational Therapists has developed a Continuing Competence Program and is currently in the midst of a pilot of the program. Members are encouraged to complete the program on a voluntary basis for 2005-2006 renewal. Once implemented, the program will become mandatory.

Presently, two provinces (Ontario and Prince Edward Island) have legislation that mandates occupational therapists to participate in some form of continuing education for re-licensure. The College of Occupational Therapists of Ontario (COTO) requires annual participation in its 'Quality Assurance Program'. It requires completion of a self-directed 'Prescribed Regulatory Education Program' (PREP) module. The PREP module enables registrants to ensure they are up-to-date on key issues and practices; complete a 'Self-assessment Tool (which includes a professional development plan); and compile a 'Professional Portfolio', which details members' professional development activities. To monitor participation in the program, COTO requires members to complete the 'Quality Assurance Declaration' on the annual registration form. Random 'Competency Review and Evaluation' audits are also conducted. The Prince Edward Island Occupational Therapists Registration Board (PEIOTRB) simply requires its members to obtain 10 CE credits annually. Due to the small size of the province and in turn, its small number of occupational therapists, members are required to submit a list of their CE activities annually with their application for re-registration. The registrar then reviews the application for CE hours and appropriateness.

b. Physiotherapists

Presently, continuing education is not required for renewal of licensure in the majority of provinces and the territories (British Columbia, Alberta, Saskatchewan, Manitoba, Québec, New Brunswick, Nova Scotia, Newfoundland and Labrador, Northwest Territories, Nunavut, and the Yukon). However, several of these provinces (British Columbia, Alberta, Saskatchewan, and New Brunswick) are in the stages of developing or finalizing continuing competence programs of which some form of continuing education will be a part. According to the College of Physiotherapists of

New Brunswick, however, lack of regulation does not always denote a lack of professional obligation. The College strongly supports the notion of, and mandates, continuing competency. While continuing competency for licensure renewal is currently based on practice hours, not continuing education, the College feels it is critical to acknowledge the professional obligation on the part of physiotherapists. Physiotherapists in New Brunswick are ethically obligated to participate in professional development and while the form it takes, the tools used, etc. are not yet regulated or monitored, discussions are currently underway and a more formal program is being proposed (i.e. one that involves the recording of professional development activities and the maintenance of a professional portfolio).

Prince Edward Island and Ontario have legislation that mandates physiotherapists participate in some form of continuing education for re-licensure. The Prince Edward Island College of Physiotherapists requires its members to obtain 10 CE credits annually. Members are required to submit a list of their CE activities with their application for re-licensure. Physiotherapists who practice in Ontario are mandated to participate in the first step of the College of Physiotherapists of Ontario's "Quality Management" program – "Competency Reflection and Integration". Ontario physiotherapists are required to annually create and maintain a learning portfolio. There are no limitations on the types of activities in which they can participate, but they have to show evidence of ongoing learning. The monitoring structure is self-reporting, whereby participants sign a declaration on their annual renewal form; a declaration that states they understand they should have, and have been, maintaining a professional portfolio. Approximately 10% of registrants are audited and asked to participate in the second phase of the program, "Competency Assessment". At that time, participants are obligated to produce their learning portfolios and participate in an onsite assessment. Any participants, who are identified as having specific gaps in knowledge, skills, judgement, or those who request assistance, will then work with a mediator one-on-one to address these issues.

Medical Diagnostic Technologists

a. Medical Laboratory Technologists

At present, only three provinces (Saskatchewan, Ontario, and Nova Scotia) mandate medical laboratory technologists to participate in continuing education for re-licensure. The nature and length of the CE cycles varies across jurisdictions, ranging from one year to five years. For instance, the Saskatchewan Society of Medical Laboratory Technologists (SSMLT) requires its members to participate in its 'Professional Improvement Program'. Members must complete a minimum of 2 CE Credits or 30 contact hours (1 CE Credit is equivalent to 15 contact hours) over a five-year cycle. There are three categories of eligible activities: (1) documented educational activities (i.e., lectures, workshops, conferences, etc.; at least 1 credit); (2) non-documented educational activities (i.e. reading journal articles; maximum 0.5 credits); and (3) professional activities (i.e. serving on boards to committees; maximum 0.5 credits). Members are required to record and submit a list of all activities using the documentation form provided with the annual renewal form. Approximately 20% of members are audited annually to validate their CE Credits.

Continuing education is not required for renewal of licensure in the majority of provinces and the territories (British Columbia, Alberta, Manitoba, Québec, New Brunswick, Prince Edward Island,

Newfoundland and Labrador, Northwest Territories, Nunavut, and the Yukon). The Alberta College of Medical Laboratory Technologists (ACMLT) has a continuing competency program in development. British Columbia, Manitoba, Prince Edward Island, and Newfoundland and Labrador currently have no regulation for medical laboratory technology and therefore, cannot mandate that its members participate in continuing education. Still, there are several voluntary continuing education programs available at both the provincial and national levels. The ACMLT has a voluntary 'Professional Development Program' which requires participants to obtain 4 credits in a two-year period. Categories of eligible activities are similar to those described earlier for Saskatchewan's 'Professional Improvement Program': (1) documented educational activities (i.e. courses with assignments; at least 1 credit required); (2) professional activities (i.e. committee members, presentations; 0-3 credits allowed); and (3) non-document educational activities (i.e. reading journal articles; maximum 1 credit). The New Brunswick Society of Medical Laboratory Technologists also has a voluntary 'Professional Development Program', which requires participants to obtain a minimum of three credits within three activities. The categories of eligible activities are also similar to those previously described. Although this program is currently voluntary, legislation is pending and it is expected that completion of the program will be mandatory for re-licensure in 2006 or 2007.

At the national level, the Canadian Society for Medical Laboratory Science (CSMLS) offers two voluntary professional recognition programs. First, the Professional Enhancement Program (PEP) requires members to complete 60 hours of professional development over 2 years (at least 50% of these hours must be officially documented, i.e. transcripts, letters of attendance, etc.). Acceptable activities include, but are not limited to, continuing education courses; presentations (i.e. scientific paper or lecture); editorial work; book reviews; serving on exam panels; or attending national or provincial conferences. Medical laboratory technologists can also obtain a Certificate of Continuing Professional Studies (CPS) from the CSMLS. This program formally recognizes successful completion of continuing education courses at the advanced level. To obtain a CPS certificate, participants must accumulate 15 credits for eligible courses taken within the last 10 years. For a course to be considered eligible, at least 60% of its content must be beyond the scope of the current CSMLS competency profiles for initial certification. As well, there must be a formal evaluation of learning. Medical Laboratory Technologists licensed by the College of Medical Laboratory Technologists of Ontario can use either of these programs to help them meet their mandatory continuing education requirements for licensure.

b. Medical Radiation Technologists

Presently, continuing education is required for renewal of licensure in only one province (Ontario). Legislation is pending in Alberta. The College of Medical Radiation Technologists of Ontario (CMRTO) requires that members participate in its 'Quality Assurance Program'. Members are obligated to annually complete: a 'self-assessment profile'; a 'continuous learning portfolio' (which must show a minimum of 25 hours of continuous learning activities; and a 'certificate of competence' (quality assurance declaration). The CMRTO does not "approve" courses or assign points. It offers members the flexibility and autonomy to choose which learning activities will be part of their learning portfolios. The only guideline is that the choice of activity must be related to improving one's knowledge, skill and judgment as a medical radiation technologist. Members are required to submit the completed "certificate of competence' along with the annual registration

renewal. A random selection of members is annually asked to submit their self-assessment profiles and continuous learning portfolios (or portions of them) for review.

There are several voluntary continuing education programs available at the provincial level. The British Columbia Association of Medical Radiation Technologists (BCAMRT) and the Saskatchewan Association of Medical Radiation Technologists (SAMRT) have voluntary CE programs in place. BCAMRT's 'Professional Development Program' requires participants to obtain a minimum of 15 professional development program (PDP) credits in one year. Credit value is based on 1 credit per 1 hour of activity. Credits may be accumulated through continuing education courses requiring a final exam; continuing education activities related to the workplace; and through active participation in the BCAMRT or related professional association. SAMRT's 'Continuing Education Credit Program' requires that participants accumulate 30 credits over a two year period. A variety of activities are eligible, ranging from in-service education sessions, self-study, conference attendance, or participation on committees.

Home Support Workers

Home support workers, also referred to as homemakers, personal care workers, personal support workers, attendants, or continuing care workers, are those who provide home care/home support services which enable individuals to continue to live independently in their own homes (Canadian Home Care Human Resources Study [Can Home Care], 2002). These workers are usually employed in entry-level positions and are generally unregulated (Health Canada, 1999).

There are currently no standardized educational requirements for home support workers across jurisdictions. Some provinces require education in the form of community college training (Canadian Home Care Human Resources Study [Can Home Care], 2003; Health Canada, 1999). For instance, British Columbia requires that home support workers complete a 22-week community college program, while Saskatchewan requires completion of a pre-employment program and a two-year on-the-job program. New Brunswick requires completion of a home care worker program at a community college or similar certified program.

From a review of the Canadian Homecare Association's Website (http://www.cdnhomecare.ca), as well a review of several studies and the Internet, it seems that no province or territory mandates that home support workers participate in continuing education. However, the education requirements and continuing education needs of this profession have recently been examined. The synthesis report of the Canadian Home Care Human Resources Study (2003) reports on the training home support workers are currently receiving, their continuing education needs, and makes some recommendations and strategies for the future. According to the report, the most frequently reported types of training received by home support workers include in-service training in first-aid, training in the specific care needs for special populations, and training for working on a multi-disciplinary team (Can Home Care, 2003). Home care providers indicated wanting more training opportunities during their employment, so that they can both meet consumer needs and have opportunities for advancement (Can Home Care, 2003).

The Canadian Home Care Human Resources Study (2003) recommends the development of "strategies for educational preparation, formal continuing education and employer-provided training

to facilitate the availability of qualified home care providers" (p.33). Several strategies are suggested as a means for meeting this goal (Can Home Care, 2003):

- Promote the development of national occupational standards for home support workers by:
  - Identifying the core competencies for home support workers.
  - Developing educational curricula that address the core competencies.
  - Increasing access to home support worker educational programs.

- Provide interdisciplinary education programs and practicum opportunities at all levels, as appropriate.

- Improve access to education and training for rural, remote, inter-provincial and Aboriginal populations.

- Implement professional development across the home care sector through employer-provided specialty training and continuing education to meet needs related to local demographics and changing population health needs.

- Address funding for post-basic education and training for all levels of providers, especially programs that specifically target home care education and competency.

Table 5
Provincial CE Systems

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
Registered Nurses	**British Columbia**	➢ Mandatory - Continuing Competence Program	➢ Yearly cycle ➢ Requirements: (1) Self-Assessment (2) Peer Feedback (3) Continued Learning	➢ Registered Nurses Association of British Columbia (RNABC) ➢ Submit written declaration and sign a checklist on the registration renewal form indicating you have met the three requirements. Not required to submit records unless audited. ➢ Random audit – audit 1500 practicing registrants annually.
	Alberta	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Saskatchewan	➢ Mandatory for RN (NPs) - Continuing Competence Program	➢ Yearly cycle ➢ Requirements: (1) Professional Profile (2) Reflective Practice (3) Learning Plan (4) Evaluation of the Plan	➢ Saskatchewan Registered Nurses Association (SRNA) ➢ Submit continuing competence workbook with renewal form. ➢ Random audit
	Manitoba	➢ Mandatory – Continuing Competence Program	➢ Yearly cycle ➢ Requirements: (1) Completion of the self-assessment. (2) Development and implementation of a complete self-development plan. (3) Collection of documents that show participation/attendance at learning activities. (4) Declaration of completion of program components for that year.	➢ The College of Registered Nurses of Manitoba (CRNM) ➢ Signed declaration of completion of program components. Only need to provide documentation if requested by the College. ➢ Random audit – required to keep documentation for 5 years.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Ontario	➢ Mandatory – Reflective Practice Program	➢ Yearly cycle ➢ Requirements: (1) Complete a self-assessment (2) Obtain peer feedback (3) Create a learning plan (4) Implement the learning plan (5) Evaluate the learning	➢ College of Nurses of Ontario (CNO) ➢ Signed declaration of participation in program. Not required to submit records to the College. ➢ Random audit – maintain records for a minimum of 2 years.
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Mandatory – Continuing Competence Program	➢ Yearly cycle ➢ Requirements: (1) Complete the *Building Your Profile*™ self-assessment tool or an equivalent tool that reflects the Standards and Codes of Ethics.	➢ College of Registered Nurses of Nova Scotia (CRNNS) ➢ Signed declaration of program participation. ➢ There are currently no plans to audit participation in the program.
	Prince Edward Island	➢ Mandatory – Continuing Competence Program (as of registration year 2004-2005)	➢ Yearly cycle ➢ Requirements: (1) Self-assessment using the Association of Nurses of PEI (ANPEI) Standards for Nursing Practice or similar standards and the Code of Ethics. (2) Obtain peer feedback. (3) Develop a learning plan and obtaining colleague feedback on your goals. (4) Implement your learning plan to achieving your goals. (5) Evaluate the impact of the learning activity on your practice.	➢ ANPEI ➢ Not required to submit records unless requested. ➢ Random audit

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Northwest Territories/ Nunavut	➢ Mandatory – Continuing Competence Process	➢ Yearly cycle. ➢ Requirements: (1) Self-assessment – nurses assess their practice in relation to standards of practice. (2) Professional Development Plan – includes findings of the nurse's assessment, learning activities and evaluation.	➢ Registered Nurses Association of the Northwest Territories and Nunavut (RNANT/NU) ➢ Signed declaration on annual registration renewal form. ➢ Random audit
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Licensed Practical Nurses (LPNs)	**British Columbia**	➢ Mandatory – Continuing Competency (GROWTH Program) Review	➢ Five year cycle (Approximately 20% of registrants are randomly chosen to participate each year. All registrants will be chosen, and required to participate, every five years). ➢ Requirements: (1) Professional Portfolio (2) Practice Questionnaire, i.e. 'Growth document'	➢ College of Licensed Practical Nurses of British Columbia ➢ Completion of the professional portfolio and practice questionnaire. ➢ Submission of the completed practice questionnaire along with your registration number.
	Alberta	➢ Mandatory – Continuing Competency Program	➢ Yearly cycle. ➢ Requirements: (1) Completion of a self-assessment. (2) Completion of a learning plan. (3) Completion of a list of continuing competence activities undertaken during the past year.	➢ College of Licensed Practical Nurses of Alberta ➢ Submission of the "Continuing Competence Learning Plan" with annual registration form. ➢ Random audit – member must submit documentation regarding participation in continuing competence activities.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Saskatchewan	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 5 continuing education credits. Can be earned through: (1) Employment related education (2) Articles/audiovisual, Internet material, etc. (max. 2 credits) (3) Professional participation (max. 1 credit)	➢ Saskatchewan Association of Licensed Practical Nurses (SALPN) ➢ Complete and submit 'Record of Education Credits' on annual renewal form. ➢ Random audits – if chosen, members will be asked to produce detailed records of their education.
	Manitoba	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Ontario	➢ Mandatory – Reflective Practice Program	➢ Yearly cycle ➢ Requirements: (1) Complete a self-assessment (2) Obtain peer feedback (3) Create a learning plan (4) Implement the learning plan (5) Evaluate the learning	➢ College of Nurses of Ontario (CNO) ➢ Signed declaration of participation in program. Not required to submit records to the College. ➢ Random audit – maintain records for a minimum of 2 years.
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Prince Edward Island	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Pharmacists	**British Columbia**	➢ Mandatory – Professional Development and Assessment Program	➢ Six year cycle (Every pharmacist in the province will be chosen, and is required, to participate in the program once every six years; half of pharmacists during years 1-3; half during years 4-6). ➢ Requirements: - Completion of a self-assessment - Choose and complete one of two options: (1) Learning and Practice Portfolio (2) Knowledge Assessment (open-book exam).	➢ College of Pharmacists of British Columbia ➢ 18 months to prepare for and complete chosen option. Provided with options and assistance to help complete the program so they will not lose their license. If unable to successfully meet program requirements, participants can choose to retake the same option or try an alternate over 12 months. If they are still unsuccessful, the College of Pharmacists will work with them to create an individualized program.
	Alberta	➢ Mandatory – RxCEL Competence Program	➢ Yearly cycle. ➢ Requirements: (1) 15 continuing education credits (CEUs) (1 CEU = 1 contact hour) - up to 7 CEUs from non-accredited learning activities eligible. (2) Maintenance of a learning portfolio. Consists of: - Learning Project Record - document learning projects that are intended to improve your practice through non-accredited learning activities.	➢ Alberta College of Pharmacists ➢ Yearly submission of Professional Development Log and signed declaration. ➢ Random audit or audit due to other factors, such as a questionable entry in a member's learning portfolio.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
			- Professional Development Log – document all activities. - Supporting Documents – any documents that reflect the content or outcome of the learning event, e.g., certificates of course completion, program brochures, etc.	
	Saskatchewan	➢ Mandatory	➢ Yearly cycle ➢ Requirements: (1) 15 CEUs (2) Completion of the Saskatchewan Pharmacists Learning Portfolio which has 4 components: - Learning Project Record (Accredited programs) - Learning Project Record (Non-Accredited) - Professional Development Log - Supporting Documents	➢ Saskatchewan College of Pharmacists ➢ Yearly submission of Professional Development Log. ➢ Random audit
	Manitoba	➢ Mandatory	➢ Five-year cycle ➢ Requirements: - Maintenance of a learning portfolio documenting participation in professional development activities. - Complete a minimum of 5 major learning projects within the 5 year cycle. By the end of the second year, the pharmacist is expected to have completed at least 1Learning Project. From then on, the minimum number of required Learning Projects to be completed increases with each year that the pharmacist uses the Learning	➢ Manitoba Pharmaceutical Association (MPhA). ➢ Yearly submission of learning portfolio summary for renewal of licensure. ➢ Random audit - A random selection 20% of practicing pharmacists is selected on an annual basis for peer review of their learning portfolios.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
			Portfolio as follows: 3 years – 2 Learning Projects; 4 years – 3 Learning Projects; and 5 years – 5 Learning Projects.	
	Ontario	➢ Mandatory – Quality Assurance Program	➢ Five-year cycle. ➢ Requirements: - Expected to maintain a personal learning portfolio. - Can include formal (i.e. workshops) or informal CE (i.e. reading journals, discussions with peers).	➢ Ontario College of Pharmacists (OCP) ➢ All pharmacists in Part A of the Register (i.e. those involved in direct patient care) can, in each 5-year period, expect to be selected to undergo the first phase of the "Practice Review" process. Requires completion of a Self-Assessment Survey and Summary of Continuing Education. Learning portfolio is submitted as part of this review as well.
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Mandatory	➢ Yearly cycle. ➢ Requirements: - 15 CEUs (15 contact hours) per year from two or more sources. Can be from any source, i.e. live, web-based, home study, etc. - Completion of a "Continuing Professional Development Learning Project – Record Sheet" for each Activity. - Completion of the "Professional Development Log" which details all activities.	➢ New Brunswick Pharmaceutical Society (NBPhS) ➢ Yearly submission of the "Professional Development Log". ➢ Random audit – NBPhS suggests members retain documents for at least three years.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Nova Scotia	➢ Mandatory	➢ Yearly cycle. ➢ 15 CE units per year (1 CE unit = 1 hour of learning). ➢ Completion of the "Professional Development Log"	➢ Nova Scotia College of Pharmacists (NSCP) ➢ Yearly submission (by Nov. 30th of each year) of the "Professional Development Log" ➢ Random audit
	Prince Edward Island	➢ Mandatory	➢ Yearly cycle ➢ 15 accredited CEUs , i.e. activities accredited by the College of Pharmacy (Dalhousie), the Prince Edward Island Pharmacy Board (PEIPhB), or the Canadian Council on Continuing Education in Pharmacy (CCCEP), for example. ➢ Completion of a "Learning Project – Record Sheet" for each activity. ➢ Record all accredited and non-accredited activities on the "Professional Development Log" and gather any supporting documents (i.e. certificates of course completion, program brochures, etc.).	➢ PEIPhB ➢ Yearly submission of the "Professional Development Log" which includes a signed declaration and at least 15 accredited CEUs. Failure to do so will result in immediate suspension of the license to practice and a $500 fine. ➢ Random audit - 20% of pharmacists – will be required to submit their learning project record sheets and supporting documentation.
	Newfoundland and Labrador	➢ Mandatory	➢ Yearly cycle. ➢ 15 CEUs per year (with provision for carry-over of a maximum of 15 CE units per year). Must be obtained from 2 or more sources. 1 CEU = 1 contact hour ➢ Provision is made for formal and informal CE activities and for self directed learning.	➢ Newfoundland Pharmaceutical Association (NPhA) - maintains records for pharmacists (keeps profile of every pharmacist in province on file). ➢ Yearly submission of a written record of acquired CEUs. Informally, prefers if members submit records of activities as they complete them. There is no

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
				formal form or log – members submit notice of attendance (NPhA will obtain attendance sheet), certificates of completion, program brochures, etc.
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Psychologists	**British Columbia**	➢ Mandatory – Continuing Competency Program	➢ Yearly cycle. ➢ 35 hours per year (5 hours of which are explicitly on ethics). Comprised of: - 12 hours direct participatory experience (e.g., workshops, conferences) - 11 hours self-study or reading - 12 hours structured/interactive activities (i.e. study groups, supervision) ➢ Record activities on the "Continued Competency Activities Log".	➢ College of Psychologists of British Columbia ➢ Submit signed attestation that the continuing competency requirements have been met. ➢ Random audit – suggest keeping copies of documentation for at least 2 years at least two years.
	Alberta	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Saskatchewan	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Manitoba	➢ Voluntary	➢ Not applicable	➢ Not applicable

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Ontario	➢ Mandatory – Quality Assurance Program	➢ Two year cycle. ➢ Requirements: - Complete the "Self-Assessment Plan" - Complete the "Professional Development Plan. - Participation in continuing education programs (if required by the College)	➢ College of Psychologists of Ontario ➢ Submit signed "Quality Assurance Declaration of Completion". Do not need to submit completed guide or plan. ➢ Peer Assisted Review – Random; must produce completed materials and documentation for review.
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Prince Edward Island	➢ Mandatory	➢ Yearly cycle. ➢ Requirements: - 40 hours of CE per year	➢ Prince Edward Island Psychologists Registration Board. ➢ Submit of number of hours and the nature of CE at the time of registration renewal. Answer questions on renewal form. Currently no audit.
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
Social Workers	**British Columbia**	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Alberta	➢ Mandatory – Continuing Competence Program	➢ Yearly cycle ➢ Requirements: - 40 professional development credits (1 hour = 1 credit), at least 10 of which must be from formal CE (i.e. university or college courses, accredited workshops, etc.) - Reflect on social work practice - Complete a self-assessment - Development and implement a learning plan - Record professional development activities. - Maintain a learning portfolio	➢ Alberta College of Social Workers ➢ Submit list of professional development activities on annual renewal form. ➢ Every five years, required to submit complete learning portfolio. ➢ Random audit of submitted portfolios.
	Saskatchewan	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 40 CPE hours per year (both formal and informal activities are accepted).	➢ Saskatchewan Association of Social Workers (SASW) ➢ Each member must sign a statement confirming they have met the minimum requirements.
	Manitoba	➢ Mandatory – only for those who are licensed (licensure is voluntary).	➢ Yearly cycle ➢ Requirements: - 40 hours of CE per year. Can include: (1) Training courses, grand rounds, seminars, workshops, etc. (2) Volunteer activities, mentoring or supervising students (maximum of 20 hours).	➢ Manitoba Institute of Registered Social Workers ➢ Submit renewal form to membership committee listing activities. Committee will review and call the member if they have any questions.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
			(3) Self-directed study or research (maximum of 10 hours)	
	Ontario	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 40 CPE credits (1 credit = 1 hour) per year. A variety of activities are acceptable.	➢ New Brunswick Association of Social Workers (NBASW). ➢ Submit signed statements declaring completion of the required credits with registration form. Can submit documentation voluntarily as well.
	Nova Scotia	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 40 hours of CE. A variety of activities are acceptable.	➢ The Nova Scotia Association of Social Workers ➢ Submit list of activities verifying completion of the 40 hours.
	Prince Edward Island	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Newfoundland and Labrador	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 40 continuing professional education (CPE) credits per year (at least 20 of which are 'required' credits).	➢ The Newfoundland and Labrador Association of Social Workers (NLASW). ➢ Completion and submission of the CPE summary sheet with registration renewal form.
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Occupational Therapists	**British Columbia**	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Alberta	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Saskatchewan	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Manitoba	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Ontario	➢ Mandatory – Quality Assurance Program	➢ Yearly cycle ➢ Requirements: (1) Competency Enhancement – includes completion of: - a 'Prescribed Regulatory Education Program (PREP) module (self-directed; help registrants ensure they are up-to-date on key issues and practices). - a 'Self-assessment Tool (includes a professional development plan) - a 'Professional Portfolio', of which CE activities might be a part.	➢ College of Occupational Therapists of Ontario (COTO) ➢ Complete the 'Quality Assurance Declaration' on annual registration form. ➢ Random 'Competency Review and Evaluation' – members must submit their completed competency enhancement tools for review.
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Prince Edward Island	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 10 CE credits	➢ Prince Edward Island Occupational Therapists Registration Board (PEIOTRB)

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
				➢ Yearly submission of records - Registrants are required to submit what CE activities they have participated in with their application to register. The application is reviewed by the registrar for CE hours and appropriateness.
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Physio-therapists	**British Columbia**	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Alberta	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Saskatchewan	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Manitoba	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Ontario	➢ Mandatory – Quality Management Program ("Competency Reflection and Integration")	➢ Yearly cycle ➢ Requirements: - Create and maintain a professional portfolio. - No limitations on the types of activities, but have to show evidence of ongoing learning.	➢ College of Physiotherapists of Ontario ➢ Submit signed declaration with annual licensure renewal. ➢ Approximately 10% of registrants will be randomly chosen to participate in "Competency Assessment" – asked to submit portfolio at that time.

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Voluntary.	➢ Not applicable	➢ Not applicable
	Prince Edward Island	➢ Mandatory	➢ Yearly cycle ➢ Requirements: - 10 CE hours	➢ Prince Edward Island College of Physiotherapists ➢ Yearly submission of records - Registrants are required to submit a Professional Development Form listing CE activities and hours with their application renewal.
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Medical Laboratory Technologists	**British Columbia**	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Alberta	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Saskatchewan	➢ Mandatory – Professional Improvement Program	➢ Five year cycle. ➢ Requirements: - Minimum of 2.0 CE Credits or 30 contact hours (1.0 CE Credit is	➢ Saskatchewan Society of Medical Laboratory Technologists (SSMLT) ➢ Record and submit list of all activities using the documentation form

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
			equivalent to 15 contact hours). - 3 categories of eligible activities: (1) Documented educational activities (at least 1 credit) (2) Non-documented educational activities (max. 0.5 credits) (3) Professional activities (max. 0.5 credits)	provided with the annual renewal form. Not required to submit documentation unless audited. ➢ Random audit - 20% of licensed members annually to validate their CE Credits.
	Manitoba	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Ontario	➢ Mandatory – Quality Assurance Program	➢ Yearly cycle ➢ Requirements: - Maintenance of a professional portfolio which consists of three sections: (1) Past – career summary & analysis of past professional development. (2) Present – assess practice environment, define scope of practice, & complete self-assessment. (3) Future – development a professional development learning plan (i.e. self-directed study, participation in more formal programs, etc.)	➢ College of Medical Laboratory Technologists of Ontario (CMLTO) ➢ Submit signed quality assurance declaration on annual renewal form. ➢ Random audit (annually) – members who are audited have 30 days to provide a complete, up-to-date portfolio to CMLTO
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Mandatory – Teknowledge Certificates	➢ Four year cycle ➢ Requirements: - 8 credits over a 4-year period (at least 4 credits must be from educational activities)	➢ Nova Scotia College of Medical Laboratory Technologists ➢ For annual renewal of licensure in 2005, all members must submit the expiry date of their current

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
				Teknowledge certificate. ➢ From 2005 onwards - Submit signed declaration on annual renewal form indicating participation and number of credits obtained during the year. An auditing program is in development.
	Prince Edward Island	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable
Medical Radiation Technologists	**British Columbia**	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Alberta	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Saskatchewan	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Manitoba	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Ontario	➢ Mandatory – Quality Assurance Program.	➢ Yearly cycle. ➢ Requirements: - Completion of the 'Self-Assessment Profile". - Completion of the 'Continuous Learning Portfolio' (must show a	➢ College of Medical Radiation Technologists of Ontario ➢ Submit the completed "Certificate of Competence' with annual registration renewal. ➢ Random audit – random selection of

Target Group	Province	Nature of CE System	Requirements (i.e. Length of Cycle/# of Credits)	Monitoring Structure
			minimum of 25 hours of continuous learning activities). - Completion of a 'Certificate of Competence' (Quality Assurance Declaration).	members required to submit their self-assessment profiles and continuous learning portfolios (or portions of them) for review.
	Québec	➢ Voluntary	➢ Not applicable	➢ Not applicable
	New Brunswick	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nova Scotia	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Prince Edward Island	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Newfoundland and Labrador	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Northwest Territories	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Nunavut	➢ Voluntary	➢ Not applicable	➢ Not applicable
	Yukon	➢ Voluntary	➢ Not applicable	➢ Not applicable

3.1.3 Continuing Education Providers

Key interview informants and online survey respondents were asked to identify the providers of continuing education in their respective CE systems. In this context, CE providers refers to those who plan, develop, implement and provide continuing education courses (whether onsite or online), programs, workshops, etc. to members of a particular health profession. The responses were quite similar across professions. Respondents identified: academic institutions (i.e. universities or community colleges); national and provincial associations; national and provincial regulatory bodies; hospitals and/or other health care employers (i.e. long-term care facilities); government; and private industry (i.e. pharmaceutical and communications companies, online companies in the United States) as important CE providers. Private industries that deal with x-ray equipment, for example, provide continuing education for medical radiation technologists. Retail drug stores, such as Shopper's Drug Mart, provide continuing education for pharmacists.

In some provinces, such as Québec, there are additional associations that provide CE, as well as accredit providers and programs (see section 3.1.5). For instance, the Collège des Médecins du Québec (CMQ), the Fédération des médecins omnipracticiens du Québec (FMOQ), and the Association des médecins de langue française du Canada (AMLFC) also provide continuing education for family physicians. The Canadian Healthcare Association (CHA), a partnership of provincial and territorial hospital and health organizations across Canada, offers a variety of professional and management courses via distance education modalities for personnel in administrative or management level positions. Specialized courses are available in Health Information Services, and Food Service and Nutrition Management.

3.1.4 Continuing Education Methods

Key interview informants were asked to identify the common delivery methods for CE in their profession/field of practice. All professions indicated the occurrence of both national and provincial conferences. The majority of respondents identified workshops, seminars, and lectures as common CE delivery methods. The Canadian Psychological Association, for example, holds a summer institute which offers several days of workshops to interested participants. Rounds were common amongst respondents representing the physician CE system (more prominent among specialists than family physicians), as well as amongst advanced practice nurses, psychologists, social workers, physiotherapists, speech language pathologists and audiologists, and medical radiation technologists. Rounds are not generally accepted for continuing education for pharmacists, but according to the key informant, they can be accredited in Québec as CE activities.

Continuing education activities that utilize distance learning methodologies and technologies are common across all professions. However, the types of technologies being used vary across provinces and professions. The use of correspondence methodologies and teleconferencing for CE delivery are quite popular amongst physicians, nurses, advanced practice nurses, pharmacists, psychologists, occupational therapists, physiotherapists, and speech language pathologists and audiologists. The Canadian Society for Medical Laboratory Science (CSMLS) currently offers approximately 100 correspondence programs. Programs range in length from 2-3 months, some comprised of formal evaluations to others based on shorter courses called mode and mini-mode modules in which the participant can choose the content and learn at their own pace. The Canadian

Physiotherapy Association offers a one hour national teleconference on a monthly basis. This initiative provides physiotherapists across Canada, particularly those working in rural and remote communities, with the opportunity to converse with an expert on a specific topic and ask questions. Handouts are made available for each session and serve as a learning resource which physiotherapist practitioners can take back to their practices. As well, the cost is reasonable ($85 + GST per site). Some professions indicated the use of videoconferencing (i.e. physicians, pharmacists, and occupational therapists) and Web-based methodologies (i.e. family physicians and specialists, nurses, pharmacists, psychologists, occupational therapists, medical laboratory technologists, and medical radiation technologists).

"Other" diverse CE delivery methods were identified by key informants. Self-study and other informal, self-directed learning methods were common to some professions. The Canadian Association of Speech Language Pathologists and Audiologists (CASLPA) have two categories of CE; those activities which are 'specific' to speech language pathology and those which are 'related'. While many of the aforementioned methods (i.e. conferences, workshops, lectures, rounds, etc.) are considered as meeting CE requirements, informal methods such as self-study, professional publications, supervision/mentoring, and special projects (i.e. writing a book, research projects) are also acceptable. Specialists certified by the Royal College of Physicians and Surgeons of Canada (RCPSC) can meet their CE requirements in part by participating in a variety of self-assessment programs, personal learning projects, or other self-directed learning activities that are linked to clinical and research practice. Nurses can participate in the Canadian Nurses Association (CNA) certification program which allows them to obtain certification in different specialty areas. Social workers can undertake a variety of self-education activities, some of which might take the form of participation in community-based group or board activities. The reading of journals, or participating in journal clubs, study groups or interest groups, were common among family physicians, specialists, pharmacists, occupational therapists, physiotherapists, and medical radiation technologists. Some CE for family physicians may involve the use of cadavers for training in emergency medicine and trauma or interaction with standardized patients. The Canadian Association of Occupational Therapists (CAOT) offers networking opportunities through its website whereby therapists can access other therapists across the country.

3.1.5 Program and Provider Accreditation/Approval

In some CE systems, accreditation of CE programs and CE providers are important elements of a CE system. If a health professional regulatory body requires program accreditation/approval this suggests that only "accredited" or "approved" CE programs (in general, programs that meet specified criteria and standards) are considered acceptable for meeting CE requirements for re-certification or re-licensure. In CE systems where the CE provider must be accredited in order to design, plan and organize accredited CE programs, the CE provider is required to meet minimum standards as outlined by a CE system monitoring or accrediting body. The requirement for CE program accreditation and/or CE provider accreditation varies across professions and by province. Interestingly, some of the regulatory bodies/associations that do no require mandatory continuing education prefer that the continuing education activities being offered to its members, or the providers offering those activities, be accredited or approved.

Family Physicians

The College of Family Physicians of Canada requires that all CE Mainpro M1 or C activities offered by an accredited provider be planned and organized according to certain standards in order to be offered as accredited activities. Continuing medical education units of Canadian universities and provincial chapters of the CFPC are eligible to accredit programs for Mainpro-M1 credits, provided they are accredited providers. Mainpro C activities must be accredited by the CFPC national office. In Québec, programs are accredited by the FMOQ and the AMLFC. The CFPC requires provider accreditation as well. Provider accreditation of universities outside Québec is conducted by the Association of Canadian Medical College's (ACMC's) Committee on Accreditation of Continuing Medical Education (CACME). Québec universities are also accredited by the Collège des Médecins du Québec (CMQ). Accreditation by CACME involves a two-day site visit and completion and presentation of a report. Accreditation is granted for a maximum of 5 years. CMQ conducts 1-day site visit to Québec institutions as well. This means that Québec institutions can have double accreditation, but also 2 different periods of accreditation (i.e. could be granted 5 years by CACME and 2 years by CMQ).

Medical Specialists

The Royal College of Physicians and Surgeons of Canada require CE program accreditation, but only if programs are being developed and offered under section 1 of the CPD framework (refer back to section 3.1.1). The RCPSC accepts CACME accreditation for universities and all activities of an accredited provider are automatically approved by the RCPSC for Maincert accreditation. An application process is to be followed by non-accredited providers. National societies have to apply for accreditation and have their application reviewed. Accreditation is granted for a period of 1-3 years.

Nurses/Licensed Practical Nurses (LPNs)

The majority of provinces and territories do not require CE program or provider accreditation. This would appear to be in line with the underlying philosophical orientation of self-directed continuing competence programs. As nurses and licensed practical nurses are able to identify their own CE learning needs to choose programs and activities which address those needs, no standard type or form of CE is required. Different forms of learning are considered as acceptable forms of continuing education. The Saskatchewan Registered Nurses Association was the only licensing/regulatory body that indicated a requirement of CE program and provider accreditation for nurses. The Saskatchewan Association of Licensed Practical Nurses (SALPN) outlines eligible categories of CE activities (described earlier in section 3.1.2), but does not indicate any requirement for program or provider accreditation.

Pharmacists

CE program accreditation for pharmacists varies at the provincial level. Presently, seven provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Québec, Nova Scotia, and Newfoundland and Labrador) require that at least some of the continuing education programs in which pharmacists participate be accredited. These programs are accredited by the respective provincial regulatory

body or association. If a program is to be offered across more than one province, it must be accredited at the national level by the Canadian Council on Continuing Education in Pharmacy (CCCEP). This process is facilitated via an application and peer review process (a panel of 6 pharmacists will review the content, objectives, etc. of a program). There is currently no process in place for provider accreditation, but a pilot project is being conducted by CCCEP for accrediting providers. There are currently two provider-participants in the pilot project and they are seeking a third provider-participant before evaluating this initiative.

Mental Health Workers

a. Psychologists

CE programs and providers can be accredited at the national level by the Canadian Psychological Association (CPA). According to one key informant interviewed for the environmental scan, the process is lengthy and includes a site visit, completion of questions, and an evaluation of the program, outcomes, etc.). The environmental scan findings indicate that Saskatchewan is the only province that requires such CE program accreditation. CE providers for psychologists do not have to be accredited in any province or territory.

b. Social Workers

CE program accreditation is required in Alberta and Saskatchewan. The Alberta College of Social Workers accepts any programs that are accredited by universities or other post-secondary institutions. The Saskatchewan Association of Social Workers accredits programs in its province. The College of Alberta also requires CE provider accreditation.

Rehabilitation Workers

a. Occupational Therapists

CE program or provider accreditation is not required by any province or territory. However, programs can be endorsed (accredited) at the national level by the Canadian Association of Occupational Therapists (CAOT). This program is voluntary and involves an application process and fee. Activities endorsed by CAOT must be of professional interest to an occupational therapy audience and may include activities such as workshops, conferences or displays.

b. Physiotherapists

CE program or provider accreditation is not required by any province or territory.

Medical Diagnostic Technologists

a. Medical Laboratory Technologists

CE program and provider accreditation for medical laboratory technologists varies at the provincial level. CE program accreditation is required in five provinces (Alberta, Saskatchewan, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador) and such CE programs can be accredited by the respective provincial regulatory body. Provincial programs are also accredited at the national level by the Canadian Society for Medical Laboratory Science (CSMLS). The accreditation process involves an application form, submission of course materials and assignments so that they can be examined for content, evaluation, etc. Alberta, Nova Scotia, and Newfoundland and Labrador require provider accreditation as well.

b. Medical Radiation Technologists

CE program accreditation is required in four provinces (British Columbia, Saskatchewan, Manitoba, and Newfoundland and Labrador). Programs can also be approved at the national level by the Canadian Association of Medical Radiation Technologists (CAMRT) under its Continuing Education Credits Approval Program (CECAP). Both Manitoba and Newfoundland and Labrador accredit programs using the CECAP process. Programs in British Columbia and Saskatchewan are accredited by the British Columbia Association of Medical Radiation Technologists (BCAMRT) and the Saskatchewan Association of Medical Radiation Technologists (SAMRT), respectively. The national CECAP program requires the submission of an application form and CE activities are considered eligible for CE credit if it is a planned program relevant to the radiologic sciences profession. The subject matter must be of sufficient scope to meet the program objectives and cover specific skills to be attained. A written course outline must include the major and minor topics covered, and the presenter must have credentials relevant to the material presented. Topics must be at least 30 minutes in length. Approved/accredited courses are assigned "A" credits; required by the American Registry of Radiological Technologists (ARRT). Many medical radiation technologists who live and practice in Canada are also certified by the ARRT. This accreditation is therefore important for them. CE provider accreditation is only required in Nova Scotia and Newfoundland and Labrador.

3.2 Key Informant Interviews

3.2.1 Factors Influencing the Implementation of Mandatory Continuing Education

Key informants were asked to identify the factors they believe influence the implementation of mandatory continuing education in their profession/field of practice. While the comments varied, the need for more financial and organizational support was highlighted by several informants. Informants questioned who would pay for mandatory CE, i.e. who would cover the costs associated with program development and who would provide funding for health professionals to attend mandatory CE programs. Key informants also alluded to the expenses surrounding the payment of content experts to provide CE and the resistance of some health professionals to pay for CE. Travel expenses were also mentioned as a factor influencing the implementation of mandatory CE. A

representative for the medical radiation technology profession discussed how the Canadian Association of Medical Radiation Technologists (CAMRT) courses cost less, but participants receive no academic recognition, whereas college courses offer credit, but cost more. This could be an issue for the medical radiation technologist who has limited funds to attend CE, but also wants to take courses towards a degree, diploma, etc. to advance professionally and personally.

The establishment of a formalized infrastructure to support a mandatory CE system was also identified as being important. If mandatory CE is to be implemented, there needs to be an organization in place to provide adequate opportunities and access to CE, as well as to monitor whether requirements are being met. In some instances legislation might be required to implement such a mandatory system and to link it with re-licensure or re-certification. Many informants discussed the availability of adequate CE, the difficulty in providing adequate access to CE in rural, remote and northern communities and the lack of Internet access in some rural communities as major factors influencing the implementation of mandatory CE systems. Key informants also questioned the availability of adequate infrastructure to monitor a mandatory CE system.

The need for more employer support (i.e. provision of time off to attend CE) was identified by the key informants. One informant discussed the importance of employers and their role in supporting participation in CE. As well, time was viewed as a factor influencing the implementation of mandatory CE. Health care professionals are extremely busy balancing professional/work commitments and home/family responsibilities. Many are also required to work overtime. It was questioned by many informants whether certain health professional groups actually have the time to participate in mandatory CE.

The diversity of health professionals, and more specifically the diversity in the ways in which individuals learn, was also identified as a factor influencing the implementation of mandatory CE. If CE were to become mandatory, there would be a need to revamp some programs. One key informant discussed the adoption of principles of adult education as an important step in thinking about mandatory CE or the establishment of such systems. The idea of 'continuing competence' was also raised and the significance of such program orientations to the principles of adult learning and self-directed learning. An informant representing medical specialists raised the point of the effect of shifting orientations on mandatory CE systems and how physicians have been asked to shift from documenting participation to identifying and documenting learning outcomes as a factor in CME participation. The attitudes of health professionals towards CE were also discussed including the willingness of health professionals to take part in CE. Also, one informant discussed the resistance and fear of 'big brother'. Many key informants questioned the difference or impact which mandatory CE actually makes on practice behavior (i.e. does it improve patient outcomes?). A pharmacy representative referred to research conducted on mandatory CE and pharmacists and its effects on pharmacists and patient outcomes. Evidence suggests mandatory CE was not the 'be all, end all.' With respect to changing practice, the link was lacking.

3.2.2 Barriers/Challenges

Key informants were asked to comment on what they considered to be challenges to the effective delivery of CE to health care professionals who work in rural, remote, or northern communities,

Aboriginal communities and inner cities. As well, they were asked for their opinions on some of the challenges that health care professionals face in accessing CE.

3.2.2.1 Effective Delivery of Continuing Education

The effective delivery of CE to health professionals who practice in rural, remote and northern communities is challenged for a variety of reasons. Key informants identified a diversity of geographic, financial, and organizational barriers. The geographic distribution of rural and northern health professionals (i.e. the small number of health professionals scattered over a large area with a broad range of CE needs) makes it difficult to deliver cost-effective programs that also meet continuing education needs. The cost of providing CE to workers in these communities (i.e. paying travel costs to bring in speakers and/or staff) and a lack of available funding for programs and resources were commonly cited. Reference was also made to organizational factors such as staff shortages, a lack of infrastructure (i.e. no office space), and a lack of support from employers (i.e. provision for time off). Other challenges/barriers identified by key informants include the willingness of participants to attend programs, travel, the unavailability of appropriate telecommunications (i.e. limited or no Internet), and the hands-on nature of some health professions (i.e. according to a key informant, physiotherapy, for instance, is best taught face-to-face which can be challenging due to the geographic issues referred to above).

The effective delivery of CE to health professionals practicing in Aboriginal communities is challenged by the numerous health issues and the cultural differences of Aboriginal people and their respective communities. Effective CE program delivery must identify the needs of a community, the needs of the health professionals who work there, and at the same time, consider the culture that the health professionals are working in and link course content to specific needs. Key informants identified a lack of CE which addressed Aboriginal issues and a lack of understanding of the diversity of needs as barriers to effective program delivery. The limited number of health professionals who practice full-time in Aboriginal communities makes it difficult to develop programs that meet these needs.

Very few key informants provided examples of what they considered as barriers to the effective delivery of CE to health professionals working in inner cities. For those who did respond, however, frequently cited was an overworked organizational structure (i.e. it is difficult to concentrate on providing effective CE while more urgent problems needs to be dealt with, such as staff shortages, lack of equipment and resources, etc.).

3.2.2.2 Accessing Continuing Education

Key informants frequently identified the cost of attending CE (i.e. travel costs or loss of pay due to taking time off work) as a challenge for many health professionals. Also cited were a lack of locum support, a lack of time off work, and a lack of employer support. Several key informants cited the relationship between adequate technology and access as a key barrier, specifically a lack of Internet access in some areas or a lack of videoconference capabilities in some areas. Also cited was the professional isolation experienced by many health professionals who practice in rural, remote, and northern communities. They have limited or no access to specialists for consultations, and have

limited access to the variety of CE that urban health professionals can avail of (i.e. grand rounds, lectures, and journal clubs).

Health professionals practicing in some Aboriginal communities face many of the same issues in accessing CE as do rural, remote, and northern health professionals. As well, they lack access to CE that is culturally relevant; CE that addresses their needs for working with Aboriginal people in a variety of Aboriginal communities. The barriers to delivery such CE was described earlier. The barriers encountered by health professionals working in inner cities are, for most part, related to either organizational or cultural factors. It is often difficult to attend CE due to staff shortages, shift work, and lack of employer support. These health professionals also have difficulty accessing CE that addresses issues specific to their work environment, i.e. homelessness, high immigrant population. Health professionals who work in inner cities often treat patients who come from different backgrounds and possibly speak a diversity of languages. According to key informants, there is a lack of CE that addresses this diversity of cultural issues.

3.2.3 Best Practices

Key informants were asked to report on their knowledge of 'best practices' for improving access to and delivery of CE in rural, remote or northern communities, Aboriginal communities and inner cities. The responses suggest that key informants were more knowledgeable regarding 'best practices' relating to rural, remote and northern communities in comparison to Aboriginal communities or inner cities. Many of the 'best practices' identified and described by the key informants were similar in nature and were able to be categorized into broad themes. The major themes which emerged from the key informant interviews focused around: CE delivery methods; provision of incentives for participation in CE; collaboration among groups; and approaches to improve the access to or delivery of CE to these communities.

Not surprisingly, the majority of key informants discussed a variety of CE delivery methods as 'best practices' for improving access to or delivery of CE. Technology-based delivery methods were the most frequently identified and discussed. Many of the informants referred to distance learning (i.e. online courses, teleconferences, videoconferences) and Internet resources as 'best practices'. Web-based courses offered by the Canadian Association of Occupational Therapists (CAOT) and the one-hour teleconferencing program 'Wednesday at Noon' offered to rural and remote family physicians in Newfoundland and Labrador (NL) were identified as examples of specific 'best practices'. A key informant from the medical laboratory technology profession pointed out that the Canadian Association of Medical Laboratory Science (CAMLS) specializes in distance education.

The use of telehealth in general was brought up on a number of occasions by key informants. Key informants also discussed specific telehealth programs/initiatives which were in place in their specific jurisdictions or for their professional field. For instance, rural psychologists in Manitoba are able to attend weekly telehealth case conferences and connect via telehealth link to the university or hospital lecture theatre for live events, lectures, etc.

In addition to technology-based methods of CE delivery, key respondents also discussed the use of workshops and conferences (in person or videotaped), degree and training programs, and self-directed learning practices (i.e. reading journals, newsletters, articles, etc.). The Manitoba

Psychological Society offers one day workshops which participants have to attend on their own time. A nursing key informant discussed a Baccalaureate program for Aboriginal people in nursing, and the training program offered by the First Nations Inuit Health Branch (FNIHB). Examples of self-directed learning practices were also provided as 'best practices' by key informants. For example, medical specialists can undertake self-directed personal learning projects to obtain CE credits. The St. Michael's Hospital Program in Toronto, Ontario was also mentioned as a 'best practice' to improve the access to or delivery of CE to health professionals working in inner cities (St. Michael's Hospital is a teaching hospital affiliated with the University of Toronto). The Centre for Faculty of Development, Faculty of Medicine, University of Toronto at St. Michael's Hospital provides grand rounds on a monthly basis which are open to all individuals that are interested in attending. The Centre for Faculty Development also provides a certificate program and a teaching scholars program to faculty members. As well, St. Michael's Hospital has developed the Graduate Nurse Internship Program, an innovative educational program for new nursing graduates. This program provides opportunities for professional growth and autonomy of nursing graduates, leading to active participation as a member of the clinical team. The new nurse is partnered with a senior nurse who has clinical expertise in the chosen area. The length of the internship program is 8-12 weeks.

The provision of incentives, especially financial ones, was commonly cited as a 'best practice'. For instance, in Québec, family physicians can submit their hours for accredited programs and receive a stipend for attending ($150/3hours). Rural physicians in Québec are also eligible to receive reimbursement for CE expenses which are paid by the provincial government (20 days/year). The Ontario government provides funding that employers and individual nurses can access for CE purposes, but participants are required to pass the course to receive the funding. The availability of travel bursaries as a 'best practice' was also mentioned.

Collaboration between groups was discussed as a 'best practice' by some key informants. One informant mentioned mentoring-type programs. Canadian occupational therapists can access courses offered by the American association. The Northern Outreach Program (School of Physical Therapy, University of Western Ontario) collaborates with the local physiotherapy association to present workshops for clinicians. Interprofessional CE was also discussed as a 'best practice'.

Key informants discussed 'best practice' approaches to improving the access to or delivery of CE. A medical laboratory technologist informant referred to the availability of courses outside of Canada as a 'best practice'. Improved telecommunications and technological infrastructure was also discussed as a best practice method for increasing access to CE. One key informant discussed the importance of educating people on the availability and use of the Internet as a 'best practice'. More programs delivered through avenues that allow people to access CE and more access to live programming was also mentioned.

With respect to 'best practices' to improve access to or delivery of CE to health professionals working in Aboriginal communities, enhancing 'community awareness' was mentioned on a number of occasions. Key informants mentioned the importance of working with Aboriginal communities to develop CE; developing programs that target their needs; and establishing interest groups for those who work with Aboriginal populations. One key informant made reference to the *British Columbia First Nations Health Handbook*, which provides information on unique health

services for First Nations, as well as advice for health professionals serving First Nations individuals and communities (http://www.bchealthguide.org/first_nations_healthguide.pdf). A key informant also mentioned having more interest groups relating to inner city health.

In addition to the broad themes of 'best practices' discussed above, key informants discussed a variety of other 'best practices'. One informant mentioned the role of rural or remote training programs for students in providing the rural or remote health professional with the opportunity to supervise or mentor health professional students. Such preceptorship experiences also serve as an important tool in the professional development of the preceptor or supervisor. Flexibility (i.e. allowing participants to choose the types of activities that best meet their learning needs) and the availability of a wide variety of courses were viewed as 'best practice' approaches. Delivering CE around a specific problem area was also mentioned as a 'best practice' approach. For instance, McGill University has several CE programs which are offered in areas related to diabetes care. A key informant discussed the Canadian Working Group on HIV/AIDS and Rehabilitation (CWGHR) (http://www.hivandrehab.ca). One of the goals is to support educational initiatives for health professionals. Making employers aware of the need to support CE and targeted, well-structured and organized CE were also suggested as best practice approaches. Interestingly, a key informant from the medical radiation technology profession referred to technologists traveling to northern communities not as a 'best practice', but as a 'good practice'.

3.2.4 Key Indicators of Success

Key interview informants were asked to comment on what they felt would be the key indicators for the success and/or effectiveness of best practices for improving access to or delivery of CE for health care professionals in their field of practice. Most of the indicators fell within two broad themes – improved CE involvement and improved practice by health professionals. Among the responses to this line of questioning, the most commonly cited indicator of success was greater attendance at CE events and increased participation in CE. Other indicators included: increased demand for and uptake of CE programs; more broader range of CE events that are relevant to the practice of the health professional; an increase in the number of new people attending a CE event; and an increase in the number of health professionals volunteering to present at workshops.

Indicators of improved practice by health professionals were discussed by a number of key informants. Improved patient/health outcomes were cited on numerous occasions as a key indicator of success. In addition, improved knowledge/skills, the application of new knowledge to practice and positive changes in behaviour were also discussed. Key informants raised the importance of patient satisfaction feedback and opportunities for health promotion as key indicators of success. A family physician representative suggested more direct involvement of physicians with consultants, reduction in inappropriate consultations and better use of consultations as key indicators of success.

Improved access to CE, improved levels satisfaction with CE by the health professional, and improved financial support were also identified as indicators of the success/effectiveness of 'best practices' to improve the access to or delivery of CE. Key informants raised the importance of greater opportunities for provision of CE outside the larger centers, having technological infrastructure in all rural communities and increasing the profession of vibrant, multi-faceted types of programs as key indicators of success. In addition, provision of financial assistance to health

professionals and sufficient funds to be able to re-invest in programs were included as indicators of success. Positive changes in attitudes of health professionals were also identified as a key indicator of success. For example, the recognition of the importance of self-learning, increased job satisfaction, health professionals' awareness of their own educational needs and improved attitudes towards CE were all identified as key indicators of success.

Other key indicators of success provided by key informants included: increased retention of health care professionals; greater competencies amongst health professionals in identifying professional learning needs and addressing them in effective ways; greater employer/management/ institutional support; and ongoing dialogue between CE providers and recipients and membership in national societies. Informants also noted collaboration between groups as a key indicator of success. Future partnerships with private industry and other groups, in addition to the development of interprofessional teams are examples of these indicators.

3.3 Web-based Online Surveys

3.3.1 Response Rate

A total of eight hundred and forty-three (n = 843) surveys were distributed in August 2004. Twenty-four (n = 24) e-mails were undeliverable; four (n=4) respondents declined to participate. Therefore, out of 815 surveys, 237 were completed for a total response rate of 29.1%. The breakdown of respondents and the response rate by survey is as follows:

- Web Survey I: A total of four hundred (n = 400) requests were disseminated for Web Survey I. There were two survey distributions over two weeks. Nine e-mails (n=9) were 'undeliverable' and two (n-2) respondents declined to participant. This reduced the potential survey population to three hundred and eighty-nine (n=389). Therefore, of the 389 requests distributed for Web Survey I, 152 respondents completed the survey (Web Survey I), for a response rate of 39.1%.

- Web Survey II: Initially, three hundred and two (n=302) potential respondents were identified for Web Survey II. However, immediately following the first mail-out, the research team was contacted by one of the respondents, the Canadian Association of Nurses in Aids Care (CANAC), who offered to disseminate the survey to its members (n=141). This increased the number of potential respondents to four hundred and forty-three (n = 443). Again, there were two survey distributions over two weeks. Fifteen (n = 15) were 'undeliverable' and two (n=2) respondents declined to participate. This reduced the potential survey population to four hundred and twenty-six (n = 426). Therefore, of 426 requests distributed for Web Survey II, 85 respondents completed the survey (Web Survey II), for a response rate of 20.0%.

3.3.2 Barriers/Challenges

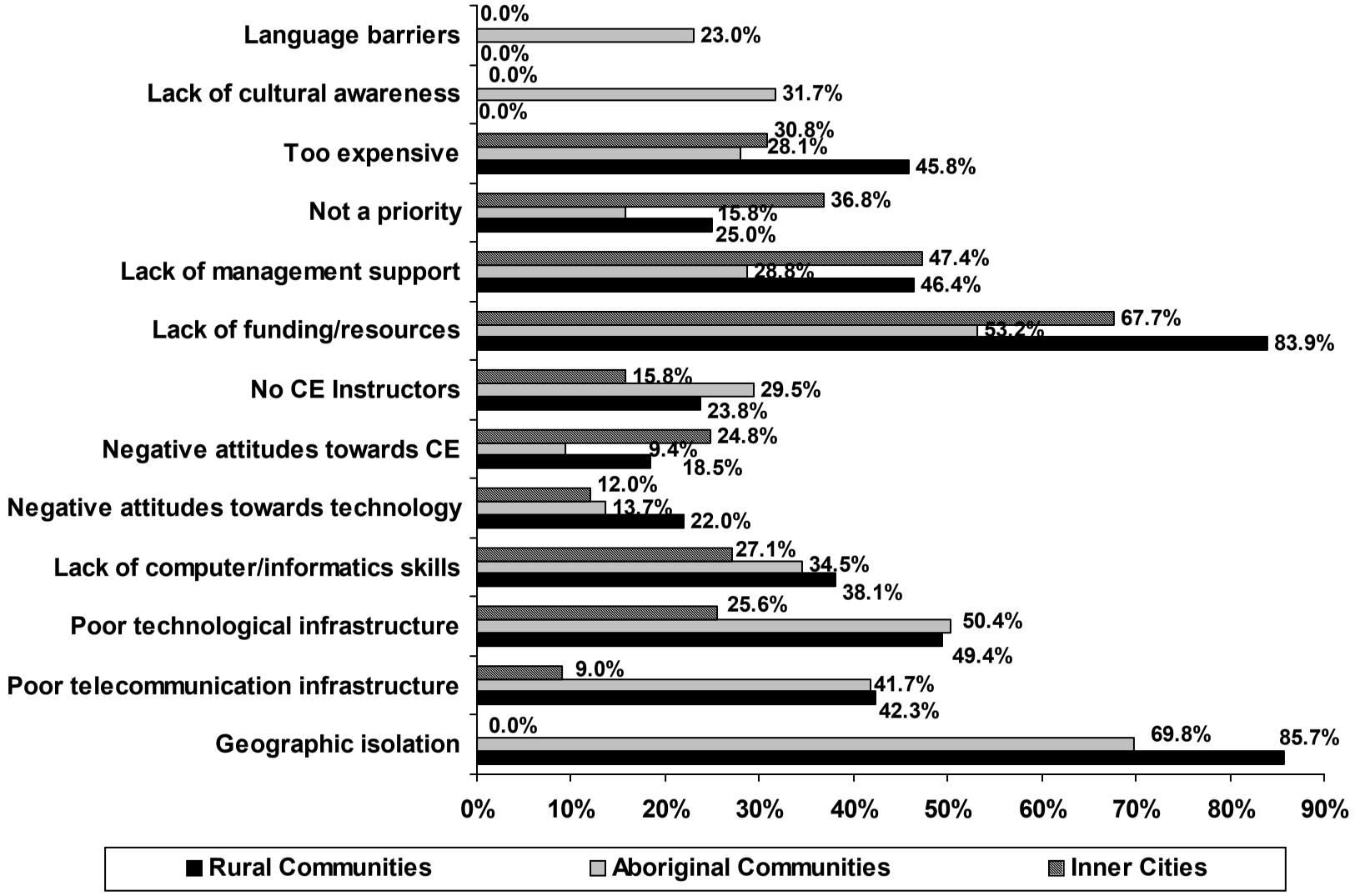
A listing of barriers/challenges was presented on the Web-based surveys and respondents were asked to indicate barriers/challenges in the effective delivery of continuing education, as well as

barriers/challenges faced by health care workers in accessing CE. In general, the list of barriers/challenges provided was similar for all three communities (rural, Aboriginal, and inner cities), but there were some exceptions. 'Geographic isolation' was not listed as a potential barrier for inner cities. The barriers 'lack of cultural awareness'; and 'language barriers' were included for Aboriginal communities. While most of the barriers listed are clear, some of them require further clarification. The item 'lack of funding/resources' refers to insufficient monetary resources to cover the travel costs of a speaker to attend a CE event, lack of human resources to develop a CE program, etc. The barrier/challenge identified as 'too expensive' includes the perception that CE is too expensive from either the health professional or CE provider perspective. 'Poor telecommunications infrastructure' includes such issues as poor bandwidth and lack of high speed Internet, whereas 'poor technological infrastructure' includes such issues as inadequate technological hardware (i.e. lack of available computers). The item 'No remuneration for time off to attend CE' is in reference to health professionals in solo/private practice or professionals working as fee-for-service practitioners. In these circumstances lack of remuneration for lost wages or salary may be an important impediment or barrier to CE participation. The item 'no financial support for travel/accommodations to attend CE' refers to the financial expense incurred by the health professional to attend CE.

3.3.2.1 Effective Delivery of Continuing Education

Figure 1 presents the results regarding perceived barriers/challenges to the effective delivery of CE. 'Geographic isolation' was selected most frequently as an important barrier to the effective delivery of CE to health professionals working in rural, remote, and northern communities (85.7%) and Aboriginal communities (69.8%). 'Lack of funding/resources' was selected most often as an important barrier to the effective delivery of CE to health professionals working in inner cities (67.7%). 'Lack of funding/resources' was also considered an important barrier to the effective delivery of CE to health professionals working in rural, remote, and northern communities and Aboriginal communities. Eighty-three percent (83.9%) of respondents selected 'lack of funding/resources' as an important barrier to the delivery of CE to rural communities; while 53.2% perceived this as a barrier for those working in Aboriginal communities as well. While 'poor technological and telecommunications infrastructure' was perceived as a barrier to delivering CE to rural and Aboriginal communities, this was not the case for inner cites; 42.3% of respondents and 41.7% of respondents indicated 'poor telecommunication infrastructure' as a barrier for rural and Aboriginal communities respectively, but only 9.0% of respondents saw this as a barrier for the effective delivery of CE to those working in inner cities.

Figure 1
Barriers/Challenges in the Effective Delivery of CE

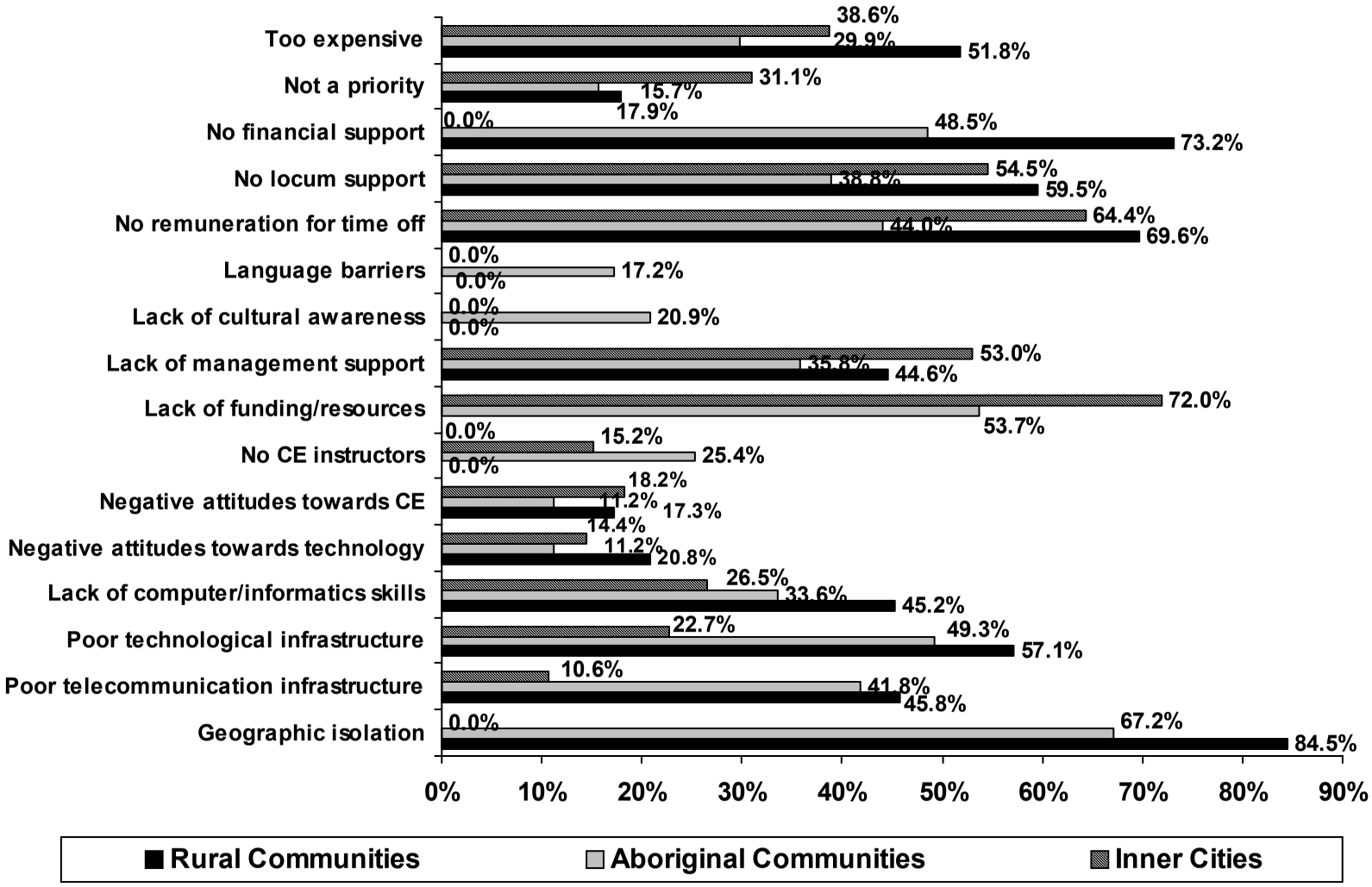


Barriers in the effective delivery of CE can be further summarized into several broad categories: (1) Organizational; (2) Financial; (3) Attitudinal; (4) Technological; (5) Cultural; and (6) Geographic Isolation. *Organizational barriers* are those that may be controlled and/or alleviated by health professionals' employers and/or those who offer CE. They include 'no CE instructors', 'lack of management support', and 'not a priority'. *Financial barriers* include those financial factors that affect both the delivery of programs from a provider perspective, as well as the ability of health professionals to participate in programs. They include 'lack of funding/resources' and 'too expensive'. *Attitudinal barriers* include 'negative attitudes towards technology' and 'negative attitudes towards CE'. *Technological barriers* include those which are within the control of health professionals, i.e. 'lack of computer/informatics skills', but also those that are somewhat outside the control of health professionals and their employers, i.e. 'poor telecommunications infrastructure' and 'poor technological infrastructure'. C*ultural barriers* refer to 'lack of cultural awareness' and 'language barriers'. Finally, g*eographic isolation* is maintained as an individual barrier and not grouped with any others. Not surprisingly, geographic isolation remains the major barrier/challenge to the effective delivery of CE to health professionals working in rural and Aboriginal communities. In addition, financial factors appear to be a major barrier to the effective delivery of CE to health professionals in rural communities, whereas technological factors seem to pose more of a challenge to the effective delivery of CE to health professionals in Aboriginal communities. Organizational and financial factors were cited most often as barriers to the effective delivery of CE to health professionals in inner cities. An interesting point to mention is that attitudinal factors were not perceived to be a significant barrier to the effective delivery of CE to health care providers in all three of the aforementioned communities.

3.3.2.2 Accessing Continuing Education

'Geographic isolation' was selected most frequently as a barrier/challenge in accessing CE by health professionals working in rural, remote, and northern communities (84.5%) and Aboriginal communities (67.2%). 'Lack of funding/resources' was selected most often as a barrier confronting health professionals working in inner cities in accessing CE (72.0%). A 'lack of locum support' and 'remuneration for time off' were also seen as significant barriers. At least 38.8% of respondents perceived lack of locum support as a barrier for those working in Aboriginal communities. Interestingly, 54.5% of respondents perceived this as a barrier to those working in inner cities, while almost 60% also perceived this as a barrier for health professionals working in rural communities. 'No financial support' was also viewed as a significant barrier for those working in rural (73.2%) and Aboriginal (48.5%) communities. Figure 2 shows the percentage of respondents who identified each item as a potential barrier to access to CE for those practicing in rural communities, Aboriginal communities, and inner cites.

Figure 2
Barriers/Challenges in Accessing CE



Barriers in accessing CE can also be further summarized into several broad categories as presented earlier: (1) Organizational; (2) Financial; (3) Attitudinal: (4) Technological; (5) Cultural and (6) Geographic Isolation. Also considered as an o*rganizational barrier* is 'no locum support for time off to attend CE'. 'No remuneration provision for time off to attend CE' and 'no financial support for travel/accommodations to attend CE' are additional *financial barriers* in accessing CE. Barriers/challenges in accessing CE by health care professionals working in rural communities, Aboriginal communities and inner cities are very similar to categories of barriers for the effective delivery of CE to health care professionals working in these same communities. Geographic isolation, financial factors, and technological factors appear to be the major barriers to accessing CE for health professionals working in rural and Aboriginal communities. Financial factors were viewed as a major barrier to CE access for health professionals in inner cities, while organizational factors are also common.

3.3.3 Best Practices

Survey respondents were asked to report on their knowledge of 'best practices' for improving access to and delivery of CE in rural, remote or northern communities, Aboriginal communities and inner cities. Survey responses varied from very general ideas of 'best practices' to specific programs/initiatives. Many of the responses were similar in nature and as such are presented as broad themes. The major themes include: (1) approaches to improve access to or delivery of CE; (2) support from management/institutions; (3) provision of incentives; (4) collaboration between groups; and (5) encouraging community awareness.

Some of these themes can also be further divided into sub-themes. *Support from management/ institutions* would comprise general support from management/employers for CE, locum support, remuneration for time off, etc. *Provision of incentives* would include financial incentives (i.e. funding, scholarships, etc.), as well as other incentives (i.e. certificates, degree completion courses, etc.). *Collaboration between groups* would encompass interprofessional CE, partnerships/ collaboration between professional associations, universities, employers, unions, industry to provide CE, and collaboration across different geographical locations. *Encouraging community awareness* would consist of recognizing the uniqueness and cultural sensitivities of communities and the language barriers which may exist. Some themes were common across the different types of communities (i.e., rural/remote, Aboriginal, Inner city), whereas others were more prominent for certain communities.

<u>*Approaches to Improve Access to or Delivery of CE*</u>

The majority of 'best practices' focused upon approaches to improve access to or delivery of CE for rural, remote and northern communities. Specifically, distance learning, telehealth and onsite delivery of CE were often cited as best practices to improve access to or delivery of CE.

Distance Learning: Responses included many examples of 'best practices' that involved distance learning as an approach to improve the access to and delivery of CE. The Canadian Association of Speech Language Pathologists and Audiologists (CASLPA) has introduced online learning in speech and audiology for its members. In British Columbia, the University of British Columbia Continuing Pharmacy Education Division delivers CE to pharmacists in BC through streaming

media presentations on their website and through webcasting. The Registered Nurses Association of British Columbia (RNABC) provides online education programs and between eight and ten teleconferences a year. In addition, the British Columbia Society of Laboratory Science (BCSLS) has recently reached 200 individuals in 18 sites throughout BC via videoconference. The Continuing Physical Therapy Education program (CPTE) from the University of Saskatchewan has developed a web-based course on evidence-based practice, which allows participants to complete coursework at their convenience. In addition, CPTE offers a noon-hour teleconference series to provide broad regional access to educational sessions at a convenient time. In Ontario, the Ryerson School of Nursing delivers a post RN program in over 20 regional access centres across the province. A respondent also mentioned the e-Learning initiative from the University Health Network in Ontario. The New Brunswick Lung Association provides a live, web-based distance education program for smoking cessation. In Nova Scotia, the Division of Continuing Pharmacy Education, Dalhousie University has piloted the delivery of online CE programs using Horizon Live. Dalhousie University's Division of Continuing Pharmacy Education has also used videoconferencing and has "experimented" with capturing live programs and offering them as an independent study option. In Newfoundland and Labrador, nurses can further their education by participating in Memorial University of Newfoundland's post-RN BN or the Centre for Nursing Studies' post-graduate specialty programs, both of which are offered through distance learning. The Association of Registered Nurses of Newfoundland and Labrador (ARNNL) offers weekly teleconferences. The Canadian Association of Nurses in AIDS Care has undertaken a project with the Canadian AIDS Treatment Information Exchange (CATIE) to develop an Internet resource for nurses. PALLIUM provides health professionals and citizens with information about palliative care through the establishment of a portal on the World Wide Web.

Telehealth: Respondents provided numerous examples of best practices relating to telehealth programming. Telehealth initiatives in Alberta were mentioned on numerous occasions. One respondent described Alberta Wellnet, which allows health care providers to share information over a secure network. Wellnet provides workers in many public facilities with access to telehealth CE courses, however those in private practice do not have the same level of access and as such, may experience barriers to participating in CE. In Alberta, there is a free telehealth network that can be used to link Southern Alberta Institute of Technology (SAIT)/Northern Alberta Institute of Technology (NAIT) and rural hospitals to host meetings or lectures. The Public Health WORKS Speakers Series in Alberta was another 'best practice' identified by a respondent. With the Public Health WORKS Speaker Series, lectures are broadcasted to communities from a Telehealth Site in Edmonton, Alberta.

In Manitoba, the Manitoba Telehealth Network improves access to CE for health care providers through its videoconference facilities at hospitals in Flin Flon and The Pas, two communities in the northern region of the province. The Nova Scotia TeleHealth Network (NSTHN) is another province-wide telecommunications program that provides videoconferencing in 46 health care facilities throughout Nova Scotia. The Nova Scotia College of Medical Laboratory Technologists (NSCMLT) uses telehealth technologies to deliver educational sessions across the province.

Onsite Delivery of CE: Respondents provided a number of specific examples of 'best practices' regarding the onsite delivery of CE. For instance, the Canadian Association of Emergency Physicians (CAEP) offers several travelling "Roadshow" CME events across Canada. Current

Roadshows being offered include: 'Airway Interventions and Management Education (AIME)'; 'Different Strokes, Different Folks: Diagnosis & Management of Stroke/TIA in the ED'; and the Toxicology Roadshow'. Communities wishing to have a Roadshow visit their region can apply to CAEP. The Government of the Northwest Territories (GNWT) will bring speakers into Northwest Territories communities. The Ian Anderson Program in End of Life Care was also listed as a 'best practice' to improve the access to and delivery of CE. This program, offered through the University of Toronto, funds faculty travel to rural locations. The Canadian Association of Critical Care Nurses (CACCN) has a number of chapters that are involved in presenting regional educational sessions. Another 'best practice' described is the initiative involving Mohawk College in partnership with Medical Technology Management Institute (MTMI) of Milwaukee, Wisconsin and the offering of one-day seminars in rural centres.

Self-Directed Learning: Self-directed learning was also identified as a 'best practice' to improve access to and delivery of CE. One respondent referred to the Pearls™ program of the College of Family Physicians of Canada. Pearls is a semi-structured, self-directed learning activity, based on a reflective learning process. Participants formulate a specific practice reflection question, perform a literature search to identify information to answer the question, critically appraise key articles, make a practice decision based on the information, and later evaluate the impact of the decision on his/her practice. Participants have complete control over the choice of question, the pace of learning, the information sought, and the decisions about how to change his/her practice. Pearls activities are eligible for CME credit.

The Saskatchewan Society of Medical Laboratory Technologists (SSMLT) coordinates a loan library of CE material that is provided at no charge to SSMLT members. Also mentioned as a 'best practice' to improve the access to or delivery of CE was the McMaster Practice-Based Small Group Learning Programme. This accredited program, developed in 1992, provides academic support to practicing family physicians so that they are able to define and satisfy their own learning needs in a small group format. It is accredited by the College of Family Physicians of Canada for Mainpro-C credits. The British Columbia Association of Medical Radiation Technologists (BCAMRT) had offered a service of delivering directed readings to members through their newsletter and the Canadian Association of General Surgeons (CAGS) hosts the Canadian Surgery Forum, maintains a video library, and provides hands on skills courses. The Canadian Association of Critical Care Nurses (CACCN) has a website with a chat line for asking questions. In addition, the CACCN has a quarterly journal and holds annual conferences which alternate across different regions of the country each year.

Support from Management/Institutions

Among the 'best practices' noted by respondents that were related to management or institutional support, improved employer support was the most common. Employers providing paid leave, staff coverage and paid travel expenses for health professionals participating in CE were common 'best practice' strategies. Employer sponsored funding assistance to participate in CE and remuneration for time off were also identified as best practice approaches. Specific comments regarding 'best practices' to improve access to or delivery of CE included: employer supported computer purchase programs; locum programs that cover time off for CE; employer sponsored training; employers paying for health care workers to re-certify their Standard First Aid and CPR certification; and

changes to policy and procedures with CE in mind. A specific initiative identified as a 'best practice' was that related to policies developed by the First Nations and Inuit Health Branch (FNIHB) to prioritize and support CE. The FNIHB has also developed mentoring support for nurses working in Aboriginal communities and the director of the FNIHB has explored, with the nursing education community, training programs for nurses working in Aboriginal communities.

Provision of Incentives

Incentives to encourage and support participation in CE were identified as 'best practice' approaches by some respondents. Many of the suggested incentives include a financial focus (i.e. funding, scholarships, bursary program, financial support, premium for completing CE) while others focused on non-monetary incentives such as increased recognition for completing CE activities (i.e. greater access to certificate and degree completion courses, linking CE credits to formal education programming, reward/recognition program for CE completion).

Respondents provided examples of specific programs/initiatives/events that provide incentives to health professionals. The Canadian Association of Speech Language Pathologists and Audiologists (CASLPA) has a provincial education fund. According to CASPLA (2004c), members can receive $100 off the registration rate of its annual conference. As well, $15,000 is provided annually to provincial agencies and university students in Communications Disorders programs to carry out conferences, workshops, or develop resources that provide training opportunities through both the Student Fund and the Provincial Education Fund. In northern Ontario, the North Network, a telemedicine program, provides CE to rural communities. The Government of the Northwest Territories provides funding for CE and in British Columbia, the Rural Education Action Plan, a joint initiative between the British Columbia Medical Association (BCMA) and government to improve educational opportunities for rural physicians, funds rural education and training. The New Brunswick Association of Occupational Therapists (NBAOT) provides some funding support for occupational therapists to attend the NAAOT annual general meeting, which includes an education component. The Canadian Association of Nurses in AIDS Care (CANAC) also offers scholarships to some of their members to improve access to conferences.

Examples of health professionals' receiving non-financial incentives for participation in CE were also identified. The Centre for Nursing and Health Studies, Athabasca University is currently working with Health Canada to develop a means for awarding credit at both the undergraduate and graduate level for participation in Health Canada's Skills Enhancement for Health Surveillance program. The Skills Enhancement for Health Surveillance program is an Internet-based training initiative to increase skills in epidemiology, surveillance and information management. Students enrolled in Lakehead University's Master of Public Health Program must complete Skills Enhancement Modules as part of their program as well.

Collaboration between Groups

The notion of collaboration between groups was raised by a number of respondents as an important example of a 'best practice' approach. Many of the 'best practices' relating to collaboration focused on partnerships among different groups. Professional associations, employers, community agencies, universities, health districts, industry, hospitals, unions and/or vendors/companies partnering to

provide CE, to share resources (i.e. telecommunications infrastructure), or to provide financial support were described. As an example, one respondent described an initiative involving the establishment of a partnership with telecommunications companies to make technology affordable. Another form of collaboration described as a 'best practice' approach was related to the provision of interprofessional CE. Interprofessional CE in this sense referring to shared learning programs with professionals representing at least two of more professions. Peer networking was also mentioned on a number of occasions by respondents as a 'best practice' approach to improving access to or delivery of CE to health professionals.

A number of specific examples of collaborative programs/initiatives were identified and described by respondents. The Canadian Association of Nurses in AIDS Care (CANAC) has recently undertaken a project with Canadian AIDS Treatment Information Exchange (CATIE) to develop an Internet resource for nurses. In Newfoundland and Labrador, the Parkinson's Society of Newfoundland and Labrador has partnered with the staff of the Movement Disorder Clinic (Health Sciences Centre, Memorial University of Newfoundland) to facilitate a videoteleconferencing program for medical personnel in Goose Bay, Labrador City and St. Anthony to educate medical personnel on Parkinson's. The British Columbia Society of Laboratory Science (BCSLS) co-sponsors continuing education events with other related institutions, such as the Justice Institute and Genome BC.

Specific examples of networking initiatives were also discussed by respondents. One respondent identified the importance of establishing networks of key opinion leaders, such as the Canadian Cardiovascular Society's Annual Winter Symposium which provides health practitioners with the opportunity to learn about practical applications of consensus recommendations through a series of plenary sessions and workshops. The Canadian Congestive Heart Failure Clinics Network was established in January 1999 with a mission to establish a network of multidisciplinary heart failure clinics in selected referral centres across Canada. The network links provincial centres of heart failure to a cohesive multidisciplinary group consisting of physicians, nurses, and other health professionals. The HIV/AIDS Quebec Mentorship Program was also identified as a best practice example. This program allows nurses working in HIV/AIDS care to share experiences, exchange and publish ideas and produce tools and quality training in HIV/AIDS care. The Canadian Aboriginal AIDS Network, which provides leadership, support, and advocacy for Aboriginal people living with and affected by HIV/AIDS, was also identified a 'best practice'.

Encouraging Community Awareness

Encouraging community awareness was a popular 'best practice' theme identified by respondents, particularly in relation to improving access to or delivery of CE to health professionals working in Aboriginal communities. Respondents referred to the importance of adapting CE to address community issues and an acknowledgement of the uniqueness of these communities. One respondent identified the need for acknowledging the language and cultural history of the Aboriginal community. Inviting Aboriginal people as guest speakers was also identified as a best practice approach. One respondent suggested translators as a 'best practice' to improve access to or delivery of CE to health professionals working in Aboriginal communities.

Specific examples of 'best practice' approaches for this theme included a joint project between the Canadian Association of Nurses in AIDS Care (CANAC) and the Canadian AIDS Treatment Information Exchange (CAITE). This project involves the moderation of a bulletin board in both French and English to offer support and mentorship to nurses in a wide variety of settings. The Maskwachees Cultural College delivers educational programs in central Alberta to meet the special needs of Aboriginal communities. The Alzheimer Society of Saskatchewan has a staff education day on Aboriginal awareness to improve knowledge and cultural awareness. With respect to encouraging community awareness of inner cities, the Division of Inner City Medicine within the Department of Family Practice, University of British Columbia conducts research in inner city medicine.

Other Considerations

Respondents often discussed the importance of flexibility in relation to access to and delivery of CE to health professionals in rural, remote, Aboriginal or inner city locations. Time considerations and convenience were identified as important factors/determinants influencing access to CE. Some respondents alluded to the notion of the need for making CE mandatory. The provision of 'practical' workshops which clearly demonstrates to employers the benefit of the CE to staff was also discussed as an important 'best practice' approach. Respondents described the importance of involving the community in a needs assessment of the CE needs. While distance learning and technological methods to deliver CE were identified as important delivery methods, it was also identified that some types of CE cannot be delivered by technology because of skill and/or competency to be taught and assessed. This was certainly the case for some health professional CE, and in particular for hands-on practical training, such as that for physiotherapists. One respondent described the need for complementing the knowledge gained through distance learning methods with short, intensive workshops in convenient locations that provide practical experience required to maintain competency in these professions.

3.3.4 Key Indicators of Success

Survey respondents were asked to comment on indicators of the success/effectiveness of 'best practices' for improving access to and delivery of CE to health professionals. The survey responses encompassed a range of general ideas to specific examples of indicators. The responses were reviewed and common themes were organized into categories. The major categories of indicators which emerged include: (1) improved CE involvement; (2) improved practice by health professionals; (3) improved access to or delivery of CE; (4) positive evaluations of CE by health professionals; (5) positive changes in attitudes and beliefs of health professionals; and (6) improved financial support. Increased CE involvement and improved practice by health professionals were the two most prominent themes emerging from the responses. Overall, an increase in participation in CE and increased attendance at CE events by health professionals were cited most often.

Within the category of *improved CE involvement* a number of key indicators of the success/ effectiveness of best practices for improving access to and delivery of CE to health care workers were identified. Apart from general increase in participation or attendance in CE activities, a number of other indicators were also identified including: an increase in the number of health professionals exceeding the minimum requirements of CE for re-licensure; increased involvement

of management to foster and promote CE; increased interprofessional CE; enhanced recognition by management/employers of the importance of CE; increase in health professionals completing a broad range of CE; increased numbers of CE events/programs/courses being offered; CE that meets learning needs; greater requests for CE by health professionals; CE that is interesting and informative; and more time spent on CE by health care professionals.

An increase in compliance with mandatory CE requirements by health professionals was also noted as an indicator of success. For instance, one respondent felt that all members holding a TeKnowledge certificate would be an indicator of success. A TeKnowledge certificate is issued to a medical laboratory technologist in Nova Scotia when he/she completes at least 8 TeKnowledge.ns (or CE) credits every 4 years. An increase in the number of health professionals completing voluntary CE was also mentioned as a key indicator of success. One respondent believed an increase in the number of members voluntarily participating in the BCAMRT Professional Development Program would be a key indicator of success. An increase in the number of health professionals with advanced education/certification, such as the primary health care nurse practitioner program offered through the Centre for Nursing Studies in Newfoundland was also identified.

Indicators of improved practice by health professionals were also identified by respondents as key measures of success. Specifically, health professionals using and applying knowledge gained from CE to improve practice and improve patient outcomes were identified. Other indicators of i*mproved practice by health professionals* included: an increase in the skill level and knowledge base of health professionals; improved collaboration (i.e. interprofessional collaboration, collaboration between communities and CE providers); increase in health promotion activities; improved quality of service; improved quality of life for patients; increase in evidence-based practice; maintenance of competence and continuous quality improvement initiatives.

Indicators of *improved access to or delivery of CE* included: improved infrastructure; greater level of satisfaction amongst health care workers with accessible and available CE opportunities; and decreased reports of barriers to attendance at CE events/programs/courses. The actual delivery of CE to health professionals in rural and Aboriginal communities will require some investment in technology infrastructure to support the delivery of CE. A number of respondents also identified indicators related to *positive evaluations of and satisfaction with CE by health professionals*. Responses tended to focus on greater levels of satisfaction amongst participants with the quality and effectiveness of CE events/programs/courses.

Positive changes in attitudes and beliefs of health professionals included such specific indicators as: increased motivation and enthusiasm for CE; increased interest in CE; increased job satisfaction; greater confidence in practice; reduced complaints by health care professionals; and improved moral amongst health professionals. Indicators focusing on *improved financial support* included: increased funding for health professionals to participate in CE opportunities; paid time off to participate in CE; paid travel to attend CE events; investment in technology to support the delivery of CE in remote regions; affordable CE materials; and remuneration packages that compensate for time away.

Other indicators which did not fall within any of the previously discussed categories included: greater retention of health professionals and less staff turnover; more efficient health care system (i.e. cost-effective, reduction in waiting times, more productive staff); increase in health professionals writing publications and presenting at conferences; greater participation of health professionals in professional association work; and more innovative approaches to CE.

4.0 Findings from the Literature Review

4.1 Review of Articles and Reports

The initial English-language literature search identified approximately **2800** articles/reports, which covered a broad spectrum of continuing education topics and issues. An additional search of French-language literature/sources/reports was also conducted. The strategies and keywords utilized in both searches were outlined in detail in section 2.4.1. The search results were systematically reviewed by members of the research team and approximately **100** articles/reports were highlighted for further review. A total of **53** articles/reports/Internet sources (in both English and French) are included in this report as per the requirements outlined by Health Canada. Literature review summaries (English and French) are included in **Appendices G** and **H**, respectively.

4.1.1 Study Classifications

Each article or report was reviewed by one of the members of the research team and classified according to its study methodology. This classification was based on the following categories: informed opinion article; descriptive study; quasi-comparative study; and comparative study. This classification is based on work by Pong et al. (1995). In general, informed opinion articles are considered to provide the least valid evidence and comparative studies the most valid evidence for the relationship between an intervention and an outcome. The articles/reports are classified by country, category, and theme.

Category

The 'category' classification, based on work by Pong et al. (1995), is as follows:

i. *Informed opinion article*: This category includes summaries of relevant literature. The article/study typically does not describe the methods or results of original research. These articles may cite findings from other studies. Non-systematic review articles are included in this category.

ii. *Descriptive studies*: These are studies which describe the methods and results of original studies, but whose purpose is not to compare the outcomes of different interventions. This category includes a wide variety of study designs such as survey and case study.

iii. *Quasi-comparative studies*: (without contemporaneous local comparisons) These are original studies whose purpose is to compare the outcomes of different interventions. In these studies, the outcomes occurring in the intervention group are compared with the outcomes in historical or non-local controls. Differences in group characteristics and data collection methodology, as well as other external factors, tend to decrease the validity of such studies.

iv. *Comparative studies*: These are original studies that compare the outcomes of different interventions. The outcomes are measured in a similar manner and are compared

between/among groups. These groups are similar in all other respects. Comparative studies may be sub-classified and rated according to their methodological strength, as follows:

Cross-sectional: Outcomes and interventions are measured at the same time.

Case-control: Participants with positive and negative outcomes are compared for differences in intervention.

Cohort: Participants with different interventions are followed longitudinally and compared for outcomes.

Pre-/post-test: Participants are compared for outcomes before and after interventions.

Clinical trial: Subjects are randomized to receive different interventions and are compared for outcomes.

Community trial: Community members or groups are randomized to receive different interventions and are compared for outcomes.

Systematic review: Results from several original comparative studies are systematically compared and synthesized. These include meta-analyses.

Themes

Studies were also classified according to subject matter, using categories identified by the research team. The results of the literature review are presented according to these themes:

i. *Decentralized rural/remote education/research units*: These articles/reports describe the establishment of units/centres outside urban areas, away from the tertiary care centre.

ii. *Information and communications technology*: These articles/reports describe the use of ICTs in the delivery of CE to rural and remote health professionals.

iii. *Consultation support/support network*: These articles/reports describe opportunities for rural and remote health professionals to consult with their peers and to form peer support networks.

iv. *Student supervision*: These articles/reports describe opportunities for student supervision which also serve as effective nonformal CE for rural and remote health professionals.

v. *Financial support/subsidy programs*: These articles/reports describe the provision of financial incentives to enable rural and remote health professionals to access and participate in CE.

vi. *Other*: These articles reports describe some approaches to CE, as well as the relationship between access to CE and retention.

4.2 Summary of the Literature

Decentralized rural/remote education/research units

Our literature search and review uncovered 7 studies that focused on the establishment of, or issues related to, decentralized rural/remote education/research units. All of the studies in this category (100%) were of an informed opinion design type. It has been suggested that lack of CE contributes to poor rural health workforce retention. In 1996, the WONCA Working Party on Training for Rural Practice recommended the establishment of rural medical education and research centres in rural areas (WONCA Working Party on Training for Rural Practice, 1996) as strategies to address issues related to CE access. It is believed that such centres can help develop reciprocal links between country hospitals and practices, medical schools and teaching hospitals and, in turn, improve professional, personal and family conditions in rural practice to promote retention of rural physicians.

Since 1972, rural physicians in the United States have benefited from the establishment of Area Health Education Centres (AHECs) (Mayer, 1990). These centres work with local medical schools to offer and provide greater access to CE for rural physicians. They are not satellites of the medical school, but rather partners that are controlled by a community corporation. The centres assist in arranging CE courses, maintaining learning resource centres, and work to strengthen local health care systems in order to further develop the skills of rural physicians. Mayer (1990) describes how, with the support of outreach library services and visits by university based faculty, AHECs help improve a rural community's ability to recruit, retain, and maintain competencies of primary care physicians and other health manpower. The CE programs of AHECs are oriented to the needs of primary care physicians and regional needs assessment mechanisms help ensure that programs meet local needs and interests. AHECs extend the CME offices of local medical schools by ensuring that all programs are planned in association with the office at an affiliated school of medicine.

The literature also identified a number of CE strategies taking place in Australia to meet the needs of the country's rural health professionals (Hartley, 2000; Humphreys et al., 2000; Humphreys & Nichols, 1995; Anderson & Craig, 1993). University Departments of Rural Health (UDRH) have been developed to increase the rural and remote health workforce through education and training programs. Humphreys et al. (2000) outline the activities of seven of these departments, located at Mount Isa, Broken Hill, Shepparton, Launceston, Whyalla, Alice Springs, and Geraldton. The UDRH at Broken Hill, for example, offers an Associate Diploma in Community Health and Development, a program that allows Aboriginal health workers in remote communities to develop knowledge and skills in primary health care and community development. It is a two-year, part-time course that is designed to ensure that the health professional's learning is connected to their day-to-day work in their communities. Alice Springs' UDRH offers the Master of Remote Health program, which includes a stream for professionals such as medical practitioners, nurses, allied health professionals, Aboriginal health workers, and health administrators. The UDRH at Whyalla offers awards of $1000 to rural and remote health professionals to support their continuing professional development.

In an earlier study, Humphreys and Nichols (1995) outline a national framework that identifies the role of Rural Health Training Units (RHTUs) within the broader State and Commonwealth context of Australia. The purpose of these units is to play a leading role in addressing the continuing education and training needs for rural health workers in their regional areas. The activities of the RHTUs include: undertaking research into the training needs and understanding competencies required; developing and evaluating suitable curricula; developing suitable orientation programs and distance delivery of continuing education; and coordinating education and training activities relevant to rural areas. A National Association of Rural Health Training Units (NARHTU) has also been formed to facilitate collaboration between RHTUs, exchange information, act as a forum for planning further developments of RHTUs, and to provide a communication link with organizations such as Commonwealth and State governments, rural health professionals associations, and educational bodies.

The purpose of the Rural Health Education, Training and Research Network in Australia is to support the education and training of rural health practitioners through the optimum use of appropriate information and communication technologies (Anderson & Craig, 1993). A sample of rural health practitioners and stakeholder interest groups were surveyed through workshops, face-to-face interviews and teleconferences to identify the need and requirements for a rural health education, training and research network. The majority of respondents felt the network would be helpful to themselves and their organizations. The respondents felt that a Rural Health Education, Training and Research Network should: coordinate rural health education, training and research; link health professionals with existing and emerging state, national and international registers or rural health education, training, research and services; facilitate rural health education at all levels; and facilitate the development of higher degree courses in rural health, e.g. Masters and PhDs.

In Canada, a new medical school has been established in rural Ontario. While not specifically a CE initiative, the Northern Ontario Medical School is attempting to influence the education, recruitment, and retention of physicians in rural and northern Ontario and Canada (Rourke, 2002). It is a collaborative partnership between Laurentian University, Sudbury and Lakehead University, Thunder Bay, and it will have a network of learning sites throughout the province. The curriculum is patient-centred and clinically-based and includes Aboriginal health content and context. One of the aims of the school is to graduate highly qualified physicians with state-of-the-art medical education and with enhanced knowledge, skills, and interest in Aboriginal, rural, northern, and under serviced health care (Rourke, 2002).

Information and Communications Technology

The majority of studies (N = 21) examined through the literature review dealt with topics and issues specifically related to the use of information and communications technologies (ICTs) in the delivery of CE to rural and remote health professionals. The majority of the studies in this category were of a descriptive design type. Fourteen (66.7%) were descriptive, 6 (28.6%) were informed opinion, and 1 (4.8%) was of the cohort-comparative study design type.

The use of ICTs in the delivery of CE has become a useful approach to increasing access to rural and remote health professionals (Mattheos, Schittek, Attstrom, & Lyon, 2001). ICTs have become useful modalities for providing CME to rural physicians as the technologies enables these health

professionals to learn new skills and converse with colleagues via telephone, video, or over the Internet, all without leaving their communities (World Organisation of Family Doctors, 1995). The key advantages to the use of distance learning technologies in the delivery of CE to physicians, nurses and pharmacists practicing in rural and remote areas has also been described (Curran & Noseworthy, 1999; Stanton, 2001). Curran and Noseworthy's synthesis report provides an extensive overview of literature evaluating use and effectiveness of distance learning technologies in delivering continuing education for health professionals. The report discusses advantages and disadvantages of correspondence education, audio-mediated technologies (i.e. audio teleconferencing, radio, and audiocassettes), video-mediated technologies (i.e. videoconferencing, broadcast and closed-circuit television networks, slow scan video, and video-based satellite broadcasting), and computer-mediated learning (CML) technologies (i.e. CD-ROM, interactive videodisc systems, and Internet and World Wide Web). Distance education delivery methods can overcome barriers of distance and cost (Sheppard & Mackintosh, 1998) and provide means for overcoming barriers that compromise access to CE. It also means that those with family responsibilities have greater access to education, especially in areas where there are few childcare facilities.

Other studies highlight the state of distance continuing education for health professionals, including the use of information and communication technologies (Mattheos, Schittek, Attstrom, & Lyon, 2001; Carrière, 2001; Memorial University of Newfoundland, 2003). Carriere (2001) surveyed 540 North American members of the Alliance for Continuing Medical Education to determine the state of distance continuing medical education in North America. A Web-based survey was distributed to CME providers in order to identify the characteristics of providers, the characteristics of users, the activities offered, the technologies deployed, and the administration of the systems. Two hundred members returned the survey, for a response rate of 37%. The study findings suggest that there is considerable interest in distance CME, yet at the same time many providers are not offering distance CME. The majority of CME providers (68%) had not developed distance education programs at the time of the survey. Those providers offering distance education programs identified the importance of the distance learning modalities in enhancing access to CME and specialized resources, as well as its ability to overcome time and distance barriers. Those who were not offering distance education cited a lack of specialized staff to help develop and deliver the programs or an insufficient budget.

Canadian continuing health professional education (CHPE) providers are also increasingly using distance learning technologies in the provision of continuing education. In 2002-2003, Memorial University of Newfoundland conducted a national survey of Canadian CHPE providers to: (1) to identify the extent to which information and communication technologies (ICTs) are being used by Canadian CHPE providers in the delivery of continuing professional education; and (2) to identify the role of Canadian CHPE providers in addressing health professionals' continuing professional education needs concerning the adoption and usage of ICTs (Memorial University of Newfoundland, 2003). The information collected from the survey focussed on: level of ICT usage in continuing education delivery; target audiences; nature of distance learning development support systems; types of technologies used; strengths and resources to ICT usage; faculty support; and ICT continuing education. Respondents included Schools of Medicine (N = 16); Schools of Nursing (N = 135); Schools of Pharmacy (N = 9); National/Provincial Health Professional Associations (N = 101); Pharmaceutical Industry Directors (N = 56); and Hospital/Health Care Management Boards

(N = 2727). There were 677 surveys returned. The study findings suggest that academic institutions are responsible for providing the majority of CHPE programming via distance learning technologies and external funding is often necessary to support the high costs of distance learning development and delivery. The report authors recommend a greater role for governments in stimulating efforts in the development and delivery of technology-based CHPE. ICTs are particularly relevant to the enhancement of health care delivery in rural, remote, and northern regions of Canada. Rural communities, governments, health care organizations, and CHPE providers need more information to ensure that new and existing rural telehealth and distance learning projects are appropriate and effective for addressing the needs of rural health care providers.

Emerging information technologies offer great potential to ameliorate some of the sources of personal and professional isolation by providing access to information needed for clinical training, continuing education, professional growth, and consultation (Crandall & Coggan, 1994). Telemedicine is an effective tool for CE and several studies report on its use and importance in Canada (Anderson, 2001; Anderson, 2002: Pong, 2002; Watanabe, Jennett, & Watson, 1999; Elford, 1998). Anderson (2001; 2002) describes a number of the telehealth initiatives that are taking place across Canada. In 2002, the author presented the results of a survey, the purpose of which was to obtain information on telehealth activities, funding and costing mechanisms across Canadian provinces. Twenty-one (n=21) telehealth representatives in eight provinces (Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, and British Columbia) were contacted to participate in the survey. Seventeen (n=17) responses were received and thirteen (n=13) telephone interviews were conducted. All respondents indicated that continuing education was an important component of their telehealth services. The College of Registered Nurses in Nova Scotia, for example, provides continuing nursing education via the Nova Scotia Telehealth Network. The Atlantic Health Sciences Corps in New Brunswick also provides continuing medical education and continuing nursing education to rural sites. Saskatchewan's Northern Telehealth Network provides continuing education across all disciplines. Most programs reported working in consultation with continuing education content developers to provide telehealth network access to users. While videoconferencing was identified as the primary mode of delivery, other formats were also being used and work was being conducted in many areas to move towards greater use of Internet-based technologies. The findings of the survey confirm the importance of using videoconferencing and other technologies to increase access to continuing education for health care providers.

Pong's (2002) report summarizes the key outcomes of 33 projects in the rural health/telehealth field. A number of the projects reviewed for the report explored ways to deal with the difficulties experienced by rural and remote communities in accessing health care. These projects viewed telehealth as a key means to improve rural health services delivery and to provide continuing education to rural practitioners. 'Telemedicine serving Quebec regions' project was a demonstration project in which the hospital in the Magdalen Islands was linked via videoconferencing with specialists in Quebec City and the Gaspé. This equipment permitted consultations around patient care and continuing education for health professionals in the region. The 'First Nations National Telehealth Research Project' examined how telehealth might improve access to health services in rural, isolated communities. The project enabled isolated health staff to access training, information and expertise. The 'Rural Palliative Home Care Demonstration Project' included a comprehensive education strategy to address the learning needs of both formal and informal caregivers via

telehealth. The 'Home Care and People with Psychiatric Disabilities' project offered six training sessions with a mental health therapist to nurses working in the home care program in Taber, Alberta.

Videoconferencing technology has been described and evaluated for its use as a distance learning or telehealth modality for delivering CE at a distance. Several articles in the review discuss the use and application of this distance learning technology, as well as its effectiveness as a CE delivery mechanism. Allen, Sargeant, MacDougall, and Proctor-Simms (2002) describe the development of a province-wide CME videoconferencing program in Nova Scotia. The Dalhousie University Office of Continuing Medical Education has used videoconferencing for CME since a pilot project with 4 sites in 1995-96. The success of this pilot project led to the development of the Nova Scotia Telehealth Network (NSTHN) and the use of videoconferencing has steadily increased since then. In 1999-2000, 64 videoconferences were provided for 1059 learners in 37 sites. Physicians at the receiving sites have been closely involved in program planning and scheduling and a contact physician has been selected in each community to help plan and coordinate the program.

Davis and McCracken (2002) describe a pilot project involving the use of videoconferencing technology for providing a CME program for rural physicians in Alberta. The pilot project consisted of eight monthly, 90 minute videoconferences offered to 14 sites. As part of their study, the authors compared the program's feasibility, acceptability, and cost implications with currently existing telephone conferencing and regional conference programs. Rural physicians (N = 146) were randomly selected to evaluate their satisfaction with the program. The majority of respondents reported that the technological aspects of the project (i.e. the quality of the transmission) were excellent. Ninety-five percent (95%) of those who attended reported that the program met their expectations and they also felt that the videoconferencing format was better than the telephone conferencing format. From the CME providers' point of view, the videoconferencing format was superior in terms of accessibility and scheduling.

Zollo, Kienzle, Henshaw, Crist, and Wakefield (1999) also explored the use of interactive video networks to transmit CME programming from academic centers to multiple rural hospitals. According to the investigators, the delivery of CME programs via information and communications technologies makes possible the dissemination of new developments; provides current training opportunities for hospital staff and employees; and enhances educational experiences for primary care practitioners through consultations with specialists and virtual attendance at academic grand rounds. Zollo et al. also suggest that the use of such technology has the potential to alleviate some of the isolation felt by rural health care providers and it reduces the costs, travel time, and staff absences associated with face-to-face CME programming (Zollo, Kienzle, Henshaw, Crist, & Wakefield, 1999).

The use of the World Wide Web (WWW) for the provision of continuing professional development is also discussed and described extensively in the literature. Walker, Thomson, and Smith (1998) describe how information and communication technology is being used to greater extents in the delivery of CE and in enhancing access to the educational and clinical support of health and medical professionals. The Division of Community and Rural Health of the University of Tasmania has developed an information technology and telecommunications strategy that includes the use of the WWW for learning and support. The WWW is being used as a means for supporting

communication, interaction and educational and clinical support for geographically dispersed and isolated health professionals. An interactive electronic notice board has been developed to facilitate a clinical problem discussion forum and as a venue for critical debate about clinical issues.

Steiner, Hartmann, and Ronau (2002) describe the development of MedReach, a medical information outreach system that connects regional Area Health Education Centers (AHECs) to the Medical College of Ohio at Toledo via the Internet. MedReach provides physicians and other health professionals with access to computerized textbooks and databases for current information on medical diagnoses, treatments, and research. Users are also able to receive personal help with information retrieval by calling or e-mailing an outreach librarian at the Medical College of Ohio. As well, the program sponsors a program entitled 'Medical Applications of Computers' for regional practitioners.

Consultation Support/Support Network

The literature search and review examined 3 studies that focused on the establishment of, or issues related to, consultation support and support networks. The majority of studies in this category were of an informed opinion design type. Two (66.7%) were informed opinion; 1 (33.3%) was descriptive. Professional isolation is a key deterrent in recruiting and retaining rural health care professionals. This is also very problematic for rural and remote health care professionals who are isolated from regional hospitals and medical specialists, particularly when medical emergencies arise in the rural or remote community. Peer support, contact, consultation and networking opportunities are key means for addressing this professional isolation. The CME literature identifies peer consultation as key method for updating knowledge and maintaining competency. Greater opportunities for rural and remote health professionals to consult with their peers and to form peer support networks are key to fostering and promoting individualized professional development. Barer and Stoddart (1999) made a key policy recommendation in this area for addressing physician maldistribution in Canada. They suggested the need for more clinical decision-making support networks. The area health education centers (AHECs) described earlier by Mayer (1990) provide such consultation and support opportunities for rural health professionals.

In one study Joyce, Veitch, and Crossland (2001) explore the nature of rural general practitioners' (GPs) professional support networks. In-depth, semi-structured interviews with a purposive sample of GPs (N = 16 rural general practitioners) were conducted. Rural GPs, particularly those in solo-GP towns had relatively little opportunity for informal interaction with their GP colleagues, yet such interaction was perceived as very important for building a collegial peer support network. Access to, and the frequency of such opportunities, were believed to be problematic for solo practitioners. Participation in CME meetings and conferences in larger urban centres were believed to be important opportunities for rural GPs to establish contacts and network with specialists as well as their peers. Respondents suggested the need for greater face-to-face contact where and when possible. The findings suggest that a greater sense of professional support may address concerns of professional isolation, provide greater opportunities for professional development, and improve retention.

Student Supervision

The literature search and review also examined 3 studies that focused on the role of student supervision as a means for professional development and nonformal CE. All of the studies in this category (100%) were of a descriptive design type.

The Northern Studies Stream (NSS) of McMaster University, in collaboration with Lakehead University, was designed to address the perceived lack of professional development opportunities for rehabilitation health professions (occupational therapy and physiotherapy) in Northwestern Ontario (Salvatori, Berry, & Solomon, 1995). This program recruited community clinicians throughout Northwestern Ontario to serve as teachers to undergraduate occupational therapy and physiotherapy students. A questionnaire was distributed to practicing occupational therapists and physiotherapists in 1991 (N = 115) to assess influences on choice of practice location and perceived benefits and disadvantages of involvement in clinical education. Opportunities for personal growth and CE opportunities were rated highly as sources of job satisfaction and the majority of therapists stated that students provide access to new information, and that clinical education allowed a contribution to the profession. When asked what they considered to be the greatest benefit an educational institution could provide to clinical supervisors, the most frequent response was CE or access to courses on teaching and supervisory techniques.

Verby (1992) describes how the Minnesota Rural Physician Associate Program (RPAP), an undergraduate program, serves as a form of continuing medical education (CME) for many rural preceptors. The RPAP offers undergraduate students the opportunity to study for 9 to 12 months in rural communities. It has been discovered, however, that this program also serves a valuable function as CME for many of the rural physicians acting as preceptors. Many of the rural primary care physicians, by participating in the program as student mentors, identified the following benefits: were able to learn new skills and information that confirmed or updated some of their medical practices and areas of knowledge; were able to validate the general quality of medical practice within their communities; and were able to meet their CME requirements. This is a valuable model for CME as it allowed rural physicians to obtain onsite, free CME and it eliminated the costs that physicians otherwise incur, in terms of fees, income lost, time away from their practices, and inconvenience.

Financial Support/Subsidy Programs

The literature search and review uncovered 3 studies that focused on the provision of financial support/subsidy programs as one way in which health care providers can access and obtain continuing education. All of the studies in this category were of an informed opinion design type.

CE programs, meetings, and workshops in urban settings are often frequently provided, but offerings of similar programs in rural settings are rare or very limited. Rural health care practitioners, many of whom are the sole providers of health care in their communities, simply cannot leave their communities to attend an educational session, regardless of how beneficial it might be to their patients and their practices. The time required away from practice to attend urban CME, the travel and associated costs, are significant factors (Rourke, 1988). As well, many urban health care workers face challenges, such as staff shortages and lack of time off, to attend CE.

Several studies focus on the use of financial incentives as one means for encouraging rural physicians to practice long-term in rural and remote communities. Barer and Stoddart (1999) suggest introducing or increasing financial incentives of various types and establishing national return-of-service programs. Other studies suggest providing rural physicians with the means to attend CME in the hopes of reducing professional isolation, by providing funding for travel and other associated costs (WONCA Working Party on Training for Rural Practice, 1996; World Organisation of Family Doctors, 1995).

Other

The literature search and review uncovered 14 studies that focused on 'other' areas of importance, namely, the relationship between access to CE and the retention of health professionals. Eleven of these (78.6%) were descriptive in nature. Two (14.3%) were informed opinion; 1 (7.1%) was of the comparative study design type.

How does the provision of CE influence the retention of health professionals? Hunter and Nicol (2002) conducted a systematic review of thirteen studies to identify the evidence regarding the influence of continuing professional development in enhancing recruitment and retention of occupational therapists. The authors conclude that there is little evidence for the influence of continuing professional development on staff recruitment and retention and that no study has explored the relationship between the two in isolation. They suggest that recruitment and retention of occupational therapists are influenced by a combination of personal and professional factors. Similar studies which focused on other health professionals concur.

The retention of health professionals is influenced by several factors: job satisfaction; access to CE that meets their professional needs; and the provision of financial incentives are three of them. For instance, an investigation into the relationship between continuing education and job satisfaction among registered nurses (RNs) and licensed practical nurses (LPNs) employed in long-term care facilities in Nashville, Tennessee showed a significant association ($p=.01$) between continuing education and job satisfaction (Robertson, Higgins, Rozmus, & Robinson, 1999).

Several studies suggest that the provision of accessible CE/CME will help to eliminate, or at least alleviate, the professional isolation of rural physicians and, in turn, will have an impact on recruitment and retention (Zollo, Kienzle, Henshaw, Crist, & Wakefield, 1999; Barer & Stoddart, 1999; Forti, Martin, Jones, & Herman, 1995; Ontario Regional Committee of the Society of Rural Physicians of Canada & The Professional Association of Interns and Residents of Ontario, 1998). The provision of CME through enhanced telecommunication links shows promise for reducing professional isolation and enhancing lifelong learning opportunities for rural health care providers (Zollo, Kienzle, Henshaw, Crist, & Wakefield, 1999).

One study attempted to understand the decision-making processes that rural physicians and their families undergo when they decided to relocate. Pope, Grams, Whiteside, and Kazanjian (1998) surveyed 121 rural physicians and analyzed their narrative responses using Grounded theory - a theory for understanding the retention of rural physicians. The study findings were organized around three major categories: community commitment, medical confidence, and compensation. According to the authors, it is the experience the physician has with balancing his or her own

lifestyle with commitment to the community, the confidence that he/she has to fulfill that responsibility, and appropriateness of the compensation which he/she receives that influences the decision to stay or live in rural communities (Pope, Grams, Whiteside, & Kazanjian, 1998). In an isolated setting a physician carries much greater responsibility for quick decision making and must use a wide variety of medical skills. Access to special skills training and CME is often limited and there is no financial incentive for doctors to undergo additional training to enable them to perform a specialty medical skill. The study finds that financial compensation does not reflect the realities of rural medicine.

In a more recent study, Rourke, Incitti, Rourke, and Kenard (2003) conducted a cross-sectional survey with rural family physicians (N = 507) and family medicine residents (N = 536) in Ontario to determine how family medicine residents and practicing rural physicians rated possible solutions for recruiting and sustaining physicians in rural practice. Potential respondents were asked to rate proposed solutions on a 4-point scale from 'very unimportant' to 'very important'. Surveys were received from 276 rural family physicians and 210 family medicine residents. The overall response rate was 46.6%. The results show that rural family physicians rated funding for learner-driven continuing medical education and limiting on call duty to 1 night in 5 as the most important education and practice solutions respectively. Also rated highly in regard to education were 'sabbaticals at appropriate pay for qualified rural physicians' One of the most highly rated solutions by residents was an alternate payment plan which would include time off for attending and teaching CME. The authors conclude that a comprehensive package of the highest rated solutions could help recruit and retain physicians in rural practice.

5.0 Conclusion

The retention of health care professionals, especially those working in rural, remote, inner city, and Aboriginal communities, has been identified as a key issue for the sustainability of the Canadian health care system. Factors associated with professional isolation, as well as access to continuing education, are believed to have significant influence on recruitment and retention of health care professionals in these various communities. The objectives of the environmental scan and literature review presented in this report were to:

- provide an overview of the nature and characteristics of the continuing education system for health care professionals in Canada;
- identify barriers to access to continuing education for health care professionals in rural, remote, northern, Aboriginal and inner city communities in Canada; and
- produce an inventory of best practices for improving access to and delivery of continuing education to health care professionals in rural, remote, northern, Aboriginal and inner city communities in Canada.

A variety of data gathering methodologies were used as part of the environmental scan conducted for this study. The key methodologies used were: key informant interviews; Web-based online surveys; Web site reviews; and follow-up telephone consultations. Key informant interviews were conducted with senior organizational representatives representing a variety of national organizational bodies (i.e. accrediting or CE administrative bodies, national health professional associations, national academic bodies). Web-based online surveys were developed and distributed to provincial bodies representing professional associations, licensing and professional regulatory bodies. Survey respondents were asked to describe the general nature of the continuing education system at the provincial level for their respective profession. Website reviews were conducted to verify and validate the information which had been collected via the key informant interviews and from the online surveys. The information gathered from these methodologies was reviewed and analyzed in order to provide an overall view of the continuing education (CE) system in Canada for family physicians, medical specialists, nurses, nurse practitioners, mental health workers (i.e. psychologists and social workers), rehabilitation workers (occupational therapists and physical therapists), medical laboratory technologists, medical radiation technologists, and support workers.

A literature search and review was conducted of both the English and French peer-reviewed and "grey" literature. The searches were conducted using the following databases: MEDLINE, CINAHL, IPA, the Canadian Research Index, Health Business Full Text Elite, CISTI Source, WHO Catalogue, CBCA-Education, and EMBASE. The following key criteria were used in selecting articles for inclusion in the study:

- access to CE and retention of health care workers;
- rural, remote, Aboriginal or inner city health care workers;
- physicians, nurses, nurse practitioners, mental health care workers, rehabilitation professionals, medical laboratory and radiological technicians.

Additional searches for information were conducted on the following sources:

- The online table of contents of the *Canadian Journal of Rural Medicine*, the *Australian Journal of Rural Health*, the *Journal of Rural Health*, and the *Rural and Remote Health Online Journal*.

- Internet – Several relevant Websites were also explored for potentially relevant information and/or reports: Rural Family Medicine (http://www.ruralfamilymedicine.org/); Health Canada – Telehealth (http://www.hc-sc.gc.ca/ohih-bsi/theme/tele/index_e.html); Canadian Rural Information Service (http://www.rural.gc.ca/cris/directories/health_e.phtml); Centre for Rural and Northern Health Research (http://cranhr.laurentian.ca/); Office of Rural Health (http://www.hc-sc.gc.ca/english/ruralhealth/index.html#publications); Office of Rural and Northern Health (http://www.ornh.mb.ca/); Society of Rural Physicians of Canada (http://www.srpc.ca/); WONCA Rural Information Technology Exchange (http://www.globalfamilydoctor.com/aboutWonca/working_groups/write/library.htm); and the Office of Health and the Information Highway (http://www.hc-sc.gc.ca/ohih-bsi/menu_e.html).

The key findings of the environmental scan and the literature review study are organized into the following categories in the discussion which follows: Characteristics of the Canadian Continuing Education System; Barriers to Continuing Education Access; Evidence; Measuring Success; and Best Practices.

5.1 Characteristics of the Canadian Continuing Education System

National systems of continuing education were found to exist for family physicians, medical specialists, and speech language pathologists and audiologists. These particular CE systems are regulated and monitored by a national professional body and are based on re-certification, not re-licensure. The national CE system for speech language pathologists and audiologists is required for those practitioners who are members of the national association. The national CE system for family physicians and medical specialists is also based on re-certification only, therefore only those individuals who are members of the College of Family Physicians of Canada or the Royal College of Physicians and Surgeons of Canada are mandated to participate in CE. Re-licensure appears to be a system which falls under direct provincial jurisdiction and the environmental scan did not uncover a national CE system which was linked directly to re-licensure in a consistent manner across jurisdictions.

The voluntary vs. mandatory nature of CE systems for the professions of Nursing, Pharmacy, Social Work, Occupational Therapy, Physiotherapy, Psychology, Medical Laboratory Technology, and Medical Radiation Technology varied across provincial jurisdictions. Some professions appeared to have well established or developed systems of CE across the provinces. Nursing and Pharmacy have well organized CE systems in place across the country. The nature of the systems (e.g. mandatory vs. voluntary) varied across provinces, however most were based on mandatory requirements for both professions.

The Nursing profession has approached mandated CE in a different form than other professions. The CE systems in Nursing appear to have moved away from "clocked" hours for attendance at CE activities. Instead, they have moved toward Continuing Competence programs in which greater flexibility for selecting and pursuing CE activities is empowered to the professional. In most instances, the nursing professional is required to maintain a personal learning plan of some sort in which the individual must demonstrate that they have reflected on their professional development and participated in CE to address their competency needs. This documentation is linked with an annual re-licensure cycle in some provinces.

For the pharmacy profession, the majority of provinces have mandatory CE systems in place which are linked to re-licensure. The nature of these CE systems also varies across the provinces. Some provinces have developed CE systems which take the form of continuing competency programs and are self-directed in nature. Others mandate the collection of a specific number of continuing education units (CEUs). Each province's respective professional association or body monitors the continuing education system to ensure CE requirements are met at the time of re-licensure. Yearly submission of respective professional development logs, learning records, CEU transcripts, etc. are required in some jurisdictions. Random audits are also conducted to confirm compliance in some instances.

The Social Work profession also has a 'developing' system of CE across provincial jurisdictions. The Canadian Association of Social Workers (CASW) recommends that social workers maintain a participation standard of 40 hours of continuing professional development each year. Presently, six provinces mandate social workers to participate in some form of continuing education for re-licensure. Each of these provinces also adheres to the national CASW standard. The majority of provinces do not have a mandatory system in place for either Occupational Therapy or Physiotherapy professions. Some work surrounding professional development principles or guidelines are being undertaken by the national association for each of these professions.

The study findings indicate that a national, mandatory CE system exists and is a key component of re-certification for one of the largest health professional groups in Canada – family physicians and medical specialists. The Nursing and Pharmacy professions also have well established CE systems at the provincial levels, with variation in requirements across professions. The Social Work profession also has a developing system with CE mandated in a number of provinces. The CE system for other health professions and health provider groups examined in the environmental scan were less developed across provincial jurisdictions.

5.2 Barriers to Continuing Education Access and Delivery

The environmental scan collected a number of opinions and responses regarding the barriers to participation in CE activities for health care professionals in rural, remote, northern, Aboriginal and inner city communities. Geographic isolation was identified as a key barrier to participation in CE and in access to CE. This was a more prominent barrier for health care professionals in rural, remote, northern and Aboriginal communities. Poor technological and telecommunications infrastructure was also perceived as an important barrier to delivering CE to rural and Aboriginal

communities, but was not perceived to be a significant barrier for inner city health care professionals.

Financial factors appeared to be a major barrier to the effective delivery of CE to health professionals in rural, remote, northern, Aboriginal and inner city communities. Financial barriers included factors that affected both the delivery of programs from a provider perspective, as well as the ability of health professionals to access and participate in programs. A 'lack of locum support' and 'remuneration for time off' were identified as significant barriers with a larger number of respondents indicating these factors of particular significance for practitioners in rural and Aboriginal communities. 'No financial support' (i.e. for travel/accommodations to attend CE, etc.) was also viewed as a significant barrier for those working in rural and Aboriginal communities.

5.3 Evidence

The results of the literature review suggest there is a general lack of rigorous evidence across the professions, as well as national and international jurisdictions, to support a link between access to continuing education and retention of health professionals in rural, remote, northern, Aboriginal and inner city communities. Anecdotal evidence reported in the literature and numerous descriptive studies suggest overwhelming support for the importance of CE access in reducing professional isolation, enhancing recruitment and retention of rural health care professionals, and supporting rural and remote health professionals in their practices. Rural and remote professionals in particular face significant challenges in accessing CE and there is clear evidence to support this. There is also evidence which demonstrates that rural health care professionals often have a wider scope of practice than their urban counterparts and as a result have a greater need for CE in these particular areas. However, the literature is less clear and appears to provide less evidence that CE access has a direct relationship with retention. No evidence nonetheless does not suggest that a relationship does not exist; it may simply suggest that studies have not concentrated in that area. Studies do demonstrate that rural and remote health professionals are less satisfied with their CE access than urban counterparts, identify professional isolation as a key problem and challenge, and report professional isolation and lack of CE access as being related to dissatisfaction with rural or remote practice.

A large component of the literature reviewed for this study focused on the use of distance learning technologies as a means for enhancing or improving CE access, particularly for health care professionals in rural, remote, northern and Aboriginal communities. The literature describing distance learning, CE and rural and remote health professionals dates back to at least the early 1970s, and even earlier. Curran and Noseworthy's (1999) synthesis report of distance learning technologies in continuing education in the health professions provides a useful summary of the various technologies which have been reported in the literature and used in the delivery of CE to rural, remote and northern health professionals. Audio teleconferencing has been reported as a continuing education delivery modality for health professionals, and in particular for rural physicians, since the 1960s. The use of audio teleconferencing as a distance learning technology has been reported in several continuing medical education studies from the University of Wisconsin-Madison, University of Alberta School of Medicine, Memorial University of Newfoundland's Faculty of Medicine, the Ohio State University Medical School, Albany Medical

College, and selected CME projects in Maine and Texas. Two-way radio technology has also been used as a means for delivering CME at a distance to geographically dispersed physicians. Two-way radio technology was first introduced by the Albany Medical College in 1955 as a means to broadcast lectures to six hospitals within a 50-mile radius of Albany. Telehealth programs and projects also emerged as key strategies for supporting rural, remote and northern health professionals. Telehealth programs, particularly those which enabled a remote practitioner to consult a colleague or to access the specialized services available through a larger tertiary care centre, provided opportunities for practice-based professional development and CE.

5.4 Best Practices

As part of the environmental scan, key informants and survey respondents were asked to report on their knowledge of 'best practices' for improving access to and delivery of CE in rural, remote, Aboriginal and inner city communities. Most respondents were in accordance with the evidence referred to above and identified distance learning and telehealth as two 'best practice' areas. In Canada, the trend appears to be towards greater use of ICTs in the health care system and in the continuing education of health professionals. ICTs are useful tools for health professionals because they can provide greater access to clinical and health information, continuing education and an enormous range of online resources which normally would not be available to them. The availability of these resources is believed to strengthen the communication and networking capabilities of health professionals.

Distance learning occurs when an instructor and adult learner(s) are separated by geography and time, and instruction is mediated through either print, information and/or communication technologies. The respondents to the environmental scan indicated that distance CE took a variety of forms, the most common being that of formal accredited CE activities offered as part of an ongoing program series or on a specific project basis. Some professions, particularly Nursing, also described the development and delivery of university-level credit courses and programs as a form of distance CE. Some of these university-level credit programs were developed with the specific needs of the practitioner in mind and focused on specific issues in their practices (e.g. Aboriginal health needs). Distance learning delivery modes are distinguished according to the technologies and medium used to carry the learning materials and/or facilitate the two-way communication between participants and instructors. The distance learning technologies identified by the respondents included audio teleconferencing, videoconferencing, Internet and Web-based learning. Examples of correspondence or home study distance learning formats were also described by some respondents.

Respondents provided numerous examples of best practices relating to telehealth programming. The most common form of telehealth initiative which respondents felt was most appropriate for professional development or CE purposes was that based on the provision of consultation and support for health professionals in rural, remote, northern and Aboriginal communities. Some of the respondents reported a combination of formal CE programs (or distance CE) and tele-consultation support as important components of telehealth-based outreach programs and projects.

The concept of regional CE activities in which specialists or CE instructors traveled to rural or remote sites to deliver CE was also identified as an important and useful best practice. This best practice method was particularly important for CE which encompassed skills-based training, such as advanced procedural and emergency skills. Self-directed learning programs which empowered professionals with responsibility for identifying their own professional learning needs and directing their own learning were also identified as best practice strategies. A number of professions have introduced such programs as part of their mandatory CE requirements. As an example, a number of provincial nursing regulatory bodies have incorporated learning plans as components of re-registration requirements. A key element of these learning plans is the identification of professional learning needs as well as the reporting of CE activities undertaken to address these needs and maintain or enhance competency in nursing practice. The Pearls™ program of the College of Family Physicians of Canada was also identified as an example of best practice in this area.

Best practice strategies related to support from management/institutions were also identified. The best practices identified in this area focused upon employer-sponsored initiatives. The strategies which were identified included: providing paid leave; staff coverage or locum support; remuneration for time off - particularly important for fee-for-service practitioners; and paid travel expenses for health professionals participating in CE. Collaboration between groups was also identified as an important area for best practice strategies. The strategies involving collaboration could include: interprofessional CE; partnerships/collaboration between professional associations, universities, employers, unions, industry to provide CE; and collaboration across different geographical locations.

Encouraging community awareness was also a popular 'best practice' theme identified by respondents, particularly in relation to improving access to or delivery of CE to health professionals working in Aboriginal communities. Respondents referred to the importance of adapting CE to address community issues and an acknowledgement of the uniqueness of these communities. One respondent identified the need for acknowledging the language and cultural history of the Aboriginal community. Inviting Aboriginal people as guest speakers was also identified as a best practice approach.

5.5 Measuring Success

A number of evaluation frameworks in the literature identify indicators for measuring the success or effectiveness of specific CE programs. Ronald Cervero's (1988) approach to the evaluation of continuing professional education programs exemplifies the use of multiple methods to evaluate multiple criteria of program effectiveness. Cervero proposed a framework of seven types of evaluative categories which can be used for the systematic evaluation of continuing education. He suggested that no one category is inherently better or more useful than another, and that information collected at one level does not infer program success at any other level. The seven categories include: program design and implementation; learner participation; learner satisfaction; learner knowledge, skills, and attitudes; application of learning after the program; the impact of application of learning; and program characteristics associated with outcomes (see Figure 3).

Figure 3: Cervero's (1988) CPE Evaluation Categories

	Program Design & Implementation →	Learner Participation →	Learner Satisfaction →	Learner Knowledge, Skills & Attitudes →	Application of Learning After the Program →	Impact of Application of Learning →	Program Characteristics
Evaluative Questions	• Learning activities • Instruction • Learning Environment	• Number and type of participant • Quality of participation	• Satisfaction with subject matter • Satisfaction with instructor • Cost to attend • Satisfaction with educational experience	• Change in cognitive, affective or psychomotor competence	• Degree of knowledge, skill, attitudinal transfer to the workplace	• Extent to which health of public has improved	• Characteristics of the CPE program • The individual professional • Nature of proposed change • Social system
Evaluative Methods	• Questionnaires • Interviews • Observational rating scales	• Observation • Registration data • Demographic surveys	• Feedback or reaction survey	• Paper-and -pencil tests • Pretest — post-test	• Self-reports • Observation • Archival Analysis	• Questionnaires • Interviews • Chart Audits	• Surveys • Interviews

Kirkpatrick (1976) has suggested that evaluation criteria for CE activities could be of four types.

1) *reaction evaluation*: which ideally takes place periodically during a program, as well as after, and provides data to the program managers about how the participants are feeling about the program - data can be used to make changes in design, methods, personnel, facilities, and the like, as the program moves along;

2) *learning evaluation*: which provide data, ideally through pre and posttests about what knowledge, skills, attitudes, and values have been acquired by the participants;

3) *behavior evaluation*: which provide data to show what changes in actual performance have been produced;

4) *results evaluation*: which provides data about the tangible results of the program in terms of improved quality, increased productivity, and the like.

Abrahamson (1984) proposes a framework for the evaluation of continuing medical education which encompasses the evaluative levels of: attendance; satisfaction expressed by participants; knowledge achievement; enhancement of competency; performance change; and improved patient outcomes.

Abrahamson's Evolutionary Steps of CME Evaluation Criteria
1. Attendance
2. Happiness
3. Knowledge
4. Competence
5. Performance
6. Patient outcomes

The environmental scan respondents were asked to identify and describe how they would evaluate (measure the success and/or effectiveness) of a best practice for improving access to or the delivery of CE to health care professionals by identifying some of the key indicators which they felt could be used. The majority of indicators described by the respondents fell within two broad themes: (1) improved CE involvement; and (2) improved practice by health professionals. Greater attendance at CE events and increased participation in CE were identified by a large number of respondents as key indicators of improved access to and participation in CE. Indicators of improved practice by health professionals were also identified by a number of respondents. Improved knowledge/skills, application of new knowledge to practice, positive changes in behavior, and ultimately improved patient/health outcomes were the main indicators identified in this area. Respondents also identified the importance of increased opportunities for CE access outside the larger urban centers and an enhancement of technological infrastructure in rural communities for distance learning and

telehealth activities. Finally, environmental Scan respondents highlighted increased job satisfaction; increased retention of health care professionals; improved attitudes towards CE; and increased funding to support health professionals' participation in CE as key indicators of success.

6.0 References

Abrahamson, S. (1984). Evaluation of continuing education in the health professions. *Evaluation & the Health Professions*, 7(1), 3-23.

Acquilla, S., O'Brien, M., & Kernohan E. (1998). 'Not too much, not too little, but just enough?': Observations on continuing professional development in Public Health in the north of England. *Public Health*, *112*(4), 211-5.

Allen, M., Sargeant, J., MacDougall, E., & Proctor-Simms, M. (2002). Videoconferencing for continuing medical education: From pilot project to sustained programme. *Journal of Telemedicine and Telecare*, *8*, 131-137.

Anderson, C. (2001). *Continuing education via telehealth. Present status; Future growth: A working document*. Retrieved July 29, 2004 from http://www.albertawellnet.org/telehealth/documents/orientation/sect9-resource_document.doc.

Anderson C. (2002). *An environmental scan of telelearning networks outside Alberta: A work in progress*. Retrieved July 29, 2004, from http://www.albertawellnet.org/telehealth/documents/environ_scan_telelearn.doc.

Anderson, D., & Craig, M. (1993). A rural health education, training and research network for Queensland. *Australian Journal of Rural Health*, *1*(2), 29-34.

Association of Canadian Occupational Therapy Regulatory Organizations. (2000). Essential competencies of practice for occupational therapists in Canada. Retrieved October 12, 2004 from http://www.cotns.ca/Essential_Competencies.pdf.

Backman, A. (2000). *Job satisfaction, retention, recruitment and skill mix for a sustainable health care system*. Report to the Deputy Minister of Health for Saskatchewan. Retrieved August 2, 2004 from http://www.health.gov.sk.ca/mc_dp_WORCS.pdf.

Barer, M.L., & Stoddart, G.L. (1999). *Improving access to needed medical services in rural and remote Canadian communities: Recruitment and retention revisited*. Discussion paper prepared for Federal/Provincial/Territorial Advisory Committee on Health Human Resources.

Bhatara, V.S. et al. (1995). An educational perspective of reservation mental health service deficit: The South Dakota experience. Special commentary. *American Indian and Alaska Native Mental Health Research*, *6*(3), 56-70.

Brown, C.A., Belfield, C.R., & Field, S.J. (2002). Cost effectiveness of continuing professional development in health care: A critical review of the evidence. *BMJ*, *324*(7338), 652-5.

Byers, D.L., Hilgenberg, C.S., & Rhodes, D.M. (1996). Evaluation of interactive television continuing education programs for health care professionals. *Journal of Educational Technology Systems*, *24*(3), 259-70.

Canadian Association of Speech Language Pathologists and Audiologists. (2004a). *CASPLA certification program*. Retrieved August 25, 2004 from http://www.caslpa.ca/english/certification/index.asp.

Canadian Association of Speech Language Pathologists and Audiologists. (2004b). *CE activity codes*. Retrieved August 25, 2004, from http://www.caslpa.ca/english/certification/activity.asp.

Canadian Association of Speech Language Pathologists and Audiologists. (2004c). *Benefits of membership*. Retrieved September 30, 2004, from http://www.caspla.ca/english/membership/benefits.asp.

Canadian Nurses Association (2004). *Program history*. Retrieved November 20, 2004 from http://www.cna-nurses.ca/sections/Nursing_Canada/2_6_Cert/about_us.htm.

Canadian Psychological Association. (2000). *Canadian code of ethics for psychologists: Principle IV.4*. Retrieved October 13, 2004 from http://www.cpa.ca/ethics2000.html.

Canadian Home Care Human Resources Study. (2002). *Setting the stage: What shapes the home care labour market?* Retrieved October 12, 2004 from http://www.cacc-acssc.com/english/pdf/homecareresources/final-report.pdf.

Canadian Home Care Human Resources Study (2003). *Synthesis report*. Retrieved October 13, 2004 from http://www.cdnhomecare.ca/chca_admin/documents/synthesis_report__english_oct_2003.pdf

CarriPre, M. (2001). Current state of distance continuing medical education in North America. *Journal of Continuing Education in the Health Professions*, *21*, 150-157.

Cervero, R.M. (1988). *Effective continuing education for professionals*. San Francisco, CA: Jossey-Bass.

Cervero, RM. (2000). Trends and issues in continuing professional education. *New Directions for Adult and Continuing Education*, *86*, pp.3-12.

Clark, C.E., & Cleveland, T.L. (1984). The media and the mode. *Journal of Continuing Education in Nursing*, *15*(5), 168-172.

Cleaver, K. (2003). Developing expertise - the contribution of paediatric accident and emergency nurses to the care of children, and the implications for their continuing professional development. *Accident and Emergency Nursing*, *11*(2), 96-102.

College of Family Physicians of Canada. (2004). *Mainpro – Background information*. Retrieved October 6, 2004, from http://www.cfpc.ca/English/cfpc/cme/mainpro/maintenance%20of%20proficiency/background%20info/default.asp?s=1.

College of Psychologists of Ontario. (2004). *Self-assessment guide and professional development plan*. Retrieved October 1, 2004, from http://www.cpo.on.ca/QA/QA2004/Self_Assessment2004.htm.

Collins, M. (1991). Adult education as vocation. New York: Routledge.

Crandall, L.A., & Coggan, J.M. (1994). Impact of new information technologies on training and continuing education for rural health professionals. *The Journal of Rural Health*, *10*(3), 208-215.

Curran, V., Hatcher, L., & Kirby, F. (2000). CME needs of rural physicians: How do we compare to our urban colleagues? *Canadian Journal of Rural Medicine*, *5*(3), 131-138.

Curran, V., & Noseworthy, T. (1999). *Distance learning and the health professions: A synthesis report of the literature investigating continuing professional health education at a distance*. St. John's, NL: Memorial University of Newfoundland.

Davis, P., & McCracken, P. (2002). Restructuring rural continuing medical education through videoconferencing. *Journal of Telemedicine and Telecare*, *8*(Suppl.2), S2,108-109.

DeMuth, J.E. (1996). Evaluation of an in-depth pharmacy home-study program. *Journal of Continuing Education in the Health Professions*, *16*.

Elford, R. (1998). Telemedicine activities at Memorial University of Newfoundland: A historical review: 1975-1997. *Telemedicine Journal*, *4*(3), 207-24.

Fielding, D.W., & Dinning, B.C.A. (1981). Delivering continuing education by satellite. *Canadian Pharmacy Journal*, *December*, 452-54.

Forti, E.M., Martin, K.E., Jones, R.L., & Herman, J.M. (1996). An assessment of practice support and continuing medical education needs of rural Pennsylvania family physicians. *The Journal of Rural Health*, *12*(5), 432-437.

Forti, E.M., Martin, K.E., Jones, R.L., & Herman, J.M. (1995). Factors influencing retention of rural Pennsylvania family physicians. *Journal of the American Board of Family Practice*, *8*(6), 469-474.

Furze, G., & Pearcey, P. (1999). Continuing education in nursing: A review of the literature. *Journal of Advanced Nursing*, *29*(2), 355-63.

Garrison, J.A., Schardt, C., & Kochi, J.K. (2000). Web-based distance continuing education: A new way of thinking for students and instructors. *Bulletin of the Medical Library Association*, *88*(3), 211-7.

Gill, D., & Game, D. (1994). Continuing medical education needs of rural GPs in South Australia. *Australian Family Physician*, *23*(4), 663-667.

Gitlow, L., & Sanford, T. (2003). Assistive technology education needs of allied health professionals in a rural state. *Journal of Allied Health*, *32*(1), 46-51.

Hartley, R. (2000). Area health services as learning organizations: The rural experience. *Australian Journal of Rural Health*, *8*, 77-80.

Health Canada (1999). *Provincial and territorial home care programs: A synthesis for Canada*. Ottawa, ON: Author.

Houle, C.O. (1980). *Continuing learning in the professions*. San Francisco, CA: Jossey-Bass.

Humphreys, J.S., & Nichols, A. (1995). Education and training: Role of rural health training units. *Australian Journal of Rural Health*, *3*, 80-86.

Humphreys, J.S., Lyle, D., Wakerman, J., Chalmers, E., Wilkinson, D., & Walker, J. et al. (2000). Roles and activities of the Commonwealth Government University Departments of Rural Health. *Australian Journal of Rural Health*, *8*, 120-33.

Hunter, E., & Nicol, M. (2002). Systematic review: Evidence of the value of continuing professional development to enhance recruitment and retention of occupational therapists in mental health. *British Journal of Occupational Therapy*, *65*(5).

Joyce, C., Veitch, C., & Crossland, L. (2003). Professional and social support networks of rural general practitioners. *Australian Journal of Rural Health*, *11*(1), 7-14.

Kamien, M., & Buttfield, I.H. (1990). Some solutions to the shortage of general practitioners in rural Australia. *Medical Journal of Australia*, *53*, 168-171.

Kirkpatrick, D. L. (1976). Evaluation of training. In M.S. Knowles (1980). *The modern practice of adult education: From pedagogy to andragogy*. Chicago: Follett.

Latchem, C. & Rapley P. (1992). Trial by satellite: Video conferencing for continuing education for rural area nurses. *Distance Education*, *13*(1), 118-130.

Lazarus, J.B., Permaloff, A., & Dickson, C.J. (2002). Evaluation of Alabama's mandatory continuing education program for reasonableness, access, and value. *Journal of Continuing Education in Nursing*, *33*(3), 102-11.

Leggate, M., & Russell, E. (2002). Attitudes and trends of primary care dentists to continuing professional development: A report from the Scottish dental practitioners survey 2000. *British Dental Journal*, *193*(8), 465-9.

Little, C.D. (1993). Mandatory continuing education. *Journal of Continuing Education in the Health Professions*, *13*(2), 159-167.

Lott, D.R. (1995). Obstacles to self-paced learning. *Journal of Continuing Education in the Health Professions*, *15*, 203-208.

Mattheos, N., Schittek, M., Attstrom, R., & Lyon, H.C. (2001). Distance learning in academic health education: A literature review. *European Journal of Dental Education*, *5*, 67-76.

Mayer, E.S. (1990). Academic support for rural practice: The role of area health education centers in the school of medicine. *Academic Medicine*, *65*(Suppl 12), S45-S50.

McDowell, C.A., Challis, E.B., Lockyer, J.M., White, L., Adams, K., & Parboosingh, I.J. (1987). Teleconferencing CME programs to rural physicians: The University of Calgary teleconference program. *Canadian Family Physician*, *33*, 1705-1708.

Memorial University of Newfoundland. (2003). *Information and communication technologies (ICTs) and continuing health professional education in Canada: A survey of providers. Final Report*. Ottawa: Health Canada, Office of Health and the Information Highway. Available from: http://www.hc-sc.gc.ca/ohih-bsi/pubs/kdec/nf_intic_rpt_e.html.

Mott, V.W. (1998). Professionalization and reflective theory building in HRD. Proceedings of the Academy of Human Resource Development (pp.671-676), Washington, DC., March 5-8, 1998.

Mott, V.W. (2000). The development of professional expertise in the workplace. *New Directions for Adult and Continuing Education*, *86*, 23-31.

Nowlen, P.M. (1988). *A new approach to continuing education for business and the professions*. Old Tappan, NJ: Macmillan.

Oddi, L. (1987). Perspectives on self-directed learning. *Adult Education Quarterly*, *38*, 21-31.

Ontario Regional Committee of the Society of Rural Physicians of Canada and the Professional Association of Interns and Residents of Ontario. (1998). *From education to sustainability: A blueprint for addressing physician recruitment and retention in rural and remote Ontario*.

Parkin, A., McMahon, S., Upfield, N., Copley, J., & Hollands, K. (2001). Work experience program at a metropolitan paediatric hospital: Assisting rural and metropolitan allied health professionals exchange clinical skills. *Australian Journal of Rural Health*, *9*, 297-303.

Pong, R. (2002). *Sharing the learning: The health transition fund synthesis series: Rural health/telehealth*. Ottawa: Health Canada. Available from: http://www.hc-sc.gc.ca.

Pong, R.W., Saunders, D., Church, J., Wanke, M., & Cappon, P. (1995). *Health human resources in community-based health care: A review of the literature*. Ottawa: Health Promotion and Programs Branch, Health Canada.

Pope, A., Grams, G., Whiteside, C., & Kazanjian, A. (1998). Retention of rural physicians: Tipping the decision making scales. *Canadian Journal of Rural Medicine*, *3*(4), 209-216.
Puskin, D.S. (1992). Telecommunications in rural America: Opportunities and challenges for the health care system. *Annals of the New York Academy of Sciences*, *670*, 67-75.

Queeney, D.S., & English, J.K. (1994). *Mandatory continuing education: A status report*. Columbus, Ohio: ERIC Clearinghouse on Adult, Career, and Vocational Education, Center on Education and Training for Employment.

Robertson, E.M., Higgins, L., Rozmus, C., & Robinson, J. (1999). Association between continuing education and job satisfaction of nurses employed in long-term care facilities. *The Journal of Continuing Education in Nursing*, *30*(3), 108-113.

Rosenthall, J.R., & Miller, T.C. (1982). Divergent pediatric CME priorities in a rural area. *Journal of Medical Education*, *57*, 193-194.

Rourke, J. (1988). Rural family practice part II: Preferences in continuing medical education. *Canadian Family Physician*, *34*, 1035-1038.

Rourke, J. (2002). Building the new Northern Ontario Rural Medical School. *Australian Journal of Rural Health*, 10(2), 112-6.

Rourke, J., Incitti, F., Rourke, L., & Kenard, M.A. (2003). Keeping family physicians in rural practice: Solutions favoured by rural physicians and family medicine residents. *Canadian Family Physician*, *49*, 1142-1149.

Rowe, B.H., Mulloy, J.V., Ryan, D.T., & Pong, R.W. (1995). Continuing medical education: A comparison of northeastern and southern Ontario physicians. In B. Minore, & C. Hartviksen (Eds.), *Redressing the imbalance: Health human resources in rural and northern communities* (pp.259-274). Thunder Bay, ON: Lakehead University.

Royal College of Physicians and Surgeons of Canada. (2004a). *Maintenance of Certification – General information*. Retrieved October 6, 2004, from http://rcpsc.medical.org/maintenance/.

Royal College of Physicians and Surgeons of Canada (2004b). *The Framework of educational CPD options*. Retrieved October 6, 2004 from http://rcpsc.medical.org/maintenance/programinfo/framework_e.pdf.

Salvatori, P., Berry, S., & Solomon, P. (1995). Exploring professional development opportunities in northwestern Ontario: A profile of rehabilitation health professionals. In B. Minore & C. Hartviksen (Eds.), *Redressing the imbalance: Health human resources in rural and northern communities* (pp. 275-287). Thunder Bay, ON: Lakehead University.

Sempowski, I.P., Godwin, M., & Seguin, R. (2002). Physicians who stay versus physicians who go: Results of a cross-sectional survey of Ontario rural physicians. *Canadian Journal of Rural Medicine*, *7*(3), 173-9.

Sheppard, L., & Mackintosh, S. (1998). Technology in education: What is appropriate for rural and remote allied health professionals? *Australian Journal of Rural Health*, *6*, 189-93.

Stanton, S. (2001). Going the distance: Developing shared web-based learning programmes. *Occupational Therapy International*, *8*(2), 96-106.

Steiner, V., Hartmann, J., & Ronau, T. (2002). MedReach: Building an Area Health Education Center medical information outreach system for Northwest Ohio. *Journal of the Medical Library Association*, *90*(3), 317-322.

Tracey, J., Rodwell, P., & Clearwater, G. (1999). Development and evaluation of the Rural Trauma and Emergency Care Roadshow. *New Zealand Medical Journal*, *112*, 144-47.

Treloar, L.L. (1985). Facts about teleconferencing for staff development administrators. *Journal of Continuing Education in Nursing*, *16*(2), 47-52.

Verby, J.E. (1992). A new model for CME. *Academic Medicine*, *67*(5), 316-317.

Walker, J., Thomson, A., & Smith, P. (1998). Maximising the world wide web for high quality educational and clinical support to health and medical professionals in rural areas. *International Journal of Medical Informatics*, *50*(1-3), 287-291.

Watanabe, M., Jennett, P., & Watson, M. (1999). The effect of information technology on the physician workforce and health care in isolated communities: The Canadian picture. *Journal of Telemedicine and Telecare*, *5*(Suppl.2), S2:11-19.

WONCA Working Party on Training for Rural Practice. (1996). Policy on training for rural practice. *Canadian Family Physician*, *42*, 1181-1183.

Woolf, C.R. (1991). Comparison of the perceived CME needs of semirural and urban physicians. *Journal of Continuing Education in the Health Professions*, *11*, 295- 299.

World Organisation of Family Doctors. (1995). *Policy on training for rural practice*. Melbourne, Australia, WONCA.

Zollo, S.A., Kienzle, M.G., Henshaw, Z., Crist, L.G., & Wakefield, D.S. (1999). Tele-education in a telemedicine environment: Implications for rural health care and academic medical centers. *Journal of Medical Systems*, *23*(2), 107-122.

Appendix A

List of Key Interview Informants

List of Key Interview Informants

Target Group	Organization	Key Informant	Contact Information
Family Physicians	College of Family Physicians of Canada http://www.cfpc.ca	Dr. Bernard Marlow Director CPD/CME	Phone: (905) 629-0900, ext.304 Fax: (905) 629-0893 bmarlow@cfpc.ca
	Association of Canadian Medical Colleges (ACMC) http://www.acmc.ca	Marianne Xhignesse Chair, ACMC Committee on CME	Phone: (819) 564-5350 Fax: (819) 820-6815 Marianne.Xhignesse@USherbrooke.ca
	Collège québécois des médecins de famille http://www.cqmf.qc.ca/en/a_home.htm	Dr. Suzanne Gagnon President, CME Committee	Phone: (450) 973-2228 gagnonsuza@hotmail.com
Specialists	Royal College of Physicians and Surgeons of Canada http://rcpsc.medical.org/	Dr. Craig Campbell Director, Office of Professional Development	Phone: (613) 730-6243 Fax: (613) 730-8830 ccampbell@rcpsc.edu
Nurses	Canadian Nurses Association http://www.cna-aiic.ca	Joni Boyd Nursing Policy Consultant	Phone: (613) 237-2159 Fax: (613) 237-3520
	Canadian Association of Schools of Nursing http://www.causn.org	Dr. Carole Orchard President	Phone: (519) 661-2111, ext. 86590. Fax: (519) 850-2381 corchard@uwo.ca
Practical Nurses	Canadian Practical Nurses Association http://www.yourwebperson.com/cpna/intro.shtml	Gabrielle Bridle President	Phone: (519) 888-6320 gabriellebridle@sympatico.ca
Advanced Practice Nurses	Canadian Association of Advanced Practice Nurses http://www.caapn.com	Rosemary Kohr Past-President (referred by current president)	Phone: (519) 685-8500, ext. 75908 Fax: (519) 667-6541 Rosemary.Kohr@lhsc.on.ca

Target Group	Organization	Key Informant	Contact Information
Pharmacists	Canadian Pharmacists Association http://www.pharmacists.ca	Barry Power Director of Practice Development	Phone: (613) 523-7877 Fax: (613) 523-0445 BPower@pharmacists.ca
	Canadian Council on Continuing Education in Pharmacy (CCCEP) http://www.cccep.org	Nancy McBean Executive Director	Phone: (306) 584-5703 Fax: (306) 584-5703 nmcbean@accesscomm.ca
	Association of Faculties of Pharmacy of Canada (AFPC) http://afpc.info/	Janice Moshenko Director, Continuing Pharmacy Education University of British Columbia (referred by the executive director of AFPC)	Phone: (604) 822-3085 Fax: (604) 822-4835 janicem@interchange.ubc.ca
Psychologists	Canadian Psychological Association http://www.cpa.ca	Karen Cohen Associate Executive Director and Registrar, Accreditation	Phone: (613) 237-2144 kcohen@cpa.ca
	Canadian Council of Professional Psychology Programs http://www.ccppp.ca	Valerie Holms President	Phone: (204) 787-3960 Fax: (204) 787-3755 vholms@hsc.mb.ca
	University of Manitoba	Bob McIlwraith Director of Rural and Northern Training	Phone: (204) 787-7972 bmcilwraith@hsc.mb.ca
Social Workers	Canadian Association of Social Work http://www.casw-acts.ca/	Ellen Oliver President	Phone: (709) 737-8160 Fax: (709) 737-7026 elleno@mun.ca
Occupational Therapists	Canadian Association of Occupational Therapists http://www.caot.ca	Mary Manojlovich President	Phone: (709) 777-8110 Fax: (709) 777-8113 mary.manojlovich@hccsj.nf.ca
Physio-therapists	Canadian Physiotherapy Association http://www.physiotherapy.ca/adpubs.htm	Dawn Burnett Project Coordinator	Phone: (613) 564-5454, ext. 225 Fax: (613) 564-1577 dburnett@physiotherapy.ca

Target Group	Organization	Key Informant	Contact Information
Speech Language Pathologists and Audiologists	Canadian Association of Speech Language Pathologists and Audiologists http://www.caslpa.ca/english/index.asp	Sharon Fotheringham Manager of Professional Standards	Phone: (613) 567-9968, ext. 28 Fax: (613) 567-2859 sharon@caslpa.ca
Medical Laboratory Technologists	Canadian Society for Medical Laboratory Science http://www.csmls.org/english/english.htm	Kurt Davis Executive Director	Phone: (905) 528-8642 Ext.#11 Fax: (905) 525-4968 khdavis@csmls.org
Medical Radiation Technologists	Canadian Association of Medical Radiation Technologists http://www.camrt.ca/english/home.htm	Debbie Bolger-Ingimundson Director of Education	Phone: (613) 234-0012, ext. 227 Fax: (613) 234-1097 Debbie@camrt.ca
	Canadian Health Care Association http://www.cha.ca/	Cheryl Teeter Director of Learning	Phone: (613) 241-8005 Fax: (613) 241-5055

Appendix B

Interview Script

Interview Script

Definition of Continuing Education

Continuing education is defined as the participation in formal, informal or nonformal learning activities which are of an organized or self-directed nature, occur after one has completed their pre-professional education for licensure or practice, and may be voluntary or mandatory.

Mandatory continuing education is required by a licensure board, professional organization, or the workplace in order to maintain competence, retain licensure, certification, and/or employment.

General Nature of CE System

What is the nature of the continuing education system in Canada for your profession/field of practice?

> ***Prompt:*** Is there a formalized system of continuing education?
>
> ***Prompt:*** Is the CE system :
>
> Mandatory
> Voluntary

Mandatory CE is required in order to maintain certification or licensure to practice in a health profession or health care field.

Mandatory CE

If Mandatory:

Is the CE system regulated at a national or provincial level?

> National
> Provincial

What 'body' is responsible for its regulation?

> National level:
> Provincial level:

What are the mandatory CE requirements for professionals or individuals in your field of practice?

> ***Prompt:*** # of CE units/hours per year

How is participation in mandatory CE monitored by your profession/field of practice?

Prompt: What is the structure of this monitoring?

Prompt: How is this monitoring organized?

Provincial level:
National level:

What are some of the factors influencing the implementation of mandatory continuing education in your profession/field of practice?

CE Providers

Who are the CE providers in your continuing education system?

Are providers required to be accredited to offer CE?

Yes
No

Who accredits providers?

What is the nature of the accreditation process?

How often does accreditation occur?

CE Methods

What are the common delivery methods for CE in your profession/field of practice?

For example:

Conferences
Workshops
Seminars
Lectures
Rounds
Distance Learning

CE Characteristics

Rural Communities

What are some of the challenges/problems in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in rural, remote or northern communities?

What are some of the challenges/barriers faced by rural, remote or northern health care workers in your profession/field of practice in accessing CE?

What are some examples of 'best practices' or means for improving access to or delivery of CE to rural, remote or northern health care workers in your profession/field of practice

Aboriginal Communities

What are some of the challenges/problems in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in aboriginal communities?

What are some of the challenges/barriers faced by health care workers in your profession/field of practice working in aboriginal communities in accessing CE?

What are some examples of 'best practices' or means for improving access to or delivery of CE for health care workers in your profession/field of practice working in aboriginal communities?

Inner Cities

What are some of the challenges/problems in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in inner cities?

What are some of the challenges/barriers faced by health care workers in your profession/field of practice working in inner cities in accessing CE?

What are some examples of 'best practices' or means for improving access to and delivery of CE for health care workers in your profession/field of practice working in inner cities?

Measuring Success

What would be key indicators of success/effectiveness of best practices for improving access to and delivery of CE to health care workers in your profession/field of practice, particularly those in rural, remote or northern communities, aboriginal communities, and inner cities?

Appendix C

Web Survey I

Web Survey I

Thank you for completing this survey which is a key component of a study of the continuing education system for health care providers in Canada. This study is funded by the Health Human Resource Strategies Division, Health Canada and is being conducted by the Office of Professional Development, Faculty of Medicine, Memorial University of Newfoundland.

The survey should take no longer than 10 minutes of your time to complete. All information gathered through the study will be anonymous and reported in aggregate manner with no identifying information.

The final results of the study will be made available through the Web site of the Health Human Resources Strategies Division, Health Canada http://www.hc-sc.gc.ca/english/hhr/interprofessional/index.html.

Sincerely,

Vernon Curran, PhD
Director of Research and Development

Definition of Continuing Education

Continuing education is defined as the participation in formal, informal or nonformal learning activities which are of an organized or self-directed nature, occur after one has completed their pre-professional education for licensure or practice, and may be voluntary or mandatory.

Mandatory continuing education is required by a licensure board, professional organization, or the workplace in order to maintain competence, retain licensure, certification, registration and/or employment.

1. What organization, institution, body or association do you represent? (e.g. Memorial University School of Nursing; Ontario Medical Association; BC Society of Laboratory Science.)

_____

_____

_____

2. What is the nature of the continuing education system in your province for your profession/discipline/field of practice?

☐ Mandatory (*Mandatory CE is required in order to maintain certification, registration or licensure to practice in a health profession or health care field.)* **If mandatory, go to Section 2**

☐ Voluntary **If voluntary, go to Section 3**

Section 2 - Mandatory CE

3. Is the Mandatory CE system for your province regulated at a national or provincial level?

☐ National

If National, what organization, institution, body or association is responsible for its regulation?
_____

☐ Provincial

If Provincial, what organization, institution, body or association is responsible for its regulation?
_____

4. What are the mandatory CE requirements for your province?

# of CE units/hours per year (please describe)
_____
_____

5. Are CE activities required to be accredited/approved/endorsed in order to be counted towards mandatory CE requirements?

☐ Yes

If Yes, what organization, institution, body or association is responsible for program accreditation/approval/endorsement? _____

☐ No

If No, please explain _____
_____
_____

6. How is participation in mandatory CE monitored in your province? (check all that apply)

☐ Regular submission of record(s)/transcripts of CE participation
☐ Random individual practitioner audit(s)
☐ Other _____
_____

7. What organization, institution, body or association is responsible for administering and managing this monitoring process? _____
_____

8. Who are the CE providers in your continuing education system? (check all that apply)

☐ Universities
☐ Community Colleges
☐ Employers/Hospitals
☐ Professional Association
☐ Licensing body
☐ Union
☐ Specialty Societies
☐ Industry
☐ Health/patient advocacy agencies (e.g. Canadian Cancer Society)
☐ Self-Directed by individuals themselves
☐ Other: _____
☐ Other: _____
☐ Other: _____

9. Are CE providers required to be accredited/approved/endorsed to offer CE?

☐ Yes

If Yes, what organization, institution, body or association is responsible for accrediting/approving/endorsing providers? _____

☐ No

If No, please explain _____
_____
_____

<u>Go to Section 4</u>

Section 3 – Voluntary CE

10. Is the Voluntary CE system for your province managed/administered at a national or provincial level?

☐ National

If National, what organization, institution, body or association is responsible for its management/ administration? _____

☐ Provincial

If Provincial, what organization, institution, body or association is responsible for its management/ administration? _____

11. What are the voluntary CE requirements for your province?

# of CE units/hours per year (please describe) _____
_____
_____

12. Are CE activities required to be accredited/approved/endorsed in order to be counted towards voluntary CE requirements?

☐ Yes

If Yes, what organization, institution, body or association is responsible for program accreditation/approval/endorsement? _____

☐ No

If No, please explain _____
_____
_____

13. Who are the CE providers in your continuing education system? (check all that apply)

☐ Universities
☐ Community Colleges
☐ Employers/Hospitals
☐ Professional Association
☐ Licensing body
☐ Union
☐ Specialty Societies

☐ Industry

☐ Health/patient advocacy agencies (e.g. Canadian Cancer Society)

☐ Self-Directed by individuals themselves

☐ Other: _____

☐ Other: _____

☐ Other: _____

14. Are providers required to be accredited to offer CE?

☐ Yes

If Yes, what organization, institution, body or association is responsible for accrediting/approving/endorsing providers? _____

☐ No

If No, please explain _____

_____

_____

Go to Section 4

Section 4 – Barriers & Best Practices

Rural Communities

15. What are some of the challenges/barriers in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in rural, remote or northern communities? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

16. What are some of the challenges/barriers faced by rural, remote or northern health care workers in your profession/field of practice in accessing CE? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ Lack of management support
☐ No remuneration provision for time off to attend CE
☐ No locum support for time off to attend CE
☐ No financial support for travel/accommodations to attend CE
☐ Not a priority

☐ Too expensive

☐ Other, please describe:

_____
_____
_____

17. What are some examples of 'best practices' for improving access to or delivery of CE to rural, remote or northern health care workers in your profession/field of practice?

_____
_____
_____

Aboriginal Communities

18. What are some of the challenges/barriers in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in aboriginal communities? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Lack of cultural awareness
☐ Language barriers
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

19. What are some of the challenges/barriers faced by health care workers in your profession/field of practice working in aboriginal communities in accessing CE? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Lack of cultural awareness
☐ Language barriers
☐ No remuneration provision for time off to attend CE
☐ No locum support for time off to attend CE
☐ No financial support for travel/accommodations to attend CE
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

20. What are some examples of 'best practices' for improving access to or delivery of CE for health care workers in your profession/field of practice working in aboriginal communities?

_____
_____
_____

Inner Cities

21. What are some of the challenges/barriers in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in inner cities? (check all that apply)

☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors

☐ Lack of funding/resources

☐ Lack of management support

☐ Not a priority

☐ Too expensive

☐ Other, please describe:

_____

_____

_____

22. What are some of the challenges/barriers faced by health care workers in your profession/field of practice working in inner cities in accessing CE? (check all that apply)

☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)

☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)

☐ Lack of computer/informatics skills

☐ Negative attitudes towards technology

☐ Negative attitudes towards CE

☐ No CE instructors

☐ Lack of funding/resources

☐ Lack of management support

☐ No remuneration provision for time off to attend CE

☐ No locum support for time off to attend CE

☐ Not a priority

☐ Too expensive

☐ Other, please describe:

_____

_____

_____

23. What are some examples of 'best practices' for improving access to and delivery of CE for health care workers in your profession/field of practice working in inner cities?

_____

_____

_____

Go to Section 5

Section 5 - Measuring Success

24. What would be key indicators of success/effectiveness of best practices for improving access to and delivery of CE to health care workers in your profession/field of practice, particularly those in rural, remote or northern communities, aboriginal communities, and inner cities?

_____

_____

_____

Thank you for completing this survey.

Appendix D

Web Survey II

Web Survey II

Thank you for completing this survey which is a key component of a study of the continuing education system for health care providers in Canada. This study is funded by the Health Human Resource Strategies Division, Health Canada and is being conducted by the Office of Professional Development, Faculty of Medicine, Memorial University of Newfoundland.

The survey should take no longer than 10 minutes of your time to complete. All information gathered through the study will be anonymous and reported in aggregate manner with no identifying information.

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Vernon Curran, PhD
Director of Research and Development

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Mandatory continuing education is required by a licensure board, professional organization, or the workplace in order to maintain competence, retain licensure, certification, registration and/or employment.

1. What organization, institution, body or association do you represent? (e.g. Memorial University School of Nursing; Ontario Medical Association; BC Society of Laboratory Science.)

_____

_____

_____

Section 1 – Barriers & Best Practices

Rural Communities

2. What are some of the challenges/barriers in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in rural, remote or northern communities? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____

_____

_____

3. What are some of the challenges/barriers faced by rural, remote or northern health care workers in your profession/field of practice in accessing CE? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE

☐ Lack of management support
☐ No remuneration provision for time off to attend CE
☐ No locum support for time off to attend CE
☐ No financial support for travel/accommodations to attend CE
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

4. What are some examples of 'best practices' for improving access to or delivery of CE to rural, remote or northern health care workers in your profession/field of practice?

_____
_____
_____

Aboriginal Communities

5. What are some of the challenges/barriers in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in aboriginal communities? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Lack of cultural awareness
☐ Language barriers
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

6. What are some of the challenges/barriers faced by health care workers in your profession/field of practice working in aboriginal communities in accessing CE? (check all that apply)

☐ Geographic isolation
☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Lack of cultural awareness
☐ Language barriers
☐ No remuneration provision for time off to attend CE
☐ No locum support for time off to attend CE
☐ No financial support for travel/accommodations to attend CE
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

7. What are some examples of 'best practices' for improving access to or delivery of CE for health care workers in your profession/field of practice working in aboriginal communities?

_____
_____
_____

Inner Cities

8. What are some of the challenges/barriers in the effective delivery of CE to health care workers in your profession/field of practice, particularly those in inner cities? (check all that apply)

☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

9. What are some of the challenges/barriers faced by health care workers in your profession/field of practice working in inner cities in accessing CE? (check all that apply)

☐ Poor telecommunications infrastructure (e.g. Internet connectivity, bandwidth)
☐ Poor technological infrastructure (e.g. computer access, videoconferencing access)
☐ Lack of computer/informatics skills
☐ Negative attitudes towards technology
☐ Negative attitudes towards CE
☐ No CE instructors
☐ Lack of funding/resources
☐ Lack of management support
☐ No remuneration provision for time off to attend CE
☐ No locum support for time off to attend CE
☐ Not a priority
☐ Too expensive

☐ Other, please describe:

_____
_____
_____

10. What are some examples of 'best practices' for improving access to and delivery of CE for health care workers in your profession/field of practice working in inner cities?

_____
_____
_____

Section 2 - Measuring Success

11. What would be key indicators of success/effectiveness of best practices for improving access to and delivery of CE to health care workers in your profession/field of practice, particularly those in rural, remote or northern communities, aboriginal communities, and inner cities?

_____
_____
_____

Thank you for completing this survey.

Appendix E

List of Online Survey Informants

List of Online Survey Informants

Target Group	Organization	Web Survey
Physicians	Provincial/Territorial Medical Associations/Organizations	I
	University Departments of Family Medicine	I
	CME Offices of Canadian Medical Schools	I
	Provincial/Territorial Chapters of College of Family Physicians of Canada	I
Nurses	Provincial/Territorial Nursing Associations/Organizations	I
	Canadian Schools of Nursing	I
Pharmacists	Provincial/Territorial Pharmacy Regulatory Authorities	I
	Canadian Schools of Pharmacy	I
Psychologists	Provincial/Territorial Associations/Societies of the Canadian Psychological Associations	I
	Provincial/Territorial Regulatory Bodies for Psychologists	I
Social Workers	Provincial/Territorial Social Work Associations/Organizations	I
	Canadian Association of Social Workers Provincial Regulatory Bodies	I

Target Group	Organization	Web Survey
Social Workers	Canadian Schools of Social Work	I
Occupational Therapists	Provincial Professional Occupational Therapy Associations	I
	Provincial/Territorial Occupational Therapy Regulatory Organizations in Canada	I
	Canadian Schools of Occupational Therapy	I
Physiotherapists	Canadian Physiotherapy Branches	I
	Canadian Alliance of Physiotherapy Regulators	I
	Canadian Schools of Physiotherapy	I
Speech Language Pathologists and Audiologists	Provincial Associations of the Canadian Association of Speech Language Pathologists and Audiologists	I
Medical Laboratory Technologists	Canadian Society for Medical Laboratory Science Provincial Organizations	I
	Canadian Medical Laboratory Technology Training Programs	I
Medical Radiation Technologists	Canadian Association of Medical Radiation Technologists Provincial Member Associations	I
	Medical Radiation Technologists Education Programs	I

Target Group	Organization	Web Survey
Other	Members of the Canadian Healthcare Association	II
	National Specialty Societies	II
	Associate and Affiliate Members/Emerging Groups of the Canadian Nurses Association	II
	National Nursing Groups	II
	NGO's/Other Health Organizations	II

Appendix F

Websites Reviewed

Websites Reviewed

Target Group	Organization	Website URL
Family Physicians	College of Family Physicians of Canada	www.cfpc.ca
	Royal College of Physicians and Surgeons of Canada	http://rcpsc.medical.org
	Canadian Medical Association	www.cma.ca
	British Columbia College of Family Physicians	www.bccfp.bc.ca
	British Columbia Medical Association	www.bcma.org
	Alberta College of Family Physicians	www.acfp.ca
	Alberta Medical Association	www.albertadoctors.org
	Saskatchewan Medical Association	www.sma.sk.ca
	Manitoba College of Family Physicians	www.mcfp.mb.ca
	Ontario College of Family Physicians	www.ocfp.on.ca
	Ontario Medical Association	www.oma.org
	Collège québécois des médecins de famille	www.cqmf.qc.ca
	Quebec Medical Association	www.amq.ca/
	New Brunswick Medical Society	www.nbms.nb.ca

Target Group	Organization	Website URL
	Nova Scotia Chapter of the College of Family Physicians	www.ocfp.on.ca/English/regional/Nova%20Scotia/Home/default.asp?s=1
	Doctors Nova Scotia	www.doctorsns.com
	Medical Society of Prince Edward Island	www.mspei.pe.ca
	Newfoundland and Labrador Chapter of the College of Family Physicians	www.ocfp.on.ca/English/regional/newfoundland/ default.asp?s=1
	Newfoundland and Labrador Medical Association	www.nlma.nf.ca
	Yukon Medical Association	www.yma.yk.ca
Nurses	Canadian Nurses Association	www.cna-nurses.ca
	Registered Nurses Association of British Columbia	www.rnabc.bc.ca
	Alberta Association of Registered Nurses	www.nurses.ab.ca
	Saskatchewan Registered Nurses Association	www.srna.org
	College of Registered Nurses of Manitoba	www.crnm.mb.ca
	College of Nurses of Ontario	www.cno.org
	Registered Nurses Association of Ontario	www.rnao.org
	Ordre des infirmières et infirmiers du Québec	www.oiiq.org
	Nurses Association of New Brunswick/Association des infirmières et infirmiers du Nouveau-Brunswick	www.nanb.nb.ca

Target Group	Organization	Website URL
	College of Registered Nurses of Nova Scotia	www.crnns.ca
	Association of Nurses of PEI	www.anpei.ca
	Association of Registered Nurses of Newfoundland and Labrador	www.arnnl.nf.ca
	Registered Nurses Association of the Northwest Territories and Nunavut	www.rnantnu.ca
	Yukon Registered Nurses Association	www.yrna.ca
Licensed Practical Nurses	College of Licensed Practical Nurses of BC	www.clpnbc.org
	College of Licensed Practical Nurses of Alberta	www.clpna.com
	Saskatchewan Association of Licensed Practical Nurses	www.salpn.com
	College of Licensed Practical Nurses of Manitoba	www.clpnm.ca
	Registered Practical Nurses Association of Ontario	www.rpnao.org/home.asp
	Ordre des infirmières et infirmiers auxiliaires du Québec	www.oiiaq.org
	Association of New Brunswick Licensed Practical Nurses	www.anblpn.com
	College of Licensed Practical Nurses of Nova Scotia	www.clpnns.ca/
	College of Licensed Practical Nurses of Newfoundland and Labrador	www.clpnnl.ca

Target Group	Organization	Website URL
Pharmacists	National Association of Pharmacy Regulatory Authorities	www.napra.ca
	College of Pharmacists of British Columbia	www.bcpharmacists.org/
	Alberta College of Pharmacists	www.altapharm.org/
	Saskatchewan College of Pharmacists	www.napra.org/docs/0/203/262/266.asp
	University of Saskatchewan College of Pharmacy and Nutrition	www.usask.ca/pharmacy-nutrition/
	Manitoba Pharmaceutical Association	www.napra.org/docs/0/203/204.asp
	Ontario College of Pharmacists	www.ocpinfo.com/
	Ordre des pharmaciens du Québec	www.opq.org/
	New Brunswick Pharmaceutical Society	www.napra.org/docs/0/203/227.asp
	The Nova Scotia College of Pharmacists	www.napra.org/docs/0/203/245.asp
	Dalhousie University College of Pharmacy	www.dal.ca/~pharmwww/index.html
	Prince Edward Island Pharmacy Board	www.napra.org/docs/0/203/260.asp
	Newfoundland Pharmaceutical Association	www.npha.nf.ca/
	Northwest Territories Department of Health and Social Services	www.napra.org/docs/0/203/263/278.asp
	Yukon Consumer Services, Community Services	www.napra.org/docs/0/203/264/279.asp

Target Group	Organization	Website URL
Psychologists	Canadian Psychological Association	www.cpa.ca
	College of Psychologists of British Columbia	www.collegeofpsychologists.bc.ca/
	College of Alberta Psychologists	www.cap.ab.ca/
	Saskatchewan College of Psychologists	www.skcp.ca/
	The Psychological Association of Manitoba	www.cpmb.ca/
	College of Psychologists of Ontario	www.cpo.on.ca/
	L'Ordre des psychologues du Québec	www.ordrepsy.qc.ca
	College of Psychologists of New Brunswick	www.cpnb.ca
	Nova Scotia Board of Examiners in Psychology	www.nsbep.org/
	Government of Nova Scotia, Department of Justice	www.gov.ns.ca/just/
	Government of Newfoundland and Labrador, House of Assembly	www.gov.nl.ca/hoa/sr/
Social Workers	Canadian Association of Social Workers	www.casw-acts.ca/
	Board of Registration for Social Workers in B.C	www.brsw.bc.ca/
	Alberta College of Social Workers	www.acsw.ab.ca
	Saskatchewan Association of Social Workers	www.sasw.ca/

Target Group	Organization	Website URL
	Manitoba Association of Social Workers and the Manitoba Institute of Registered Social Workers	www.geocities.com/masw_mirsw/
	Ontario College of Social Workers and Social Service Workers	www.ocswssw.org/
	Ontario Association of Social Workers	www.web.net/~oasw
	Ordre Professionnel des travailleurs sociaux du Québec	www.optsq.org/
	New Brunswick Association of Social Workers	www.nbasw-atsnb.ca/
	Nova Scotia Association of Social Workers	www.nsasw.org/
	Newfoundland and Labrador Association of Social Workers	www.nlasw.ca/
	The Association of Social Workers in Northern Canada (ASWNC)	www.socialworknorth.com/
Occupational Therapists	Canadian Association of Occupational Therapists	www.caot.ca
	College of Occupational Therapists of British Columbia	www.cotbc.org
	Alberta Association of Registered Occupational Therapists	www.aarot.ca
	Saskatchewan Society of Occupational Therapists	www.ssot.sk.ca
	Manitoba Society of Occupational Therapists	www.msot.mb.ca
	College of Occupational Therapists of Ontario	www.coto.org
	L'Ordre des ergothérapeutes du Québec	www.oeq.org

Target Group	Organization	Website URL
	New Brunswick Association of Occupational Therapists	www.nbaot.org
	College of Occupational Therapists of Nova Scotia	www.cotns.ca
Physiotherapists	Canadian Physiotherapy Association	www.physiotherapy.ca
	College of Physical Therapists of British Columbia	www.cptbc.org
	College of Physical Therapists of Alberta	www.cpta.ab.ca
	Saskatchewan College of Physical Therapists	www.scpt.org
	The College of Physiotherapists of Manitoba	www.manitobaphysio.com
	College of Physiotherapists of Ontario	www.collegept.org
	L'Ordre professionnel de la physiothérapie du Québec	www.oppq.qc.ca/
Speech Language Pathologists and Audiologists	Canadian Association of Speech Language Pathologists and Audiologists	www.caslpa.ca
	British Columbia Association of Speech Language Pathologists and Audiologists	www.bcaslpa.bc.ca
	Alberta College of Speech-Language Pathologists and Audiologists	www.acslpa.ab.ca
	Saskatchewan Association of Speech-Language Pathologists and Audiologists	www3.sk.sympatico.ca/saslpa

Target Group	Organization	Website URL
	Manitoba Speech and Hearing Association	www.msha.ca
	College of Audiologists and Speech-Language Pathologists of Ontario	www.caslpo.com
	Ontario Association of Speech-Language Pathologists and Audiologists	www.osla.on.ca
	Ordre des orthophonistes et audiologistes du Québec	www.ooaq.qc.ca/index.html
	New Brunswick Association of Speech-Language Pathologists and Audiologists	www.communicationnb.ca
	The Speech and Hearing Association of Nova Scotia	www.shans.ca
	Newfoundland and Labrador Association of Speech-Language Pathologists and Audiologists	www.nlaslpa.ca/
Medical Laboratory Scientists	Canadian Society for Medical Laboratory Science	www.csmls.org
	British Columbia Society of Laboratory Science	www.bcsls.net
	Alberta College of Medical Laboratory Technologists	www.acmlt.org
	Saskatchewan Society of Medical Laboratory Technologists	www.ssmlt.sk.ca
	Manitoba Society of Medical Laboratory Technologists	www.msmlt.mb.ca
	College of Medical Laboratory Technologists of Ontario	www.cmlto.com

Target Group	Organization	Website URL
	Ontario Society of Medical Technologists	www.osmt.org
	Ordre Professionnel des Technologistes Médicaux du Québec	www.optmq.org
	New Brunswick Society of Medical Laboratory Technologists	www.nbsmlt.nb.ca
	Nova Scotia College of Medical Laboratory Technologists	www.nscmlt.org
Medical Radiation Technologists	Canadian Association of Medical Radiation Technologists	www.camrt.ca/
	British Columbia Association of Medical Radiation Technologists	www.bcamrt.bc.ca
	Alberta Association of Medical Radiation Technologists (AAMRT)	www.aamrt.org
	Saskatchewan Association of Medical Radiation Technologists	www.samrt.ca
	College of Medical Radiation Technologists of Ontario	www.cmrto.org
	Ordre des technologues en radiologie du Québec (OTRQ)	www.otrq.qc.ca
	New Brunswick Division of the Canadian Association of Medical Radiation Technologists	www.umce.ca/camrtnb
	Nova Scotia Association of Medical Radiation Technologists	www.nsamrt.com
	Newfoundland & Labrador Association of Medical Radiation Technologists	www.namrt.org
Home Support Workers	Canadian Home Care Association	www.cdnhomecare.ca

Appendix G

Literature Review Summaries (English)

Literature Review Summaries (English)

Author(s)/ Year	Country	Study Design	Theme(s)	Participants	Summary/Outcomes
Allen Sargeant MacDougall Proctor-Simms 2002	Canada	Descriptive	Information and Communications Technology	N/A	This paper describes the development of videoconferenced CME in Nova Scotia from pilot project to regular programming. The Dalhousie University Office of Continuing Medical Education has used videoconferencing for CME since a pilot project with 4 sites in 1995-96. The success of this project and lessons learned from it led to the development of the Nova Scotia Telehealth Network (NSTHN). The use of videoconferencing has steadily increased since then. In 1999-2000, 64 videoconferences were provided for 1059 learners in 37 sites. Physicians at the receiving sites have been closely involved in program planning and scheduling. A contact physician was selected in each community to help plan and coordinate the program. The contact physician was also responsible for conducting a detailed needs assessment with his/her colleagues. Each videoconference was evaluated as well. In general, learners were satisfied with the program. Using a scale of 1=strongly disagree to 5=strongly agree, participants rated the picture quality and audio quality as satisfactory (mean response 4.1 and 3.9 respectively). This paper also describes the Community Hospital Programme which provides face-to-face CME to 13 regional and large community sites. These initiatives increased the amount of CME available to smaller communities.
Anderson 2002	Canada	Descriptive	Information and Communications Technology	N = 21 telehealth representatives	The purpose of this report was to provide Alberta's Provincial Telehealth Committee (PTC) Subcommittee on Workplace Learning with a better understanding of the costs of telehealth in other provinces. This would assist them in developing a recommendation on costing for the Telehealth Network in Alberta. This paper describes the results of a survey, the purpose of which was to obtain information on telehealth activities, funding and costing mechanisms in provinces other than Alberta. Twenty-one (n=21) telehealth representatives in eight provinces (Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, and British Columbia) were contacted to participate in the survey. Seventeen (n=17) responses were received. Thirteen (n=13) telephone interviews were conducted; e-mail messages were sent to the remaining representatives. All respondents indicated that continuing education is being provided as part of their telehealth services. The College of Registered Nurses in Nova Scotia, for example, provides continuing nursing education via the Nova Scotia Telehealth Network. The Atlantic Health Sciences Corps in New Brunswick provides continuing medical education and continuing nursing education to rural sites. Saskatchewan's Northern Telehealth Network provides continuing education across all disciplines. Most programs reported working in consultation with continuing education content developers to provide telehealth network access to users. While videoconferencing was identified as the primary mode of delivery, other formats are also being used and work is being done in many areas to move towards more Internet-based programs. The findings of the survey confirm the importance of using videoconferencing and other technologies to increase access to continuing education for health care providers.

Author(s)/ Year	Country	Study Design	Theme(s)	Participants	Summary/Outcomes
Anderson 2001	Canada	Descriptive	Information and Communications Technology	N = 45 stakeholders from Alberta health authorities and health education providers	The purpose of this report was to provide Alberta's Provincial Telehealth Committee (PTC) with a better understanding of continuing education needs via telehealth and to identify possible ways to address those needs. Members of health authorities and other parties, who both need and deliver continuing education in the health care sector, were surveyed. Information was obtained through interviews and the submission of written information and/or documents from organizations. The report also explored the needs of, drivers for, and barriers to continuing education. The drivers focus on making education accessible to more staff and reducing costs, especially travel costs. The primary barriers cited include users not being aware of the programs available and not having a process in place to access the information. To alleviate some of these barriers and make CE more accessible, the report offers several solutions: (1) Communication – i.e. create a calendar of CE programs that are or can be offered via telehealth and make it available to all health professionals; (2) Coordination/ Collaboration – i.e. increase collaboration with CE providers, such as colleges and universities; (3) People and System Support – i.e. provide support to telehealth coordinators and recognize the issues surrounding the costs of delivering continuing education via telehealth.
Anderson Craig 1993	Australia	Informed Opinion	Decentralized Rural/Remote Education/Research Units	N/A	Major reports, research and rural practitioners' experience point to inappropriate and inadequate education and training of rural practitioners as major factors in high attrition rates in rural practice. Workers in rural areas feel inept if they are forced to cope regularly with problems for which they are not trained and for which they feel inadequately supported. This increases stress and seems to be a major contributor to the very high turnover rates for rural health care practitioners. Lack of professional support is a major problem for rural health professionals. Many of the access problems perceived by rural health practitioners occur in all disciplines; therefore a coordinated and collaborative approach is needed to ensure that all health professions have access to current education and training. The purpose of the Rural Health Education, Training and Research Network is to support the education and training of rural health practitioners through the optimum use of appropriate information and communication technologies. This paper explores the issues and implications of the network for rural health professionals and Australia. A sample of rural health practitioners and stakeholder interest groups were surveyed through workshops, face-to-face interviews and teleconferences to identify the need and requirements for a rural health education, training and research network. The majority of respondents felt the network would be helpful to themselves and their organizations. The respondents felt that a Rural Health Education, Training and Research Network should: coordinate rural health education, training and research; link health professionals with existing and emerging state, national and international registers or rural health education, training, research and services; facilitate rural health education at all levels; facilitate the development of higher degree courses in rural health, e.g. Masters and PhDs.
Backman 2000	Canada	Descriptive	Other (Human Resources Issues and Challenges)	N = 238 front line health providers and front line	The purpose of this report was to develop recommendations that will assist Saskatchewan Health and other health employers understand the human resource challenges in the health workforce, as well as to provide examples of service delivery models that have the potential

Author(s)/ Year	Country	Study Design	Theme(s)	Participants	Summary/Outcomes
				managers from 9 health districts in Saskatchewan	to help employers more effectively deal with their recruitment and retention challenges. Report methodology included a literature review, focus groups, and key informant interviews. Informants identified a lack of support for professional development in the health districts. Some of the report's recommendations in regards to continuing education and professional development are as follows: (1) Saskatchewan Health should allocate specific funding for continuing education of licensed and self-regulated providers who are employed directly by the health districts. Similar funding should also be made available to unlicensed providers such as aides and technicians for their professional development; (2) The report also recommends that a formalized system of peer support be established for occupational therapists, physical therapists, and community health nurses. This network should include regular case consultation with teams of providers, as well as regular continuing education conferences.
Barer Stoddart 1999	Canada	Informed Opinion	Consultation support/support network Financial support/subsidy programs Other (Policy Recommendations)	N/A	This paper discusses a number of policy recommendations concerning means for addressing physician maldistribution in Canada. Among the recommendations: increased use of non-physician personnel working with regional physician consultants; new training programs for these non-physician personnel improving science programs and counseling in rural area high schools; reserving medical school places for qualified applicants willing to commit to rural practice; revising medical school admissions criteria enhancing rural exposure in both undergraduate and postgraduate MD training; developing new residency programs to prepare rural regional consultants; introducing or increasing financial incentives of various types; providing clinical decision-making support networks and regular relief; providing amenity packages that include benefits for spouses and children; and encouraging alternative remuneration methods. In terms of the role of medical education the authors identify a number of strategies that might be introduced: (1) focus on recruiting/admitting medical students from rural or remote areas, and from Aboriginal groups; (2) positive promotion rural practice generally within medical schools and curriculum modification to reinforce this; (3) exposure of medical undergraduates to rural/remote practice settings, the challenges and rewards of those settings, and the special needs of rural/remote communities; (4) similar exposures for medical residents, including extended periods of experience with rural/remote preceptors; (5) extended opportunities for practicing physicians for skills upgrading/continuing education appropriate to rural/remote practice; and (6) opportunities for existing physicians to re-enter training to specialize in areas of need in rural/remote areas. The report also discusses policy recommendations surrounding: FMGs, modification of licensure process, and national return-of-service programs.
CarriPre 2001	Canada Unites States	Descriptive	Information and Communications Technology	N = 540 North American members of the Alliance for Continuing Medical Education 200 returned the	The purpose of this study was to determine the state of distance continuing medical education (CME) in North America. A Web-based survey was distributed to CME providers in order to determine a description of the providers, the users, the activities offered, the technologies deployed, and the administration of the systems. Two hundred members returned the survey, for a response rate of 37%. The study findings indicate that there is considerable interest in distance CME, but at the same time, that many providers are not offering it. The majority of CME providers (68%) had not developed distance education programs at the time of the survey. Thirty percent (30%) of the providers, who were mainly

Author(s)/ Year	Country	Study Design	Theme(s)	Participants	Summary/Outcomes
				survey; response rate 37%	private companies, were offering non-degree distance programs; 2% of the university programs were offering degree programs. Those who were offering distance education programs highlighted its effectiveness in enhancing access to CME and specialized resources and its ability to overcome time and distance barriers. Those who were not cited a lack of specialized staff to develop and deliver programs or an insufficient budget.
Crandall Coggan 1994	United States	Informed Opinion	Information and Communications Technology	N/A	A geographically isolated rural setting may translate itself into professional and social isolation as a result of the distance from secondary and tertiary care and limited opportunities for continuing education. The perception that physicians in rural practice are isolated from sources of information and support is frequently cited as a barrier to recruitment of adequate numbers of physicians to practice in areas remote from the academic centers. It has been suggested that inadequate access to medical library service is an important factor in producing a sense of isolation among rural physicians. Emerging information technologies offer great potential to ameliorate some of the sources of personal and professional isolation by providing access to information needed for clinical training, continuing education, professional growth, and consultation. This article discusses the interrelationship of new information technologies, the information needs for primary care training and continuing education in rural settings, assesses recent efforts to implement electronic information technologies in rural settings, and describes current technologies that have the potential to improve the education and training opportunities in rural areas. The past two decades have witnessed a variety of attempts to improve rural access to medical information. The most common approach is one in which libraries have cooperated to provide isolated rural practitioners with resources. One such strategy has been based on the establishment of an outreach or extension program of a university-based health science library to rural hospitals. Telephone-initiated bibliographic searching and mailing of articles to remote sites have been in place for many years. More immediate and interactive technologies can also be used to have a direct impact upon patient care. Telephone-based systems can be used to facilitate consultation services with academic physicians. Tele-education, consisting of "primarily distance professional education (basic and continuing, access to remote information (databases, literature, and colleagues), and community health education", is another strategy. The traditional view that a rural location is a barrier to providing state-of-the-art information for the continuing education of health professionals may no longer be valid.
Curran Noseworthy 1999	Canada	Informed Opinion	Information and Communications Technology	N/A	The purpose of this synthesis report was to provide an extensive overview of the English-language literature which has evaluated and reported the use and effectiveness of distance learning technologies in the delivery of continuing health professional education. Several objectives guided the collection, examination, and synthesis of the literature which was included in the report: (i) to summarize the scope of research studies and literature identified and examined, including the summarization of research designs and key outcome findings; (ii) to summarize the major findings resulting from the review of the literature, particularly educational effectiveness, cost-benefit analysis findings, technological infrastructure, and problems encountered; (iii) to draw conclusions and identify possible policy implications, uncover gaps in the literature, and provide recommendations for other areas of investigation.

Author(s)/ Year	Country	Study Design	Theme(s)	Participants	Summary/Outcomes
Curran Hatcher Kirby 2000	Canada	Descriptive	Other (CME Preferences)	N = 867 licensed physicians in Newfoundland and Labrador 339 surveys were returned.	The purpose of this paper was to assess the differences in perceived CME clinical learning needs of rural and urban physicians. The study design involved the distribution of a needs assessment questionnaire. Information was collected on demographics, specialty, location of practice, learning patterns, level of CME participation, learning needs, perception of availability of CME, and learning method preferences. The findings show that rural physicians reported spending less time per week on informal learning activities. They reported a significantly lower number of formal CME programs in the past 12 months. Rural physicians reported a higher need for CME in advanced clinical skills and emergency medicine than urban physicians, whereas urban physicians reported higher need for CME in geriatrics, pharmacology, therapeutics and pediatrics. Special needs and preferences of rural GPs suggest the need for targeted advertising and more distance education programs, plus half-day weekend and evening sessions.
Davis McCracken 2002	Canada	Descriptive	Information and Communications Technology	N = 146 randomly selected rural physicians	This article describes the piloting of a videoconferencing continuing medical education program for rural physicians in Alberta. It compares its feasibility, acceptability, and cost implications with currently existing telephone conferencing and regional conference programmes. The pilot project consisted of eight monthly, 90 minute videoconferences offered to 14 sites during which time the participants (approximately 35 per session) were linked with a CME provider and trained moderator. At the end of the pilot project they were asked to evaluate their satisfaction with the programme. The majority of respondents reported that the technological aspects of the project (i.e. the quality of the transmission) were excellent. Ninety-five percent (95%) of those who attended reported that the programme met their expectations. They also thought that the videoconferencing format was better than the telephone conferencing format, but still preferred the direct presentations provided through the regional conference programmes. From the CME providers' point of view, the videoconferencing format was superior in terms of accessibility and scheduling.
Elford 1998	Canada	Descriptive	Information and Communications Technology	N/A	This paper describes the telemedicine activities taking place at Memorial University of Newfoundland and the lessons learned from such experiences. Key to the university's success is adherence to the following principles: (1) all activities were based on a legitimate need; (2) the simplest, least expensive technology was used to meet the need; (3) the network was shared by a variety of users; and (4) users were given proper training and support. In 1997, the Telemedicine Centre delivered approximately 7000 hours of programming and administered a network of 247 dedicated audioconference sites in 161 communities (168 of the sites had telewriter workstations and 75 had multimedia workstations) and eight videoconferencing sites. Approximately 70% of all programming was distant high school and university education, 20% health education, 5% clinical activities, and 5% other uses. Current clinical activities include tele-electroencephalograms, tele-ultrasonography, tele-nuclear medicine, child telepsychiatry, general teleconsultation from a remote nursing station, and general teleconsultation from an offshore oil platform. Health education programs delivered via telemedicine include a weekly "Wednesday at Noon" CME session aimed at rural physicians and a weekly nursing education series coordinated by the provincial nursing association. Printed materials were sometimes sent

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					out in advance by mail (and later fax) by the instructors to augment the audioconference. For professionals in remote communities, these sessions offered the chance to interact with colleagues as well as to receive continuing education that would otherwise have been unavailable. Participating physicians received CME credits. In 1997, weekly CME sessions averaged 40 participants, and nursing education sessions averaged 30 participants.
Forti Martin Jones Herman 1996	United States	Descriptive	Information and Communications Technology	N = 398 family physicians in rural counties plus 7 medical directors of community health centres.	Availability of CME has been reported as one of the key factors which influence physicians' decisions to practice and remain in rural locations. Rural practice opportunities that lack technical assistance, collegial support and interaction are viewed as undesirable. This paper discusses the problems of rural practice and describe the results of a survey assessing Pennsylvania rural physicians' needs for continuing education and practice support in order to help guide the development of a new program called Practice Support Outreach Program (PSOP). The study findings explore the actual use of educational resources by physicians. There is heavy use of the local medical library, but low use of computer databases, extension services and the Pennsylvania Office of Rural Health Services. There is very low interest in video linkage conference referral and consultation. The dominant reasons cited for non-use were lack of time and lack of equipment. Results confirmed a strong interest in CME, though surprisingly low interest in communications-based approaches was disappointing and required further study. Findings reveal that family physicians are receptive to a variety of practice support and continuing education programs.
Forti Martin Jones Herman 1995	Unites States	Descriptive	Other (Perceptions of Professional Isolation) Information and Communications Technology	N = 398 family physicians practicing in 39 counties of Pennsylvania	It is widely believed that medical schools and colleges of medicine can play an important role in retaining primary care physicians in rural areas. Pennsylvania State University College of Medicine developed a practice support outreach program (PSOP) to strengthen rural practice environments. A survey of family physicians in rural areas of Pennsylvania was undertaken to assess factors related to satisfaction and retention and to assist with the development and implementation of this practice support outreach program. Bivariate analysis revealed that professional isolation was associated with physicians' reason for considering leaving rural practice. Strategies that minimize perceptions of professional isolation are needed to minimize dissatisfaction with rural practice. The PSOP of Pennsylvania State University College of Medicine, in partnership with the state Area Health Education Center (AHEC) program plans to address professional isolation issues though consultation and referral services through telecommunication systems, continuing medical education, and miniresidencies.
Hartley 2000	Australia	Informed Opinion	Decentralized Rural/Remote Education Research Units	N/A	This article describes how a staff development unit (SDU) in Tamworth, New South Wales, the Rural Health Education and Research Centre (RHERC), successfully meets the continuing professional education needs of its staff. As part of this, the organization had to come to terms with contemporary issues in continuing professional education, such as accreditation and competency-based learning. To meet accreditation requirements, RHERC became an accredited education provider and began to offer programs that adhered to such requirements, as well as which addressed the need for more competency-based learning and recognition of prior learning. For example, they offer 2 certificate courses via distance

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					education entitled 'Workplace Training' and 'Frontline Management'.
Humphreys Nichols 1995	Australia	Informed Opinion	Decentralized Rural/Remote Education/Research Units	N/A	Rural health workers are forced to deal with health problems for which they are not suitably trained or supported. Lack of CE contributes to poor rural health workforce retention. This article outlines a national framework that identifies the role of Rural Health Training Units (RHTUs) within the broader State and Commonwealth context of Australia. The purpose of these units is to play a leading role in ensuring appropriate continuing education and training for all rural health workers by: undertaking research into the training needs and understanding competencies required; developing and evaluating suitable curricula; developing suitable orientation programs and distance delivery of continuing education; and coordinating education and training activities relevant to rural areas. Rural Health Training Units have been established across Australia as a means of developing and coordinating education and training programs to meet the particular needs of rural and remote area practice. A National Association of Rural Health Training Units (NARHTU) has been formed to facilitate collaboration between RHTU and exchange information, acts as a forum for planning further developments of RHTUs and to provide a communication link with organizations such as Commonwealth and State government, rural health professionals associations, and educational bodies.
Humphreys et al. 2000	Australia	Informed Opinion	Decentralized Rural/Remote Education Research Units	N/A	Describes the development and role of the University Departments of Rural Health (UDRH). One of the purposes of UDRH is to contribute to an increase in the rural and remote health workforce through education and training programs. This paper outlines the activities of seven departments, located at Mount Isa, Broken Hill, Shepparton, Launceston, Whyalla, Alice Springs, and Geraldton. The UDRH at Broken Hill, for example, offers an Associate Diploma in Community Health and Development, a program that allows Aboriginal health workers in remote communities to develop knowledge and skills in primary health care and community development. It is a 2-year, part-time course that is designed to ensure that the health professional's learning is connected to their day-to-day work in their communities. Alice Springs' UDRH offers the Master of Remote Health program, which includes a stream for professionals such as medical practitioners, nurses, allied health professionals, Aboriginal health workers, and health administrators. The UDRH at Whyalla offers awards of $1000 to rural and remote health professionals to support their continued professional development.
Hunter Nicol 2002	United Kingdom United States	Comparative	Other (CE & Recruitment and Retention)	N/A	This paper describes a literature search that was carried out to identify the evidence regarding the influence of continuing professional development in enhancing recruitment and retention. Thirteen articles were cited and reviewed. The study findings show that there is little evidence for the influence of continuing professional development on staff recruitment and retention and that no study has explored the relationship between the two in isolation. The evidence available suggests that recruitment and retention of occupational therapists are influenced by a combination of personal and professional factors. Seven of the 13 articles reviewed considered continuing professional development to be one of these factors.

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Joyce Veitch Crossland 2001	Australia	Descriptive	Consultation Support/Support Network	N = 16 rural general practitioners	A negative aspect of rural medicine includes poor access to CME and lack of access to specialist services. All of these aspects, which are common features of rural practice, can contribute to a sense of professional isolation for the rural GP. Access to CME has been identified as key need for rural GPs and a sense of professional isolation has been found to be associated with poorer retention. Professional support networks offer one potential avenue to address professional isolation. This study explored the nature of rural general practitioners' (GPs) professional support networks. In-depth, semi-structured interviews with a purposive sample of GPs were undertaken. Rural GPs, particularly those in solo-GP towns have relatively little opportunity for informal interaction with their GP colleagues, yet such interaction is important for building a collegial peer support network. Access and frequency of such opportunities may be problematic for solo practitioners. Participation in CME meetings and conferences in larger urban centres are important opportunities for rural GPs to establish contacts and network with specialist as well as peers. Greater preference for face-to-face contact where possible. The findings suggest that engendering a greater sense of professional support may be one useful strategy to assist in improving retention for rural GPs and initiatives that provide support for the development of networks may contribute to improved retention.
Mattheos Schittek Attstrom Lyon 2001	International	Comparative (Systematic Review)	Information and Communications Technology	N/A	This paper summarizes the present experience in the field of distance learning in health education. It focuses on the undergraduate, postgraduate and continuing education of medical and dental professionals. The paper highlights changes in distance learning methodologies, from non-interactive correspondence courses, to more interactive methods that utilize teleconference, videoconference, and the Internet. Findings of the review show that there are continuing education applications, both credited and un-credited, that aim to maintain and update the professional competence of practitioners. Distance learning is seen as one way of meeting the educational needs of professionals to whom more traditional methods are not available for social, professional, economic, and geographical reasons.
Mayer 1990	United States	Informed Opinion	Decentralized Rural/Remote Education/Research Units Consultation Support/Support Network	N/A	An area health education center (AHEC) is a regional center for education and training that houses faculty and staff who teach students and residents while providing education, consultation, and technical assistance for rural practices. The regional centre is a "mini-academic medical centre campus". These AHECs have faculty in a variety of medical specialties and other health profession disciplines. With the support of outreach library services and visits by university based faculty, AHECs help improve a rural community's ability to recruit, retain, and keep up-to-date primary care physicians and other health manpower. Each AHEC defines a geographic area and since 1972, the federal government has stimulated the development of AHEC activities in over 30 states. These health education centers are the focal point for: (1) the rotation of medical and health profession students to regional settings and from them to more rural sites; (2) the regional training at the AHECs and in surrounding rural areas of primary care residents and/or the rotation of primary care residents from the university to the community; and (3) the support of practitioners through continuing education, consultative services, technical assistance activities, off-campus degree programs, library and information delivery services. The

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					CME programs of AHEC are geared to the needs of primary care physicians and regional needs assessment mechanisms help ensure that programs meet local needs and interests. AHECs extend the offices of CME of medical schools as all programs are planned in association with the office at an affiliated school of medicine. A critical characteristic of an AHEC is that it is controlled by a community corporation and is therefore not a satellite of the medical school but rather a partner whose relationship is a negotiated one. Full-time faculty in the major health profession disciplines are based in each AHEC. Medical faculty at the AHEC provides consultations for practitioners in their regions. AHECs have demonstrated that medical schools can make a commitment to practice sites in many underserved rural areas and this involvement can help lessen the professional isolation and increase the likelihood of retention of those practitioners in these communities.
Memorial University of Newfoundland 2003	Canada	Descriptive	Information and Communications Technology	N = 16 Schools of Medicine N = 135 Schools of Nursing N = 9 Schools of Pharmacy N = 101 National/Provincial Health Professional Associations N = 56 Pharmaceutical Industry Directors N = 2727 Hospital/Health Care Management Boards N = 3044 (total); 677 were returned	Lack of access to professional development is a common deterrent to practice in rural and remote areas. Distance learning technologies have an important role to play in addressing the professional isolation challenges experienced by rural and remote health care providers. Canadian continuing health professional education providers are therefore increasingly using distance learning technologies in the provision of continuing education. A national questionnaire-survey of Canadian CHPE providers was conducted to: (1) to identify the extent to which information and communication technologies (ICTs) are being used by Canadian CHPE providers in the delivery of continuing professional education; and (2) to identify the role of Canadian CHPE providers in addressing health professionals' continuing professional education needs concerning the adoption and usage of ICTs. Respondents included providers of continuing professional education in the fields of pharmacy, nursing, and medicine and included universities, colleges, industry, professional associations and societies, hospitals and health care authorities. There were 677 surveys returned. The information collected focussed on: level of ICT usage in continuing professional education delivery; target audiences; nature of distance learning development support; types of technologies used; strengths and resources to ICT usage; faculty support; and ICT continuing education. The study findings suggest that academic institutions are responsible for providing the majority of CHPE programming via distance learning technologies and external funding is necessary to support the high costs of development and delivery. Governments therefore have an important role to play in stimulating efforts in the development and delivery of technology-based CHPE. ICTs are particularly relevant to the enhancement of health care delivery in rural, remote, and northern regions of Canada. Rural communities, governments, health care organizations, and CHPE providers need more information to ensure that new and existing rural tele-health and distance learning projects are appropriate and effective for addressing the needs of rural health care providers.
Ontario Regional Committee of the Society of Rural Physicians of Canada	Canada	Informed Opinion	Other (CE and Recruitment and Retention)	N/A	A group of knowledgeable and committed representatives of rural medicine and medical training recognized the need for a comprehensive Blueprint to address physician recruitment and retention in Ontario's rural and northern communities. This Blueprint is intended to provide a comprehensive and integrated package of measures which, if implemented as a whole, would address the need for effective and sustainable physician recruitment and

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The Professional Association of Interns and Residents of Ontario 1998					retention in remote and rural communities. The report provides an overview of the extent of the present problem, including the underlying demographic trends, as well as a summary of the current needs for physician services. The report then identifies the present obstacles to improved recruitment and retention, explains why present strategies have not worked, reviews those strategies which have been successful in other areas, and recommends specific areas for implementation. The report makes several recommendations with regards to continuing medical education. It suggests that there should be a separate fund for learner-driven CME for rural physicians; rural physicians should be allowed to choose from whom and where they will receive their CME; academic health science centre faculty should be involved in teaching rural CME; alternate payment plan arrangements must include allotted time off, both to attend CME and to teach it; and the SRPC model for rural CME should be supported for its low cost, stability, portability and integral locum service.
Parkin McMahon Upfield Copley Hollands 2001	Australia	Descriptive	Other (CE Program)	N = 9 occupational therapists N = 9 speech language pathologists N = 11 dieticians	Describes the Clinical Experience Program, designed and developed to provide rural and remote allied health professionals with the opportunity to: gain clinical experience in the paediatric clinical areas of their choice; share clinical knowledge and expertise; and develop networks between themselves and metropolitan allied health professionals. Twenty-nine (n=29) allied health professionals participated in the program at a paediatric metropolitan hospital. They were provided with a locum if necessary or had their travel expenses covered. Arrangements were also made with each participant's health region for leave with pay for the duration of the visit. The program was conducted over a three-five month period. Participants each spent 1-2 weeks at a major tertiary metropolitan hospital gaining experience in the clinical areas of their choice. Evaluation of the program consisted of an end-of-visit questionnaire, a 6-week post-visit questionnaire, and focus groups of previous participants. The results show that immediately following the program, 97% of participants felt that the program had totally met their expectations. Six weeks after the program, participants commented that the program had improved their knowledge, skills, and confidence in providing paediatric services. Ninety-five percent (95%) stated that it had influenced their practice. It enabled them to initiate specific clinical and professional tasks for the rural and remote service. In general, the most valuable aspects of the program as reported by the rural and remote allied health professionals included: enhanced clinical skills; networking and liaison with metropolitan staff; access to the metropolitan hospital's clinical and management resources; observation of the metropolitan hospital's services; general support; and the locum coverage provided by the program.
Pong 2002	Canada	Descriptive	Information and Communications Technology	N/A	This document summarizes the key learnings from 33 projects in the rural health/telehealth theme area. Some of the projects explored ways to deal with the difficulties experienced by rural inhabitants in accessing health care. Telehealth-related projects saw telehealth as the way to improve rural health services delivery and to provide continuing education to rural practitioners. Telemedicine serving Quebec regions: A demonstration project in the Magdalen Islands linked the hospital in the Magdalen Islands via videoconferencing with specialists in hospitals in Quebec City and the Gaspé. This equipment permitted consultations about patient care and continuing education for health professionals in the region. The First Nations National Telehealth Research Project studied how telehealth might

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					improve the access to health services in rural, isolated communities. Five First Nations communities were chosen to pilot this two-and-a-half year project. Its goals were for families to 'visit' distant hospitalized patients via videoconferencing, for patients to be treated in their communities through electronic communications with health experts, and for isolated health staff to access training, information and expertise. Several of the projects also attempted to expand the knowledge base of rural practitioners. The Rural Palliative Home Care Demonstration Project, for example, detailed a comprehensive education strategy to address the learning needs of both formal and informal caregivers. It introduced an intensive education curriculum to prepare family physicians, nurses, pharmacists, and social workers to provide complex pain and symptom management and counseling in advanced care planning. The Home Care and People with Psychiatric Disabilities project offered six training sessions with a mental health therapist to nurses working in the home care program in Taber, Alberta. The insights offered by these projects led to several broad policy recommendations. They include: (1) given the complex nature of rural health, an overall strategy is needed in addition to region, discipline or program specific solutions and it must address at least some of the broader determinants of rural health; (2) meaningful policies and effective programs to support rural health must be grounded on a better understanding of rural health (i.e. evidence-based); and (3) an effective and long-term workforce strategy should be comprehensive and not simply focus on incentives to attract health practitioners to work in rural areas.
Pope Grams Whiteside Kazanjian 1998	Canada	Descriptive	Other (Recruitment and Retention)	N = 404 rural physicians 121 responded	Purpose was to understand the decision making process that rural physicians and their families undergo when they decide to relocate and withdraw implications that might be useful for those facing similar relocation decisions. There were 121 rural physicians surveyed and their narrative responses were analyzed using Grounded theory - a theory for understanding the retention of rural physicians. The results were organized around three major categories: community commitment, medical confidence, and compensation. Throughout these categories a theme emerged - 'taping the decision - making skills' - which describes the delicate balance of issues that surround the physician's decision on practice location. From this theme patterns have emerged to explain what tips the balance that leads rural physician to 1) make a rational decision to leave, 2) wait for the last straw, 3) experience the last straw scenario, and 4) make a decision to stay. It is the experience the physician has with balancing his or her own lifestyle with commitment to the community, the confidence that he/she has to fulfill that responsibility and appropriateness of the compensation which he/she receives that influences the decision to stay or live in rural communities. The physician often develops a very close relationship with the community. Rural practice is usually characterized by a very demanding work schedule particularly with on-call responsibilities. In an isolated setting a physician carries much greater responsibility for quick decision making and must use a wide variety of medical skills. Access to special skills training and CME is often limited in rural areas. There is no financial incentive for doctors to undergo additional training to enable them to perform a specialty medical skill. Financial compensation does not reflect the realities of rural medicine. Community attributes, opportunities for the physician and family and a sense of community are important personal compensatory factors.

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Puskin 1992	United States	Informed Opinion	Information and Communications Technology	N/A	The Office of Rural Health Policy was created in 1987 to work within the Department of Health and Human Services and with federal, state and other entities outside of the Department to seek solutions to problems in rural communities. One project funded through the Office in West Texas was the MEDNET project which involved the use of telecommunications for reducing the isolation of rural health practitioners through CE and telemedicine. The barriers of distance contribute to professional isolation, making it difficult to retain health professionals. The provision of CE through telecommunications has been shown to be an effective tool for training. Rural communities believe that distance learning programs have helped them upgrade the skills of existing personnel. This reduces the cost of travel and increases CE opportunities for licensure and accreditation. There is also a belief (although scientific evaluations remain to be conducted) that telemedicine is an effective tool for reducing isolation and thereby retaining health professionals in rural areas. Telemedicine is an effective tool for CE, especially for physicians. Telemedicine is one-on-one teaching and learning which creates ongoing relationships between professions. Telemedicine is also one of the keys to forging effective networks – distance learning and telemedicine. Lack of adequate technology infrastructure is a key barrier to the diffusion of telecommunications in rural communities. A need exists to support a telecommunications infrastructure that will sustain community-specific and regional development goals. Human capital is the key in applying telecommunications in rural health care settings. A skilled work force must be capable of using the technology.
Robertson Higgins Rozmus Robinson 1999	United States	Descriptive	Other (CE and Job Satisfaction)	N = 25 nurses N = 85 nurse practitioners	The purpose of this study was to investigate the relationship between continuing education and job satisfaction among registered nurses (RNs) and licensed practical nurses (LPNs) employed in long-term care facilities in Nashville, Tennessee. The Professional Educational Activities Scale (PEAS) was used to measure the respondents' degree of continuing education participation. This is a 15-item Likert-type scale whereby response options range from 0 (none) to 4 (seven or more). The 15 responses are added together; higher scores indicate more professional activity. The McCloskey/Mueller Satisfaction Scale (MMSS) was used to assess job satisfaction. This is a 31-item Likert-type scale that assesses 8 types of job satisfaction. Each item is rated on a 5-point scale, ranging from 1 (very dissatisfied) to 5 (satisfied). Higher scores indicate higher job satisfaction. The results of the study show that a significant association (p=.01) was found between continuing education and job satisfaction. This is important. If access to continuing education means greater job satisfaction, this might then lead to greater retention of health professionals in their respective positions.
Rourke 1988	Canada	Descriptive	Other (CME preferences) Student Supervision	N = 40 family physicians	Continuing medical education is one of the many challenges facing rural family physicians. Rural family physicians must develop and maintain a special knowledge base and technical skills applicable to their major hospital roles. As well as the care of general medical and pediatric inpatients, the responsibilities of rural family physicians usually include emergency medicine, obstetrics, and often anesthesia. These areas require special knowledge and technical skills. The distance to CME conferences and the need to arrange practice, obstetrics, and hospital coverage for the time away are obstacles to obtaining

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					adequate CME. This paper reports the results of a survey of a small group rural physicians related to CME activities and initiatives they undertake to further their CME. The study findings indicate that books and journals were most widely used for CME and 83% of physicians attended university refresher courses for a median 25 study hours per year. Regional Medical society guest lectures were well attended and ranked high in usefulness. Hospital grand rounds, provincial and national professional association meetings and Telemedicine were not major CME resources for these physicians at the time of the study. Rural physicians admit and attend to one another's patients because of shared emergency call and in-hospital patient coverage arrangement. This process provides informal, ongoing, peer review by requiring case review and discussion, a very active educational experience. Informal consultations have also been shown to be an important source of CME. Some rural physicians also take medical students and residents. This activity is very interesting and helps the mentor to challenge his or her own established concepts.
Rourke 2002	Canada	Informed Opinion	Decentralized Rural/Remote Education/Research Units	N/A	The new Northern Ontario Rural Medical School is to be developed to have a significant impact on the education, recruitment, and retention of physicians in rural and northern Ontario and Canada. It will be a collaborative partnership between Laurentian University, Sudbury and Lakehead University, Thunder Bay (1000 km apart), and will have a network of learning sites throughout Northern Ontario (almost 1,000,000 km2). The curriculum will be patient-centred, clinical problem-based, and systems-organized, with a significant health determinant focus, and Aboriginal health content and context. Small group learning will be used in a distributed learning network with advanced information technology support. The new Northern Ontario Rural Medical School will aim to graduate highly qualified physicians with state-of-the-art medical education, with enhanced knowledge, skills, and interest, in Aboriginal, rural, northern, and under serviced health care.
Rourke Incitti Rourke Kenard 2003	Canada	Descriptive	Other (Retention; Access to CE)	N = 507 family physicians in Ontario N = 536 family medicine residents in Ontario	The purpose of this article is to determine how family medicine residents and practicing rural physicians rate possible solutions for recruiting and sustaining physicians in rural practice. A cross-sectional survey was conducted via mail with all 507 Ontario family physicians defined by the Ontario Medical Association as practicing in rural areas, as well as 536 first and second-year family medicine residents in Ontario. Potential respondents were asked to rate proposed solutions on a 4-point scale from 'very unimportant' to 'very important'. The overall response rate was 46.6%. Surveys were received from 276 rural family physicians and 210 family medicine residents. The results show that rural family physicians rated funding for learner-driven continuing medical education and limiting on call duty to 1 night in 5 as the most important education and practice solutions respectively. Also rated highly in regard to education were 'sabbaticals at appropriate pay for qualified rural physicians' One of the most highly rated solutions by residents was an alternate payment plan which would include time off for attending and teaching CME. The authors conclude that a comprehensive package of the highest rated solutions could help recruit and retain physicians in rural practice.
Rowe	Canada	Descriptive	Other (self-reported	N = 503 primary	Describes the results of a survey undertaken to determine attitudes toward CME, barriers to

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Mulloy Ryan Pong 1995			barriers to access)	care physicians and specialists in northeastern Ontario N = 400 primary care physicians and specialists in southern Ontario. Response rates: - northeastern Ontario (64%) - southern Ontario (48%)	access and CME preferences of physicians practicing in northeastern Ontario. A mail survey was distributed to collect information. Physicians in both areas favour traditional CME, with physician consultation being the most popular. The leading barriers include lack of time, cost of travel and availability.
Salvatori Berry Solomon 1995	Canada	Descriptive	Student Supervision	N = 115 occupational therapists and physiotherapists	Professional isolation is a common frustration among all health care practitioners. There is a paucity of literature on intervention strategies for dealing effectively with issues surrounding professional isolation, particularly in the rehabilitation professions. The Northern Studies Stream of McMaster University in collaboration with Lakehead University was designed to help address the perceived lack of professional development opportunities for rehabilitation health professions (occupational therapy and physiotherapy) in Northwestern Ontario. NSS involved new undergraduate programs in occupational therapy and physiotherapy in which community clinicians throughout Northwestern Ontario were recruited as teachers. CE opportunities increased accordingly to assist practitioners to be better teachers. A questionnaire was distributed to all practicing PTs and OTs in 1991 to assess influences on choice of practice location and perceived benefits and disadvantages of involvement in clinical education. Opportunities for personal growth and CE opportunities were rated highly as sources of job satisfaction and the majority of therapists stated that students provide access to new information, and that clinical education allowed a contribution to the profession. When asked what was the greatest benefit an educational institution could provide to clinical supervisors of OT/PT students, the most frequent response was CE or access to courses on teaching and supervisory techniques.
Sempowski Godwin Seguin 2002	Canada	Descriptive	Other (Physician Characteristics)	N = 332 Ontario Physicians Response Rate: 234 (70.5%) - 62 short-term physicians (26.5%) - 172 long-term physicians (73.5%)	The purpose of this study was to survey was describe the characteristics of physicians who had been practicing in one rural Ontario location, but left after less than 3 years ('short-term' physicians) and those physicians who practiced more than 7 years in the same rural Ontario location ('long-term' physicians). The study examined various factors that might be associated with long-term retention of rural physicians. This included demographic data, medical education, work environment and satisfaction, access to locums, and access to and funding for CME. The study findings show that the long-term group had a significantly higher proportion of physicians who had access to any level of funding from the Ontario Medical Association's CME Program for Rural and Isolated Physicians (74.9% vs. 59.6% of the short-term physicians; p=.03). The long-term physicians were more significantly

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					satisfied with their locum access (79.4% vs. 64.8%; p=.03). They were also satisfied with the support they received from colleagues (87.2% vs. 77.4%).
Sheppard Mackintosh 1998	Australia	Informed Opinion	Information and Communications Technology	N/A	Accessing continuing education that is relevant to rural and remote practice and complies with mandatory continuing education (where applicable) is a challenge for rural and remote health professionals. Advances in technology offer increased opportunity for rural and rural allied health professionals to access continuing education. Distance education can overcome barriers of distance and cost. It means that workplace and travel demands do not compromise access to education. It also means that those with family responsibilities have greater access to education, especially in areas where there are few childcare facilities. This paper outlines some of the technologies that can be used. Through audioconferencing, rural and remote health professionals can participate in study groups and journal clubs. It may also facilitate the development of professional networks. The main advantages of accessing continuing education in this way are convenience, the opportunity to network, and instant feedback. Videoconferencing is another means through which rural and remote health professionals can access continuing education. They can attend lectures and collaborate with other health professionals working in different areas. This technology is very expensive, however, and health professionals will need to have access to a videoconferencing site. Other forms of technology, which facilitate health professionals' access to continuing education, include e-mail, CD-Rom, and the Internet. While each form has its advantages and disadvantages, the authors suggest that what is most important is to offer a learning environment that maximizes interactivity and subsequently, the information literacy of health professionals.
Steiner Hartmann Ronau 2002	United States	Descriptive	Information and Communications Technology	N/A	This paper described the development of MedReach, a medical information outreach system that connects regional Area Health Education Centers (AHECs) to the Medical College of Ohio at Toledo via the Internet. MedReach provides physicians and other health professionals with access to computerized textbooks and databases for current information on medical diagnoses, treatments, and research. Users are also able to receive personal help with information retrieval by calling or e-mailing an outreach librarian at the Medical College of Ohio. As well, the program sponsors a program entitled 'Medical Applications of Computers' for regional practitioners. Only with the necessary computer and database skills will health practitioners be able to make effective use of the system.
Tracey Rodwell Clearwater 1999	Australia	Descriptive	Other (CE Program)	N = 31 rural general practitioners 28 completed the evaluation questionnaire	This paper describes the development and evaluation of an educational programme designed to teach skills in the management of trauma to rural general practitioners. The Rural Trauma and Emergency Care Roadshow was developed to meet the needs of rural practitioners who are actively involved in the management of emergency care. The programme consists of 15 modules, each of which is 90 minutes in duration with a short lecture, followed by three to four skill stations. Module topics are as follows: (1) Scene safety, communication, and transport; (2) Scene patient management including triage; (3) Basic airway and breathing management; (4) Advanced (surgical) airway; (5) Intubation and ventilation skills; (6) Shock management including IV access and fluids; (7) Paediatric trauma management; (8) Analgesia, local and regional anaesthesia; (9) Wound care, cleaning and coverage; (10)

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					Wound closure; (11) Fractures/dislocations – diagnosis (X-ray); (12) Managing fractures/dislocations – upper limb; (13) Managing fractures/dislocations – lower limb; (14) Splinting techniques and preparing acute fractures for hospital transfer; (15) Burns, head injuries and trauma in pregnancy. The 15th module was added later and was not part of the initial evaluation that is the focus of the paper. Programmes have been offered in either a rural medical centre or rural hospital. Evaluation was carried out among the first 31 general practitioners who completed the full course; 28 of them completed the evaluation questionnaires. The respondents rated the overall quality of the course very highly (at least 4.65 on a scale of 1 to 5 with 5 being excellent). Mean relevance of the modules was at least 3.9, using the same scale referred to above.
Verby 1992	United States	Descriptive	Student Supervision	N/A	This article discusses how the Minnesota Rural Physician Associate Program (RPAP), an undergraduate program, serves as a form of continuing medical education (CME). The RPAP offers undergraduate students the opportunity to study for 9 to 12 months in rural communities. It has been discovered, however, that this program also serves a valuable function for CME. Many practicing rural primary care physicians, by participating in the program as student mentors: learned new skills and information that either confirmed or updated some of their medical practices and areas of knowledge; were able to validate the general quality of medical practice within their communities; and were able to meet their CME requirements. This is a valuable model for CME as it allowed rural physicians to obtain onsite, free CME and it eliminated the costs that physicians otherwise incur, in terms of fees, income lost, time away from their practices, and inconvenience.
Walker Thomson Smith 1998	Australia	Descriptive	Information and Communications Technology	N/A	Retaining medical and allied health professions in rural and remote areas is problematic. The provision of high quality, cost-effective educational and clinical support to health professionals in such areas is also a challenge. Increasingly, information and communication technology is being applied to the delivery of and enhance access to the educational and clinical support of health and medical professionals. The Division of Community and Rural Health of the University of Tasmania has developed an information technology and telecommunications strategy that includes the use of the WWW for learning and support. The WWW is being used as a tool to address these problems as a means of communication, interaction and educational and clinical support to geographically dispersed and isolated pools of users. An interactive electronic notice board has been developed as a clinical problems' discussion forum to act as a venue for critical debate about clinical issues. The discussion form provides preceptors with an opportunity to discuss critically, clinical issues with their peers.
Watanabe Jennett Watson 1999	Canada	Descriptive	Information and Communications Technology	N = 12 project managers from telehealth projects across Canada	This article examines the increasing importance of telemedicine in Canada, its effective use of workforce resources and its positive effects on recruitment and retention of health providers. Telemedicine is seen as one way to overcome uneven service provision, workforce shortages and maldistribution, and as a way to provide support for isolated health care providers. While positive effects on recruitment and retention of health providers and the morale of the local workforce might be expected, there is little evidence in the literature in this regard. Telephone interviews were therefore conducted with project managers from

Author(s)/ Year	Country	Study Design	Theme(s)	Participants	Summary/Outcomes
					12 telehealth projects in Canada to address this gap in the literature. Eight of the projects identified were in the implementation phase; four were in the pilot, planning or beta phases. Ten standardized, semi-structured questions were used as a framework and distributed prior to the interview. Informants were asked is the project had, or would have, as impact on the distribution, support, and roles of staff. They were also asked to comment on the potential effects of telehealth on the use of health resources. The findings show that telemedicine has positive outcomes for the workforce. The projects examined are addressing the health care needs in rural and isolated areas and those of disadvantaged and at-risk populations. Projects are aimed at supporting rural health practitioners, physicians and other health care providers. Many of these projects provide continuing education to health professionals in their respective region. The province-wide telehealth network in Nova Scotia, for example, delivers continuing medical education to 16 sites allowing physicians and other rural health professionals to access educational programmes. The Saskatchewan Northern Telehealth Network provides continuing education via videoconferencing. Also discussed is the Nova Scotia home-care information system, a pilot project conducted in 1996 which provides home-care workers with case-management software to track patient intake, as well as assist with assessment, the care plan and service development.
WONCA Working Party on Training for Rural Practice 1996	N/A	Informed Opinion	Information and Communications Technology Decentralized Rural/Remote Education/Research Units Financial support/subsidy programs	N/A	This is a policy paper of the WONCA Working Party on Training for Rural Practice. The key recommendations related to CME include: offering specific, tailored, continuing education and professional development programs that meet identified needs of rural family physicians; continuing medical education programs should be accessible to rural practitioners through locating them in rural regional centres and, where appropriate making use of distance education methods, including modern information technology; generally, rural continuing medical education programs should be developed by rural doctors for rural doctors; appropriate university postgraduate diplomas and degrees available via distance education should be developed so that doctors in remote rural areas can pursue postgraduate studies without leaving their towns and or practices; providing appropriate academic positions, professional development, and financial support for rural doctor-teachers to encourage rural health research and education; rural medical education and research centres should be established in rural areas with the aim of coordinating …continuing medical education for rural practitioners….establishing rural medical education and research centres can help develop reciprocal links between country hospitals and practices and medical schools and teaching hospitals; improving professional and personal and family conditions in rural practice to promote retention of rural doctors; establish locum relief schemes to give rural family physicians time to undertake continuing education…; funding for travel and other costs for doctors to attend continuing medical education.
World Organisation of Family Doctors 1995	N/A	Informed Opinion	Information and Communications Technology Financial	N/A	Discusses some of the ways in which the numbers of skilled rural physicians can be increased. Advanced skills training in emergency medicine, anasthesia, obstetrics and others need to be developed. CME programs needs to be accessible to rural practitioners. Distance education is one way this can be done. Rural practitioners need some financial support. This might include special incentive payments for practicing in underserved areas, financial

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			support/subsidy programs		assistance with accommodations, education and travel for the GP and/or family. The provision of adequate medical facilities would also be helpful.
Zollo Kienzle Henshaw Crist Wakefield 1999	United States	Descriptive	Information and Communications Technology	N/A	It is difficult to retain health care practitioners in rural areas partly because of the professional isolation resulting from diminished access to continuing education opportunities, professional development, and health information resources. New and enhanced telecommunications links between rural and urban hospitals show promise for reducing the professional isolation of rural providers, offering enhanced lifelong learning opportunities. The delivery of programs via telecommunications allows for the dissemination of new developments; provides current training opportunities for hospital staff and employees; and enhances educational experiences for primary care practitioners through consultations with specialists and virtual attendance at academic grand rounds. Telemedicine and tele-education have the potential to mitigate the geographic maldistribution of health professionals by eliminating some of the isolation felt by rural health care providers and their patients. A self-sustaining telemedicine program can expand clinical consultation services to include interactive CME broadcasts to physicians practicing in rural, remote or underserved areas. In addition to real-time, interactive video systems, computer and Internet technologies allow CE to be delivered in an asynchronous mode: that is, the interaction is not in real-time. Benefits to the hospital that receives the continuing education include: (1) Enhanced patient care resulting from the continuing education of health professionals; (2) Reduced costs and travel time associated with distant CE programming; (3) Minimize staff absences and lost productivity while traveling to academic centers or conferences for CE; (4) Improved hospital staff training; (5) Access to academic grand rounds and case presentations on state-of-the-art therapeutic advances and interventions; and (6) Increased recruitment opportunities for rural hospitals through the provision of access to the latest developments in the health sciences. Health professionals who attend CE courses by distance education save themselves and their hospitals the time and cost associated with traveling to remotely offered CE opportunities.

Appendix H

Literature Review Summaries (French)

Literature Review Summaries (French)

Report/Website	Country	Summary/Outcomes
Projet national de recherche sur la telesante pour les premières nations et les Innuits http://www.hc-sc.gc.ca/dgspni/spsp/telesante/introduction.htm	Canada	Telehealth is not the absolute and final answer and will never replace medical personnel, but it is designed to improve access to health care for those people in remote locations or whose access is limited by culture, language, or clinical resources.
Rapport Finale http://www.hc-sc.gc.ca/dgspni/spsp/telesante/publications/partage_information.pdf	Canada	Demonstrates many of the health care organizations participation in telehealth efforts with Québec and even in France.
Rurality, A vision for the future http://www.mderr.gouv.qc.ca/publications/pdf/developpement_regional/en/ruralang.pdf	Canada	National Policy on Rurality: Sustainable Development, quality of life, maintaining dynamic rural communities and population renewal.
Financement de télé santé au Québec…Allan Rock, May 2001 http://www.hc-sc.gc.ca/francais/media/communiques/2001/2001_57f.htm	Canada	10.8 million $ to go towards 4 different telehealth initiatives throughout Quebec. Quote from Allan Rock…. *Nous cherchons à coordonner un effort national de mise en application des technologies de l'information et des communications afin d'offrir de meilleurs services de santé à tous les Canadiens partout au pays, notamment dans les zones rurales et éloignées.*
Projet de telemed dans les iles de la Madeleine http://www.rqte.qc.ca/fr/idlm/index.asp	Canada	*Le concept à la base du projet est celui de placer les besoins d'une population géographiquement isolée au centre même de l'origine des liens de télémédecine* Since November 1999, telemedicine services have enabled doctors to provide

Report/Website	Country	Summary/Outcomes
		services to the people of this remote community
Université McGill http://cme.med.mcgill.ca/html/downloads/PDF/frePRO.pdf	Canada	*Le Centre d'EMC de McGill est la seule entité de McGill qui, par l'entremise du Comité d'éducation médicale continue de la faculté, est habilitée à la fois par les associations médicales canadiennes et américaines à reconnaître les activités d'éducation médicale continue.*
New Brunswick http://www.gnb.ca/hw-sm/sm/pub/ess/5/formprof.htm#1	Canada	Staff education and training have felt the impact of budget cuts in the health care system. Fewer dollars has meant fewer opportunities for upgrading and continuing education. As a result health care staff is experiencing a more difficult time getting time off and/or financial assistance to attend continuing education seminars.
Manitoba http://www.gov.mb.ca/chc/press/top/2002/06/2002-06-20-04.html.fr June 2002	Canada	Ces programmes incluent la promotion de la médecine comme carrière auprès des étudiants des régions rurales et du Nord, l'expansion des possibilités de formation dans ces régions pour les étudiants de premier cycle et ceux de deuxième et troisième cycles, ainsi que la réorganisation des possibilités d'éducation permanente dans les régions rurales et du Nord.
Rapport de la deuxième conférence nationale annuelle Branchons les Autochtones www.aboriginalcanada.gc.ca	Canada	*Le Nord est la région la plus mal desservie au Canada. Sur l'ensemble des collectivités, 40 % n'ont pas accès à Internet et passent ainsi à côté de bien des possibilités. Comme les lignes commutées ne sont pas monnaie courante et qu'une bande large est coûteuse, l'aide du gouvernement est nécessaire. Les collectivités doivent pouvoir préciser leurs besoins particuliers. Il faut fournir de l'aide pour créer un cyberenvironnement au sein des collectivités des Premières nations de manière à favoriser leur croissance, aussi bien sur le plan social que culturel et économique. Il faut aussi mettre à profit la technologie de l'information et de la communication et offrir des possibilités d'apprentissage électronique et de perfectionnement des compétences électroniques pour accroître l'autonomie des jeunes des PN. De plus, des partenariats sont*

Report/Website	Country	Summary/Outcomes
		nécessaires pour éviter le double emploi, réduire les coûts et accélérer la prestation des services.
Réseau québécois de télésanté/ Canadian Society of Telehealth http://www.rqte.qc.ca/bulletins/bulletin_5.pdf	Canada	"Projet Arc-en-ciel" - The Rainbow Project will allow several health care sites to provide and exchange patient information via teleconference. This is modeled after the Health Date Network (HDN) which has proven effective in St. Louis, Missouri and at the Toronto Sick Children's Hospital.