White Paper on
Professional Credentialing in Health Informatics

Prepared for
COACH

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Table of Contents

Executive Summary

Practitioners in many fields are "certified" either voluntarily or mandated as a condition of being allowed to practice their profession or trade. At this time, a key issue for the health informatics community is professional credentialing. COACH has recently undertaken a strategic planning process and established as one of its strategic goals to "Enhance the practice of health informatics as a profession", and under that goal, to "establish minimum standards of professional practice for Health Informatics". As a result, COACH recognized the need for the development of a "White Paper" to inform and educate about the issues involved in professional credentialing.

Specifically, the purpose of this White Paper is to provide:
- A common understanding of terms and approaches used in professional credentialing;
- An environmental scan of selected related certification programs; and
- A discussion of key issues involved in professional certification, and suggested next steps.

The approach used for the development of the White Paper included three key activities: search and review of relevant literature; interviews with key informants selected by COACH as they represented professional organizations in the health and/or information technology industry with certification programs either in place, or proposed; and analysis of findings/ preparation of paper.

A total of six certification programs are profiled in this paper including: Canadian College of Health Service Executives (CCHSE); Canadian Health Information Management Association (CHIMA); Canadian Information Processing Society (CIPS); the proposed College of Health Informatics of Canada (CHIC); Healthcare Information and Management Systems Society (HIMSS); and United Kingdom Council for Health Informatics Professions (UKCHIP). Information about these programs is presented under the following topics: drivers for certification; development of certification program; requirements for certification; participation rates; resources; business/governance models; challenges and issues; and future directions.

Based on the information obtained in this inquiry, the White Paper identifies and discusses a number of key issues involved in professional credentialing to assist COACH as they consider this matter further including:
- Certification vs. Licensure
- Benefits of Certification in Health Informatics
- Challenges of Certification in Health Informatics
- Business/Governance Model
- Certification Approach

In summary, the results of this investigation demonstrated that much information and experience exist related to the development of certification programs. A number of key questions and next steps are suggested to assist COACH with its further consideration of this important issue.

1.0 Introduction

1.1 Background

COACH is an organization dedicated to promoting a clear understanding of health informatics within the Canadian health system through education, information, networking and communication.

COACH was formed in 1975 by several health professionals and vendors in the medical industry, who recognized that significant sharing of ideas and efforts must take place in order to enable Canadian health institutions to effectively use information technology and systems. The focus, 28 years later, has expanded to include not only technology and systems, but also the effective use of health information for decision-making.

COACH has a membership of almost 900 individuals who range from healthcare executives, physicians, nurses and allied health professionals, researchers and educators to CIO's, information managers, technical experts, consultants, and information technology vendors. Organizations represented cover the full range of healthcare service delivery, government and non-government agencies, consulting firms, commercial providers of information and telecommunications technologies, as well as educational institutions.

Practitioners in many fields are "certified" either voluntarily or mandated as a condition of being allowed to practice their profession or trade. At this time, a key issue for the health informatics community is professional credentialing. For example, on the 2003 COACH member survey, 53% of respondents indicated they were interested in pursuing certification (COACH 2003). COACH has recently undertaken a strategic planning process and established as one of its strategic goals to "Enhance the practice of health informatics as a profession," and under that goal, to "establish minimum standards of professional practice for Health Informatics".

There is currently no formal, authoritative, defined standard body of knowledge that is recognized as the minimum to be mastered in order to qualify as a "health informatics professional". However, there has been work done in this area. For example, a team of Canadians conducted a comprehensive analysis in 2001 that identified three distinct groups of professionals – Applied Health Informatics (AHI) professionals, Research and Development Health Informatics (RDHI) professionals, and the Clinicians with Health Informatics (CHI) competence (Covvey et al, 2001). Their goal was to articulate the different roles these people perform, the competencies (skills and knowledge) required to perform each role, and the education required to develop each of these competencies. The exercise was intentionally centred around a curriculum development framework, to help educators define a comprehensive and relevant curriculum that would specifically meet these learning needs.

The paths by which health informatics practitioners enter the field vary widely:

- Some are traditional information technologists who have obtained their education in computer science programs, and whose main information technology (IT) competencies (e.g. software development, project management) are applicable cross-industry, not just in health care (cf. accountants, power engineers etc.)
- Some are health industry professionals whose main competencies are already regulated and/or certified, e.g. in the field of health records, nursing, medicine, pharmacy. For these people, health informatics (HI) is an essential and important component of their professional skill set, but not the dominant one. One sizeable target group for some form

of HI certification are those practitioners who have along the way acquired HI skills from on-the-job experience, but who have no way to demonstrate or communicate evidence of this important secondary skill set.

- Some are involved in the health industry in management, finance, business, or policy positions and have a strong interest in the information vs. technology dimension of HI.

COACH recently engaged a consultant to develop a "White Paper" that will inform and educate the COACH Board about the issues involved in professional credentialing. *D. Parker-Taillon and Associates* is pleased to have been retained to conduct such work on behalf of COACH.

1.2 Purpose of the White Paper

The purpose of this White Paper is to develop a resource that will provide the COACH Board of Directors with:
- A common understanding of terms and approaches used in professional credentialing;
- An environmental scan of selected related certification programs; and
- A discussion of key issues involved in professional certification, and suggested next steps.

It is anticipated that the White Paper may then be developed more fully into a second paper through additional literature searching and consultation. The second paper is expected to present options, alternatives and recommendations for further informed discussion by the Board.

1.3 Methodology

Working closely with the client, four steps were used to develop the White Paper including:

- *Project Management*
  This activity involved an orientation meeting as well as regular meetings held by teleconference between the Consultant and the client throughout the project.

- *Literature Search and Review*
  This activity involved reviewing background information provided by COACH, as well as conducting a focused on-line literature search relevant to the project topics.

- *Stakeholder interviews*
  This activity involved the Consultant interviewing five key informants proposed by *COACH*. Four of the informants were selected as they represented professional organizations in the health care and/or information technology industry with certification programs. The fifth informant represented an organization in Canada also investigating a certification program in health informatics.

  The purpose of the interviews was to collect information on examples of relevant certification programs and identification of issues related to the development of a certification process. A list of Key Informants is included in Appendix 1. The interviews were conducted by telephone and were approximately 45 minutes in length. The questions were provided in advance and the Consultant took notes during the discussion. A copy of the Interview Questions is included in Appendix 2.

- *Analysis and Preparation of Paper*
  This activity involved the Consultant analyzing the findings and developing the White Paper as described in Section 2 above.

2.0 Approaches to Professional Credentialing

Numerous definitions of what is a profession have been proposed and debated over the last century (Webster, 1999). Many of these definitions describe traits commonly associated with professions. For example, Johnson (1995) in a book entitled "Computers, Ethics and Social Values" lists characteristics often associated with professions that include the following:

- Require mastery of an esoteric body of knowledge, usually acquired through higher education. Only members of the profession possess this knowledge;
- Typically have a good deal of autonomy in their work;
- Usually have a professional organization that controls admission to the profession and sets standards for practice;
- Fulfil an important social function or are committed to a social good;
- Are bound by a code of professional conduct or ethics; and
- Members are seen as making a life commitment to the field of their profession.

Considering this and similar lists of characteristics of professions, it is not surprising that the evolution of a new profession commonly involves a developmental continuum of activities. Some of the key activities in this continuum include: defining a body of knowledge; establishment of a professional association/organization; development of a code of ethics or conduct to guide practice; development of standards for education, development and identification of continuing education programs; and establishment of a process for professional credentialing. The term credentialing is defined as "pertaining to the recognition of qualifications through the issuance of formal documentation" (Canadian Information Centre for International Credentials (CICIC), 2003).

The literature from the United States commonly describes a regulatory hierarchy that involves three strategies that can be used in professional credentialing. These are presented in Table 1 in ascending order of restrictiveness.

Table 1: Approaches for Recognition of Professional Credentials in the United States

Strategy	Definition	Key Features
Registration	Process by which qualified individuals are listed on an official roster maintained by a governmental or non-governmental agency or organization.	- Usually voluntary - Used when low probability that the practitioner will inflict serious harm on the public. - Carries no warranty of competence or assurance that the registrant has met any predetermined standards - In its simplest form the applicant may not have to demonstrate any special qualifications.

Strategy	Definition	Key Features
Certification	Process by which a government or non-governmental organization within a profession/occupation/specialty grants recognition of competence to an individual.	• May be voluntary or required • Provides protection of title, but not practice • Requirements may include a specified level of education, experience, and an examination
Licensure	Process by which a government agency authorizes an individual to engage in a given occupation within a defined set of parameters designed to protect the consumer.	• Is mandatory • Provides protection of title and defined scope of practice. • Involves demonstration of a specified minimal level of competency.

(Reference: Maronde, 1997; Schmitt and Shimberg, 1996)

In Canada, a similar hierarchy exists, but some of the terminology used is different including:
- The terms *licensure and registration* are used interchangeably to refer to "mandatory procedures for determining licence eligibility, granting licences, and protecting the public regarding licensed occupations" (CICIC, 2003)
- The term *rostering* is used instead of registration in some instances.

A glossary of commonly used terminology related to credentialing and certification with Canadian definitions is presented in Appendix 3.

3.0 Environmental Scan Findings

3.1 Overview of Selected Certification Programs:

A total of six certification programs are profiled in this paper. The organizations included are: Canadian College of Health Service Executives (CCHSE); Canadian Health Information Management Association (CHIMA); Canadian Information Processing Society (CIPS); the proposed College of Health Informatics of Canada (CHIC); Healthcare Information and Management Systems Society (HIMSS); and United Kingdom Council for Health Informatics Professions (UKCHIP). The websites for each of these organizations is provided in the References at the end of the paper.

Information about these programs was obtained by reviewing websites related to all of the programs and conducting interviews with key informants from five of the organizations as described above. An overview of the six programs reviewed including description of the organization, description of the certification process, and eligibility requirements is in Appendix 4. A detailed discussion of the findings is included by topic in the following sections.

3.2 Drivers for Certification

In the key informant interviews, the five respondents were asked to identify key drivers for the development of their certification programs. The following is a summary of the comments provided:

- CCHSE indicated that their program was established in 1984 and was developed in response to a need to encourage higher standards and enhance competencies required for profession.
- CHIMA indicated that their certification program has existed since 1972 and the key drivers for the development of the program were the expansion of required skills and competencies in response to an increased use of information technology and changes in coding of data.
- CIPS developed a Code of Ethics in the mid 1980's and started to accredit education programs as the number of computer science programs began to increase. The question of regulation was raised and put to a member referendum. It was decided to proceed with a certification approach to establish the groundwork for a fully licensed profession.
- HIMSS conducted a needs analysis of members and non-members prior to initiating their certification programs in 2002. The results indicated a need for a certification program specific to health information management and a need for leadership in this area.

The key informant from the proposed College of Health Informatics of Canada (CHIC) identified two drivers for their current interest in developing a certification program: a need to ensure Health Information Personnel have the breadth of knowledge required to meet needs in Canada, and to establish a mechanism to assist with training and certification of Health Information personnel in light of shortages.

While a key informant from UKCHIP was not interviewed as part of this project, a recent paper indicated that, as a result of a conference in 2002 called "Pathways to Professionalism" involving various association with an interest in health informatics, a new body UKCHIP was set up as a registry body for those working in HI in Britain (Joyub, 2004).

It is interesting to note that based on the responses described above, the development of certification programs appears to represent a response by the organizations to rapid growth and change in their relevant industry, and a key step in the evolution of the respective professions.

3.3 Development of Certification Program

Once the need for the certification was established and the decision made to move forward, the process to develop the program was similar in the organizations reviewed. Common steps identified included:
- Assignment of a staff member to oversee the development process;
- Engagement of an individual or organization with expertise in the certification/ competency evaluation to assist in identifying the model and process to be used for certification;
- Identification of volunteer committee(s) to assist in the development of the process;
- Development of the process;
- Piloting the process; and
- Launching the process.

Organizations with existing certification programs were asked how the development of their certification process was funded. All respondents indicated that the development was funded using existing resources that were directed for this purpose, coupled with a heavy reliance on volunteers who were key in the process.

Several of the organizations indicated that establishment of strategic partnerships played a critical role in the development of their certification program. For example, HIMSS partnered with the American Health Information Management Association (AHIMA) in the development of three of its four certification programs (see Appendix 4). HIMSS also worked with the American Hospital Association (AHA) Certification Centre and Applied Measurement Process (AMP) to assist with the development of the certification examination process. Another organization, CCHSE, indicated that they had enlisted the assistance of their American counterparts in the early development of their certification process.

3.4 Requirements for Certification

An important consideration in the development of a certification program is the requirements for certification. As evidenced in Table 2, the requirements varied between the five organizations reviewed that currently have certification programs in place.

Table 2: Requirements for Certification in Selected Programs

Organization ----------------- Certification Requirements	CCHSE	CHIMA	CIPS	HIMSS	UKCHIP
Credential Review	√	√	√	√	√
Examination	√	√		√	
Learning Assignment	√				
Maintenance of Competence Activities (Prior to certification)	√				
Evaluation Form	√				

All five organizations require some type of eligibility process that involves a review of credentials. A summary of the eligibility requirements for the programs reviewed is included in Appendix 4. The eligibility requirements include both education and experience for four of the five programs (CCHSE, CIPS, HIMSS, and UKCHIP). The remaining organization, CHIMA, requires that the candidate be a graduate of a Canadian College of Health Record Administrators (CCHRA) recognized program in order to be eligible to write the certification examination within five years of graduation. Interestingly, for two of the five organizations reviewed, decisions about certification were made based solely on a detailed peer review of credentials against set eligibility requirements (CIPS, UKCHIP).

A total of three organizations, in addition to eligibility criteria, require an examination as part of their certification process. The examinations vary in length from two hours (CCHSE, HIMSS) to one full day (CHIMA). Within these three organizations, the administration of the examinations also differs including:

- o Offering examination once annually at designated centres across the country (CHIMA);
- o Allowing individuals to complete the examination on-line from their work place upon request (CCHSE); and
- o Offering the examination on-line at scheduled times twice daily Monday to Friday at selected Assessment Centres (i.e. H & R Block offices) located throughout the United States (HIMSS).

One organization has other requirements for certification, in addition to eligibility criteria and an examination. The other requirements include completion of self-directed learning assignments, maintenance of competence requirements, and an evaluation form (CCHSE).

When developing a certification program, another important consideration is whether or not to have ongoing requirements of demonstrated maintenance of competence (MOC). Four of the five programs have requirements for MOC (CCHSE, CIPS, HIMSS and UKCHIP). A summary of the MOC requirements for these four organizations is provided in Table 3.

Table 3: Maintenance of Competence Requirements for Selected Certification Programs

Organization	Maintenance of Competence Requirements
Canadian College of Health Service Executives (CCHSE)	- Within five years must attain minimum of 40 credits, a minimum of 7 credits must be Category 1 and a maximum of 33 may be from Category 2 - The two categories of credits are: *Category 1* credits are granted on the basis of one credit for each hour of attendance at an educational event sponsored or co-sponsored by the College or its chapters; *Category 2* credits are granted on the basis of one credit for each two hours of attendance at appropriate professional activities.
Canadian Information Processing Society (CIPS)	- Initially are given three years to acquire re-certification requirements. Thereafter re-certification is required annually. - At re-certification time, I.S.P holders must have accumulated at least 300 education credits over the three previous consecutive years. - Credits are assigned for the following types of activities: classroom learning, teaching, course development, conferences, reading professional/technical literature, self-paced course-ware, on-the-job coaching, and writing published articles A table outlining how credits may be earned is available on CIPS website (http://www.cips.ca/standards/recertification/default.asp?load=requirements)
Health Information and Management Systems Society (HIMSS)	- Must renew within 3 years, pay fee and have either: - Re-examination; or - Documented 45 contact hours Continuing Professional Development including 25 hours of HIMSS provided or approved courses.
UK Council for Health Informatics (UKCHIP)	In order to maintain registration must demonstrate a suitable continuing professional development (CPD) plan has been carried out that includes 40 hours of relevant development activity in a year.

A total of two of the four organizations with existing MOC requirements indicated they are also responsible for a process to recognize/approve continuing education/ professional development courses and/or providers (CCHSE and HIMSSS).

Two of the five organizations with existing certification programs are also responsible for the accreditation of university programs through an arm's length body or council (CHIMA and CIPS).

The informant from the proposed College of Health Informatics of Canada (CHIC) indicated that accreditation of university programs is a role that CHIC may consider.

3.5 Participation Rates

As indicated in Table 4, the participation rates in certification programs vary for the organizations reviewed.

Table 4: Certification Participation Rates for Selected Programs

Organization	CCHSE	CHIMA	CIPS	HIMSS	UKCHIP
Participation Rate	50% of members are certified	100% of members are certified* *Represents 60% of estimated potential members	30% of members are certified	In first three years have[1]: 700 CPHIMS 200 CHP 75 CHS	Since 2002 have: 500 registered 1500 in process

Many of the key informants indicated that the response was somewhat lower than expected and had identified specific strategies to try to encourage higher participation rates. Some of the suggested strategies included:
- Market program to employers to encourage them to give preference to certified individuals;
- Open examination to those who previously did not write the examination within a set number of years of graduation;
- Adapt the examination from another country;
- Broaden the criteria for designation (i.e. senior people in organizations who may not have traditional IT educational program – look at other ways to assess them such as Prior Learning Assessment and Recognition (PLAR); and
- Establish additional partnerships with Universities to allow students to be enrolled in the certification program while in school and challenge the examination upon graduation without any additional requirements.

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[1] See Appendix 4 for description of HIMSS certification programs (CPHIMS, CHP, CHS)

3.6 Resources

As indicated in Table 5, the fees for the certification programs varied amongst the groups reviewed. A number of the interviewees indicated that the certification fees did not cover all of the associated costs and as a result the programs were subsidized by membership dues. Two of the organizations that recently introduced certification programs indicated that while they were not self-sufficient yet, this was the ultimate goal.

While no specific figures were obtained from the key informants in terms of the resources required to support certification processes, the following table (Table 5) indicates the required infrastructure in terms of paid staff members. Other expenses that must be taken into consideration when estimating the cost for certification programs are those associated with meetings of volunteer committees, fees for expert consultation, and direct expenses associated with administering the process.

Table 5: Fees Charged and Paid Staff Support for Selected Certification Programs

Organization	CCHSE	CHIMA	CIPS	HIMSS	UKCHIP
Fees	$802.50	$275 (plus GST or HST)	$ 225.	Fee for CPHIMS: $225 (US) for Members $295(US) for Non-Members Fees for CHS/CHP: $250 (US) for Members $350 (US) for Non-Members	Level 1 £20.00 Level 2 £30.00 Level 3 £30.00
Paid Staff	-1 FTE Executive Director[2] -1 FTE Admin. Assistant	-1 FTE Director of Education -.5 FTE Admin. Assistant -.3 FTE Administrator	-1 FTE Profes-sional Standards Manager	-1 FTE Program Manager	-Information not available

3.7 Business/Governance Models

Of the five organizations with certification programs, four (HIMSS, CHIMA, CCHSE, and CIPS) are professional organizations/associations representing members who voluntarily choose to belong. The fifth organization (UKCHIP) is described as a voluntary register of

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[2] Note: This position reports to the President and CEO of the organization.

health information professionals who agree to work within clearly defined standards and is separate from the organization that represents HI professionals in the UK.

A summary of the body responsible for the certification process within each of these organizations is provided in Table 6.

From a business/governance model perspective, it is interesting to note that CHIMA, formerly the Canadian Health Record Association (CHRA), was founded in 1942 to provide a forum for health information management professionals to share their expertise. Both the certification and accreditation of education programs are the responsibility of The Canadian College of Health Record Administrators (CCHRA) that was federally chartered in 1972. These two bodies currently operate jointly, under the acronym CHIMA.

Table 6: Responsibility for Certification within Selected Organizations

Organization	CCHSE	CHIMA	CIPS	HIMSS	UKCHIP
Body that oversees Certification Process	CHE Advisory Committee	Canadian College of Health Record Administrators (CCHRA)	CIPS Certification Council	-CPHIMS Certification Committee -HIMSS' CHS Certification Workgroup and AHIMA's Council on Certification govern the CHS, CHP and CHPS Certifications.	UKCHIP Council

3.8 Challenges/Issues

The following were identified by the key informants as challenges/issues associated with certification programs. They have been clustered into four themes including product, resources, marketing and collaboration.

Product:
- Keeping certification program current (i.e. keeping up to date with changes in field that evolves rapidly); and
- Ensuring program is applicable to candidates coming from a wide variety of backgrounds.

Resources:
- Managing volunteer commitment;
- Ensuring sustainability;
- Ensuring adequate human and financial resources to keep up with the demand;
- Deciding on a business/governance model that is robust;
- Factoring loss of revenues to competitors; and
- Expenses involved in bringing committees together since examination is national.

Marketing:
- Cost of marketing program to various audiences: individual and clients/employers;
- Convincing individuals and industry that credentialing is desirable; and
- Achieving a critical mass of certified individuals so that employers can give preference to those with certification.

Collaboration:
- Working relationships with universities/colleges;
- Securing buy-in from health care facilities for practicums; and
- Securing buy-in form industry and public sector employers.

3.9 Future Directions

Key Informants were asked about future directions/changes planned for their certification programs. The responses included primarily activities aimed at further development of their certification programs in order to increase participation rates and ensure relevancy in the current rapidly changing environment. The future directions identified have been clustered into three themes: eligibility requirements, program development and marketing.

Eligibility Requirements:
- Investigate the use of Prior Learning Assessment and Recognition (PLAR) to evaluate eligibility to challenge the examination; and
- Possibly offering opportunity for those who are graduates of a recognized education program and did not write the examination within set time to challenge the examination.

Program Development:
- Repeat job analysis which forms basis of examination and must be done every five years;
- Review competencies;
- Ongoing exam development;
- Develop new educational material (i.e. new CD-ROM);
- Continue to monitor trends in field including annual survey of examination candidates;
- Initiate workshops on "hot topics" such as electronic health record;
- Analyze U.S. textbooks and adapt content for Canada;
- Working with American counterparts on a North American strategy; and
- Revise examination so that applicable in a wide variety of settings.

Marketing:
- Reach out to major stakeholders;
- Establish more partnerships with Universities to allow students to be enrolled in the certification program while in school and challenge the examination upon graduation without any additional requirements;
- Establish strategic alliances with employers have them to encourage the certification program for their employees; and
- Market to industry.

4.0 Key issues Related to the Development of a Credentialing Process

The previous section has provided detailed information about selected certification programs from professional organizations in the health care and/or information technology industry. This section includes a discussion of key issues involved in professional certification to assist COACH as they consider this matter further.

4.1 Certification vs. Licensure

The question of certification vs. licensure is one that evolving professions frequently grapple with. According to Schmitt and Shimberg (1996):
> "Since the 1970's many allied health groups have elected to forgo licensure - probably because of the time and expense involved in securing state-by-state regulatory legislation - the distinction between certification and licensure has become less obvious. These professions have established national certification programs instead."

Another consideration in the debate of certification vs. licensure in the field of health informatics, is that licensure involves a level of commitment about the capabilities of the practitioner. Ray and McKoy (2000) suggest that this commitment may be difficult to fulfill in a profession where there is a rapidly changing knowledge base.

In the five organizations with existing certification programs reviewed for this paper, none of them have opted for licensure at this time. However, it should be noted that two of these organizations (CIPS and UKCHIP) identified their certification processes as a step towards licensure.

4.2 Benefits of Certification in Health Informatics

Numerous potential benefits of certification for health informatics have been identified. These benefits are presented below and are clustered according to the three key target audiences: the individual being certified, the profession, and employers/clients.

Benefits for the individual:
- Provide a certification program that meets the specific needs of members;
- Provide members with professional recognition and portability of credentials across Canada;
- Provide a credential for those who have not attained a higher education degree in field;
- Expand career opportunities;
- Provide opportunities for mentorship;
- Bolster credibility, professional image and career development; and
- Ensure health information personnel have breadth of knowledge needed to meet needs.

Benefits for the profession:
- Raise the profile of the profession;
- Establish and maintain the highest standards of practice, ethics and public protection; and
- Facilitate consistency in the competencies of individuals practicing in the field.

Benefits for employers/clients:
- Provide a certification process for privacy and security that goes beyond legislation;

- Assure employers and clients that they can expect professional conduct, accountable service and a knowledge of the latest and best practices;
- Establish a mechanism to assist with training and certification of Health Information personnel in light of shortages in this area;
- Increase productivity;
- Reduce training costs;
- Improve morale and commitment; and
- Improve ability to recruit and retain employees.

Clearly identifying the desired benefits of a certification process in health informatics will be beneficial in establishing strategic partnerships and developing marketing materials.

4.3 Challenges of Certification in Health Informatics

A number of potential challenges associated with the development of certification in health informatics also need to be considered.

The results of the key informant interviews for this paper identified five key challenges in the development of a certification program in health informatics including:
- *Confirming need and support* for a certification program within the field.
- Ensuring the program is *credible, current and relevant* for individuals with various backgrounds working in diverse settings;
- Ensuring that the program that is developed is *sustainable* financially over the long term;
- *Marketing* the program and convincing individuals and industry that credentialing is desirable;
- Establishing and maintaining *productive partnerships* with relevant stakeholders in the field such as educators, clients/employers, and vendors.

Ray & McCoy (2000) identified four challenges associated with certification in information systems that may also be applicable in the health informatics field including:
- In some areas of the discipline the absence of unbiased, neutral groups for determining examination content, creating examinations, and sanctioning examiners may create some doubt about certification value.
- The rapidly changing knowledge based required for success in this field causes some to question the sustained valued of certification.
- Educators may be uncomfortable with the pressure to maintain their own proficiency levels and certification status when they teach students who will be seeking certification.
- Educators may be uncomfortable with the thought that certification examinations, rather than theory and principles, drive the content of courses and academic programs.

As much as possible, potential challenges such as those listed above need to be anticipated and strategies developed during the planning and development stages of the certification program.

4.4 Business /Governance Model

Another key consideration in the development of a credentialing program is identification of a business/governance model that will best meet the needs of the program. The decision of whether or not the intent is to pursue certification or licensure may have some bearing on this decision. However, as noted earlier, four of the five of the credentialing programs

studied were established under the umbrella of existing membership organizations/ associations, regardless of whether the intent was to pursue regulation.

From the certification processes reviewed, it appears that at least three options in terms of possible business/governance model exist:
- "Committee Model": Involves the establishment of a committee of the existing membership organization to oversee the certification process, with the ultimate responsibility for the program resting with the governing body for the organization (i.e., HIMSS, CCHSE).
- "Arms-length Model": Involves setting up an "arms-length" body (such as a College or Council) within the organization that has ultimate authority for the certification process (i.e., CHIMA, CIPS).
- "Stand-alone Model": Involves establishment of a new "stand-alone" body that is responsible for the certification process (i.e., UKCHIP).

It should be noted that this list is not exhaustive and there may be other business/ governance model options identified as a result of further investigation in this area. Selection of the preferred approach should be based on consideration of various factors such as: objectives of the program; infrastructure and available resources (both human and financial); credibility of model; and roles and interests of various stakeholders in the field.

4.5 Certification Approach

Identification of a preferred certification approach is another key issue for discussion and consideration. The results of this environmental scan indicated that requirements for certification varied between the five organizations reviewed. However, based on the certification processes reviewed, two main approaches in terms of certification models can be identified:
- "Credentialing Approach": Involves application by candidate that undergoes a detailed peer review against set standards;
- "Credentialing plus Evaluation of Competence Approach": Involves application by candidate that is evaluated against set standards in order to determine eligibility for further evaluation of competence (i.e., examination).

There may be other approaches to certification identified as a result of further investigation. Selection of a preferred approach should be based on consideration of various factors such as the desired objective, validity, reliability, feasibility, credibility and flexibility of the proposed certification process.

When developing a certification program, another important consideration is whether or not to have requirements of demonstrated maintenance of competence (MOC) as part of the process. Four of the five programs reviewed have requirements for MOC in place. It is interesting to note that two of these four programs also indicated that they are responsible for a process to recognize/approve continuing education/professional development courses and/or providers. Recently there has been a trend in regulation towards monitoring continuing competence (Schmitt and Shimberg, 1996). The challenge has been in establishing programs that are feasible for both the organization and the individual. Including a MOC requirement in the process may increase the credibility of the certification process and help promote continuing education/professional development activities, but the associated costs to both develop and administer the process need to be considered.

5.0 Summary and Suggested Next Steps

In summary, it appears that the development of a professional credentialing process is a complex area. However, the results of this investigation have demonstrated that a great deal of information and experience exists related to the development of certification programs that can assist COACH with its further consideration of this issue. It should be noted that a number of the organizations interviewed indicated they would be interested in continuing to dialogue with COACH about professional credentialing (i.e., CHIC, CHIMA, CIPS).

In exploring the development of a credentialing program in health informatics in Canada further, the following questions may be helpful to consider based on the information provided in this report:

- Is there a need for the program in the field?
- What would be the desired objectives of the program?
- What would be the benefits?
- What would be the challenges?
- What type of program (certification or licensure) would best meet the desired objectives?
- What is the preferred certification approach (i.e., credentialing, credentialing plus evaluation, or other?)
- How does the proposed program fit with other standards development initiatives in the field?
- What is the most appropriate business/governance model to deliver this program? Who needs to be involved?
- What is the current level of interest in the field for such a program?
- What resources are required to develop and maintain the program?
- What are some possible sources of funding for the development of the program?

Obtaining answers to these and other relevant questions may be facilitated through a number of next steps as suggested below:

- Initiate *informal discussions* with key stakeholders to discuss potential for collaboration.
- Develop a *follow-up paper* that builds on the findings of this paper and involves additional literature searching and consultation to present options, alternatives and recommendations.
- Conduct a *survey of COACH members* and a sample of non-members to explore the current level of interest in professional credentialing and willingness to pay (note this may be part of the consultation described in the previous step).
- Organize a facilitated *invitational meeting of key stakeholders* with an interest in the development of standards for Health Informatics in Canada (i.e. accreditation of education programs, code of ethics, professional credentialing) to discuss current status, interests, options and next steps. This White Paper and the subsequent paper mentioned above could be provided as background material for the meeting.
- Develop a detailed *business plan* for a professional credentialing program in health informatics that describes target market, competition, services and products, marketing and communication Plan, governance and decision-making structure, resource requirements (including five year financial plan), potential sponsors, and recommended next steps.

Appendix 1: List of Key Informants

Name of Key Informant	Title
Juliana Kazragys	Program Manager Healthcare Information and Management Systems Society (HIMSS)
Gail Crook	Executive Director Canadian Health Information Management Association (CHIMA)
Jon Nightingale	Co-Chair of Certification Council Canadian Information Processing Society (CIPS)
Linda O'Rourke	Executive Director, Professional Programs Canadian College of Health Service Executives (CCHSE)
Karim Keshavjee	Principle, InfoClin Representative, Proposed College of Health Informatics of Canada (CHIC)

Appendix 2 Key Informant Interview Questions

1) What are the primary objectives of your program?
2) Why was your program established? Specifically what were the "drivers" that led to its development?
3) Who was involved and how was the program established?
4) What resources (i.e., financial, human) were required to develop and implement the program?
5) Where did the resources come from?
6) What infrastructure has your organization established to support your program (i.e. committees, staff)?
7) What response has your program had in terms of participation?
8) What challenges/issues have you encountered with the development and implementation of the program?
9) What do you see as future directions for your program? Are any major changes planned?

Appendix 3: Glossary
(Canadian Information Centre for International Credentials (CICIC), 2003)

Accreditation: A process of quality of assurance through which accredited status is granted to an educational institution or program of study by responsible authorities.

Certification: Documented recognition by a governing body that a person has attained occupational proficiency.

Credentialing: Pertaining to the recognition of qualifications through the issuance of formal documentation.

Licensure: Mandatory procedures for determining licence eligibility, granting licences, and protecting the public regarding licensed occupations.

Registration: Formal entry following admission into an education institution; acceptance into a professional body in compliance with regulations governing the profession.

Regulation: Governance of a trade or profession with regard to entry requirements, occupational standards and ethics, credentials, licensure, discipline, professional development, continuing competence, compliance with legislative provisions, portability etc.

Appendix 4: Overview of Selected Certification Programs

Organization	Description of Organization	Description of Certification Process	Certification Eligibility Requirements

Canadian College of Health Service Executives (CCHSE)	• Membership organization with 3,000 members
	• Founded in 1970
	• Leads and promotes the profession of health service management
		• Certification since 1984
		• Candidates have three years to complete the program that involves the following steps:
		  o Acceptance of application into the CHE program (involves meeting eligibility criteria)
		  o Pass the CHE entry examination (must do so within 6 months of acceptance). The examination is MCQ and short answer format and may be completed on-line
		  o Complete two self-directed learning assignments (from seven topics)
		  o Complete required number of Maintenance of Certification (MOC) activities
		  o Complete Evaluation Form
			• To be eligible for the CHE program candidates must
			  o Be CCHSE members
			  o Hold a Master's degree or be able to demonstrate progressive and current educational/professional advancement in health services management
			  o Have a minimum of two consecutive years experience in health service management, if applicable
			  o Provide two references who will certify that you have practical experience in relation to the core competencies.

Canadian Health Information Management Association (CHIMA)	• Membership organization with 2,500 certified members • Founded in 1942 as Canadian Health Record Association • CHIMA consists of Canadian Health Information Management Association and Canadian College of Health Record Administrators (CCHRA). Contributes to the promotion of wellness and the provision of health care through excellence in health information management.	• Certification offered since 1972 • To be certified, candidates must be graduates of CCHRA-recognized programs and pass the CCHRA certification examination • The examination is a full day examination offered once annually consisting of up to 350 questions.	• To be eligible for the examination candidates must be graduates of CCHRA-recognized programs and challenge the examination within five years of graduation. • The Council on Education may approve the examination eligibility for graduates who do not challenge the examination in five years based on specific conditions

Organization	Description of Organization	Description of Certification Process	Certification Eligibility Requirements
Canadian Information Processing Society (CIPS)	- Is a membership organization with 8000 members - Founded in 1958 - CIPS is professional association for Information Technology (IT) practitioners in Canada - CIPS is focused on IT excellence through its work on public policy, setting standards within the profession and providing IT support to its community.	- Certification since 1989 - Certification Process involves completion of a detailed application form which is assessed by the CIPS Certification Council to determine eligibility for the designation - Process evaluates both education and experience against established criteria. There are several ways to qualify for the ISP designation.	- To be eligible for the ISP applicants require the following points: - Education plus Experience Applicants - minimum 100 points - Exam plus Experience Applicants - minimum 100 points - Experience Only Applicants - minimum 120 points (and must have entered the field prior to 1976) - Experience credits are assigned with **10 points** for every year of professional experience - Education credits are for successfully completing an accredited or a non-accredited university or college program that is a minimum of 2 years in length. Specific credit values are assigned for the various education programs.
College of Health Informatics of Canada(CHIC)	- A model being explored by a group of Health Information (HI) academics in Canada. - Have funded project underway to start research and stakeholder consultation related to concept. - Have paper in progress which will look at various models	N/A	N/A

Organization	Description of Organization	Description of Certification Process	Certification Eligibility Requirements

Health Information and Management Systems Society (HIMSS)	• Membership Organization with 15,000 Members
	• Founded in 1961
	• Provides Leadership for optimal use of healthcare information technology and management systems for the betterment of human health
		Two types of certification programs offered since 2002:
		• Certified in Healthcare Information and Management Systems (CPHIMS): Process includes meeting eligibility standards and successfully completing a two hour qualifying examination consisting of 115 multiple-choice test items
		• In conjunction with AHIMA:
		  o Certified Healthcare Security (CHS)
		  o Certified Healthcare Privacy (CHP)
		  o Certified Healthcare Privacy/ Security (CHPS).
		Process includes meeting eligibility criteria and an examination
			• To participate in the CPHIMS examination, a candidate must qualify under one of the following options.
			
			  o Baccalaureate degree plus five (5) years of associated information and management systems experience*, three (3) of those years in healthcare. Graduate degree plus three (3) years of associated information and management systems experience*, two (2) of those years in healthcare

UK Council for Health Informatics Professions (UKCHIP)	• Operates a voluntary register of Health Informatics (HI) professionals who agree to work to clearly defined standards
	• Founded in 2002
	• Purpose is to promote professionalism in HI professionals
		• To be accepted onto the Register, applicants need to complete an on-line application form which requests information about a number of areas including education and experience.
		• Process aims to meet the needs of HI professionals at different stages in their careers and across a range of specialties. To do so, they allow for registration at three different levels.
		• Eligibility for registration at each level is based on an assessment of the applicant's qualifications, experience and employment profile using a points scheme.
			• There are three levels of registration:
			
			  o **Level 1** is intended for those who are either relatively new to the profession, or whose work does not require a particularly high level of HI knowledge or experience. At least one year's experience in HI is minimum requirement
			
			  o **Level 2** is intended for those who have begun to develop a career in HI. Two year's experience in Health Informatics is the minimum.
			
			  o **Level 3** is intended for those whose careers in HI are at stage where they have knowledge and experience to provide leadership. Three year's experience is the minimum requirement.

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