



## **Business Case for a Clinical Terminology Professional Certification in Canada**

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## Table of Contents

Executive Summary.....	1
1. Introduction .....	4
2. Strategic Context.....	4
3. Option Analysis.....	14
4. Recommendation.....	20
Appendix A – Clinical Terminology Standards Overview .....	25
Appendix B – External Advisory Group Members.....	27
Appendix C – Examples of Clinical Terminology Standards Use in Canada .....	28
Appendix D – Initial Option Screening Assessment Summary.....	30

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## Executive Summary

This document outlines the business case for a clinical terminology professional certification in Canada. Examples of clinical terminology being used in Canada include SNOMED Clinical Terms (SNOMED CT<sup>®</sup>) and the pan-Canadian LOINC<sup>®</sup> Observation Code Database (pCLOCD). The development of this business case has been completed through a partnership between the Canadian Health Information Management Association (CHIMA)/Canadian College of Health Information Management (CCHIM) and Canada Health Infoway (*Infoway*). An external advisory group was established to support the development of this business case that included representatives from the jurisdictions, academic institutions, and the Information Technology Association of Canada (ITAC) Health.

Human resource sector studies, survey data and an advisory group validated that there is a business need in the Canadian health care sector to address the current gap of trained and experienced human resources in the use of clinical terminologies, including SNOMED CT and LOINC, to support the implementation and maintenance of e-health solutions. Key stakeholders have identified the development of a clinical terminology professional certification in Canada as a priority to help address this resource gap. The use of clinical terminology across the country has been growing as part of the increased investments in health information technologies. In the context of this increased use of e-health solutions using clinical terminology, new and evolving roles in terminologies are emerging. Although there are programs available that provide foundational knowledge about terminologies, including but not limited to Health Information Management (HIM<sup>®</sup>) programs, there are no comprehensive programs that address the specialized knowledge and expertise required for these types of roles. Additionally, there are no certifications offered internationally. Other countries have expressed interest in this work and the potential to leverage this work.

Input from the advisory group was solicited to develop high-level requirements as well as evaluation criteria to use in assessing various options to address this business need. The scope of focus was defined to build on a required minimal foundational base of knowledge that could be obtained through, but not limited to, a HIM program. Further foundational knowledge was identified to be covered as part of the scope of this certification as well as terminology topics that have been identified as in demand or anticipated to be in demand as work in this area progresses. Some examples of what has been identified as in scope include working with terminology subsets and terminology maps, developing and managing terminology management processes and policies, performing terminology business analysis work, and supporting the adoption planning and deployment of terminologies.

An initial options analysis was completed leveraging the requirements that were identified for this work and some related organizational considerations to identify a short-list of viable options for further assessment. The short-list included four options that were further assessed to support the final recommendation. The recommendation is to proceed with the development and launch of a professional certification in Canada for clinical terminology with educational programs being accredited

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by CCHIM. CCHIM will develop, promote and manage the professional credential and program accreditation with support from the following:

- Academic organizations will develop and obtain approval within their organizations to launch this specialized program and will participate in obtaining program accreditation;
- Key stakeholders representing HIM professionals, potential employers, academic institutions, and applicable Standards Development Organizations will contribute as applicable to the definition of learning outcomes, share and/or help to validate core learning material, and/or help to develop and validate exam questions; and
- *Infoway's* Standards Collaborative will participate in an advisory role (e.g., participate in an advisory group to define learning outcomes and content, contribute, and /or review core content material, and support development/review of exam questions). The Standards Collaborative will also participate in a support role (e.g., facilitate liaison with applicable international Standards Development Organizations) and support promotion of certification, etc.

Based on the detailed options analysis, the recommendation is to proceed with the development and launch of a professional certification in Canada for clinical terminology with educational programs being accredited by CCHIM. This option offers the most benefit with a marginal risk assessment that the additional up-front costs for CCHIM to establish a professional certification and program accreditation will not be recovered. This recommendation is based on the assumption that academic institutions will be able to build business cases for their organizations to offer this program. Initial feedback shared by academic representatives engaged in this work also indicated that based on the work shared with this business case, that they felt it was likely that they could build a complimentary business case from their perspective. A few of the highlighted benefits include:

- Investment leveraged in development/sharing of some core content nationally and development of learning outcomes.
- Employers and other stakeholders have the benefit of knowing that core knowledge and understanding of specified content has been tested in a standardized method nationally for professionals with this professional certification.
- Professionals with this certification have the benefit of a recognized national credential to highlight their expertise/knowledge in this area.
- Ongoing continuing education requirements ensure professionals with this designation maintain currency of knowledge/expertise and thus builds confidence in the credential by potential employers
- Accreditation offers additional benefits of quality assurance and support for educational programs.

The costs of this recommendation for CCHIM include the following:

- Costs (including resource costs) to develop learning content for certification and ongoing maintenance of learning content items. Anticipated to be initial, one time, up front cost with

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ongoing costs for maintenance of learning content anticipated to be established on a cost-recovery basis with revenue from accreditation and certification to cover.

- Costs (including resource costs) to set-up and run a national credential exam and ongoing maintenance of the certification. Anticipated to be established on a cost-recovery basis with revenue from certification exams.
- Costs (including resource costs) to set up and manage program accreditations. Anticipated to be established on a cost-recovery basis with revenue from program accreditation fees.
- Costs to cover expenses for staff to participate in person for meetings as applicable. Anticipation that this will be minimal.
- Cost recovery within a three to five year period following certification and accreditation implementation.

The costs to support this recommendation for *Infoway* include the following:

- Advisory and support role estimated at a cost of .15 FTE in the first year and .075 FTE in subsequent years.
- Costs to cover expenses for staff to participate in person for meetings as applicable and to host meetings within Infoway offices as feasible. Anticipation that this will be minimal.
- No revenue stream for Standards Collaborative other than related membership fees for those that purchase premium memberships in order to use the standards and/or standards tools.

The risk of maintaining the status quo has been identified as increased costs across the country for organizations that will need to try to recruit and train staff and/or consultants to meet implementation and ongoing operational needs for terminology expertise and potential delays in service delivery and implementation of e-health solutions. The following risks have been identified as part of the assessment in developing the proposed recommendation and each risk has mitigation approaches identified.

- Key stakeholders will not contribute to the definition of learning outcomes and some core content. (low risk assessment)
- Eligible candidates will not see the value of obtaining the professional designation and thus will not challenge the specialty certificate exam. (low risk assessment)
- The initial investment costs for CCHIM to set up and manage a specialty certificate exam and designation will not be recovered with the revenue from exam fees. (low - moderate risk assessment)
- The initial investment costs for CCHIM to set up and manage program accreditation will not be recovered with revenue from accreditation fees. (low to moderate risk assessment)
- Misalignment of this certification with IHTSDO certification if they decide to move forward with this internationally. (low risk assessment)

If approved, the proposed high-level implementation plan would target for programs to start accepting students in approximately 1 ½ years.

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# 1. Introduction

This document outlines the business case for a clinical terminology professional certification in Canada. Clinical terminology covers complex concepts such as diseases, operations, treatments, and medicines. Examples of clinical terminologies being used in Canada include SNOMED Clinical Terms (SNOMED CT<sup>®</sup>) and the pan-Canadian LOINC<sup>®</sup> Observation Code Database (pCLOCD). A high-level overview of SNOMED CT and Logical Observation Identifiers Names and Codes (LOINC)/pCLOCD can be found in Appendix A for reference.

The development of this business case has been completed through a partnership between the Canadian Health Information Management Association (CHIMA)/Canadian College of Health Information Management (CCHIM) and Canada Health Infoway (*Infoway*). An external advisory group was established to support the development of this business case as well that included representatives from the jurisdictions, academic institutions and the Information Technology Association of Canada (ITAC) Health. A list of members is included in Appendix B for reference.

## 2. Strategic Context

### 2.1 Strategic Environment

#### 2.1.1 Organizational Overviews

##### **Canadian Health Information Management Association (CHIMA) and the Canadian College of Health Information Management (CCHIM)**

The Canadian Health Information Management Association (CHIMA) and the Canadian College of Health Information Management (CCHIM) represent approximately 5,000 Health Information Management (HIM<sup>®</sup>)<sup>1</sup> professionals across Canada. CHIMA and CCHIM are the national association and certifying body that represent leadership and excellence in health information management. CCHIM is a federally chartered college and has a long standing history of learning content development, accreditation, and certification for the HIM profession.

As a national association, CHIMA's mandate is to:

- support continuing education and professional practice of HIM professionals;
- develop strategic partnerships to advance the development and integration of electronic HIM;
- advocate for and strengthen the HIM role in health care settings across the continuum of care.

As a federally chartered college, CCHIM's mandate is to:

- be the single source of credentialed Health Information Management Professionals;
- partner with educational institutions, our members, industry, and employers to develop the competencies, skills and knowledge for the HIM profession;

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<sup>1</sup> HIM is a registered trademark of CHIMA.

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- provide essential research and expertise in health information standards and best practice.

The strategic directions are to:

- strengthen member relations;
- evolve the College;
- focus on knowledge, research and business development;
- strengthen capability in marketing and communications.

The service objectives of the CCHIM are to:

- provide for the future generation of HIM professionals;
- formalize strategic alliances appropriate to the future;
- identify future certification requirements and opportunities.

### **Canada Health Infoway**

Canada Health Infoway (*Infoway*) is an independent, not-for-profit organization funded by the federal government. *Infoway* jointly invests with every province and territory to accelerate the development and adoption of information and communications technology projects in Canada.

Fully respecting patient confidentiality, these secure systems will provide clinicians and patients with the information they need to better support safe care decisions and manage their own health. Accessing this vital information quickly will help to foster a more modern and sustainable health care system for all Canadians.

*Vision: Healthier Canadians through innovative e-health solutions*

Launched in 2006, *Infoway's* Standards Collaborative is a key resource for health information standards in Canada. The Standards Collaborative provides leadership, expertise and core services related to health information standards with the following mandate:

- to establish standards to support *Infoway's* mandate in fostering and accelerating the deployment and use of e-health solutions;
- to provide services to support and maintain these standards;
- to act in a formal liaison role to international Standards Organizations.

### **2.1.2 Business Need**

There is a business need in the Canadian health care sector to address the current gap of trained and experienced human resources in the use of clinical terminologies, including SNOMED CT and LOINC, to support the implementation and maintenance of e-health solutions. Key stakeholders have identified the development of a clinical terminology professional certification in Canada as a priority to help address this resource gap. A detailed description of the business need is outlined in section 2.3.

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### 2.1.3 Drivers for Change

Investment in health information technologies and the resource skill requirement impacts of adopting these technologies are identified as two key demand drivers in the Health Informatics and Health Information Management Human Resources Report published in late 2009.<sup>2</sup> This report references the “employment effect”, impacting overall numbers of professionals required, and the “skill broadening effect”, affecting the percentage of professionals that require additional training or experience to meet resource demands. The occupational group of HIM-Standards was specifically identified as growing in terms of numbers and also requiring skill broadening.

The use of clinical terminologies, such as SNOMED CT and LOINC/pCLOCD across the country has been increasing as part of the increased investments in health information technologies. A few examples of use for illustrative purposes are provided in Appendix C.

In the context of this increased use of e-health solutions using clinical terminologies, new and evolving roles in terminologies are emerging. Examples of these roles include mapping specialist, data conversion analyst, interface analyst, data modeller, and terminologist. These types of roles are needed to address needs such as working with terminology subsets and maps, developing and managing terminology management processes and policies, performing terminology business analysis work, and supporting the adoption planning and deployment of terminologies. Employers in Canada need to be able to hire workers with confidence that they have the right skill set for the job. People who want to advance their career into clinical terminologies require the education and skills upgrading to do so, the ability to receive the education in a format that is easily accessible, and the confidence that the program of study is nationally recognized as excellent.

### 2.1.4 Business Outcomes

The following outlines the high-level benefits anticipated as a result of the development of a clinical terminology professional certification in Canada:

- Increase number of human resources with clinical terminology knowledge and expertise by 65-147 in 3 years and by an additional 43-98 in 5 years. (Refer to section 2.2.3 to see the assumptions used in estimating these numbers).
- Reduction in average time for employers to recruit staff for these new roles
- Reduction in number of terminology positions that are open for more than 3 months

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<sup>2</sup> Health Informatics and Health Information Management Human Resources Report, November 2009, Canada Health Infoway, Canadian Health Information Management Association, COACH – Canada’s Health Informatics Association, Information and Communications Technology Council, Information Technology Association of Canada – Health.

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## 2.2 Strategic Fit

The skill set required for these emerging roles fits very well with the HIM core curriculum. In 2012 CHIMA completed a Workforce Transformation project that documented this “evolution of the HIM profession into new roles in the ever-changing electronic information environment”<sup>3</sup>. However, the specific in-depth focus on terminologies is currently missing in HIM training.

CHIMA also completed work in 2012 to evolve the Canadian College of Health Information Management (CCHIM). The objectives of the Evolve the College project were to provide for the future generation of HIM professionals, identify future certification requirements and opportunities, and formalize strategic alliances appropriate to the future. The strategy to meet the objectives included the need to develop strategic alliances with selected national and international organizations essential to the future of HIM and to define certification levels within HIM and create specialty designations. The results of a Canadian environmental scan supported the development of four priority advanced certifications with terminology standards identified as the top emerging trend.

The Standards Collaborative has also been working to support the use of SNOMED CT and LOINC/pCLOCD with efforts to make them more easily consumable and to support appropriate and consistent use. As part of this work, potential partnerships with professional and post-secondary organizations will be considered to increase value to stakeholders by combining the standards expertise of the Standards Collaborative with the professional and educational delivery expertise of other organizations.

## 2.3 Detailed Description of the Business Need

### 2.3.1 Business environment

#### Training/Certification Availability:

Foundational knowledge about terminologies, including SNOMED CT and LOINC, is included in all HIM diploma and degree programs in Canada as stipulated by the CHIMA HIM Program Accreditation Standards. The learning content items applicable to terminology standards are found in the Learning Outcomes for Health Information Management document published in 2010<sup>4</sup>. Currently, HIM students have in-depth classification coding training and a broad overview of SNOMED CT and LOINC. HIM professionals working in terminology standards positions need to pursue additional training opportunities either on the job or through external courses/programs.

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<sup>3</sup> CHIMA. (2013). Transforming health information management: The evolution of the HIM professional. London, ON: CHIMA.

<sup>4</sup> CHIMA. (2010). Learning outcomes in health information management.

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Additionally, there are a number of health informatics programs in Canada that may provide some terminology standards education. A recent report, Health Informatics Education in Canada – Landscape of an Emerging Discipline, was published by COACH in May 2013. “There is a significant breadth and depth of curricular elements available across Canadian HI programs”. While *Standards* is listed in the HI ICT knowledge domain, the findings suggest that standards make up less than 4% of the learning content items for all levels of programs. Standards learning content ranges from approximately 1% of the HI knowledge domain and pedagogy for diploma, undergraduate, and graduate programs, to a high of just over 11% in the certificate programs<sup>5</sup>.

In addition to HIM and health informatics education, there are other educational paths that provide foundational knowledge that would support candidates interested in pursuing a further specialization in clinical terminologies. A common example would include professionals that have been trained as clinicians, including those that have obtained training internationally and may not be certified to practice in Canada.

Outside of the academic realm, the *Infoway* Standards Collaborative provides some online/webinar, scheduled in class, and custom training, dedicated to SNOMED CT and LOINC with the primary audience being jurisdictional project managers, vendors, architects, analysts (technical and project), and those in management roles. The *Infoway* courses predominantly cover orientation and introductory level information.

As the Canadian member for the International Health Terminology Standards Development Organisation (IHTSDO), Infoway has been monitoring recent work undertaken to investigate SNOMED CT certification. “Concerned by the lack of properly trained resources and the unfounded claims of expertise in the implementation and use of SNOMED CT”, IHTSDO recently completed a review of the need for certification in SNOMED CT that was reviewed by the Education Special Interest Group (SIG) and the Implementation & Innovation Committee. While there was a proposal for developing certification at a generalist level, the work to date is focused on establishing a self-assessment tool for students and professionals. These are being developed as part of the SNOMED CT Implementation Advisor (SIA) scheme. The target is to try some initial tests around October 2013 and thereafter to report back to the Implementation & Innovation Committee to discuss next steps. One potential next step that has been envisioned is the idea of IHTSDO establishing partnerships with other organizations to take this work forward. IHTSDO has been engaged as the work on the business case was developed and they have indicated their interest in partnering on this work from a SNOMED CT perspective. Formal confirmation of support from IHTSDO is being requested. As work on this business case has progressed, updates have been shared with members of the IHTSDO community internationally and there has been interest

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<sup>5</sup> COACH (2013). Health informatics education in Canada: Landscape of an emerging discipline.

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in this work with the potential for other countries to leverage this work. Canada is currently seen as a leader in this area.

The IHTSDO Education SIG has also worked at developing a competency based education framework for SNOMED CT and has updated training materials that are mapped to the various competencies. Following a final quality assurance review, these materials will be available on the IHTSDO public website.

With regards to LOINC certification, Regenstrief, the Standards Development Organization responsible for LOINC, does not provide or authorize a LOINC mapping certification for organizations or individuals. A consultation meeting with Regenstrief is being planned to share information about the development of this business case and to ask if Regenstrief would also be willing to offer their support to partner on this work from a LOINC perspective.

#### **Resource Needs:**

The Health Informatics and Health Information Management Human Resources Report projected a growth in employment between 2009 -2014 in the occupational group of *HIM – Standards* from 300 to 310-350. Note that this particular occupational group had the highest vacancy rate identified in this sector study, with a 23% vacancy rate estimated in 2009. Additionally, of the projected 310-350 employment opportunities in 2014, it was estimated that 110-300 of those resources would require skill broadening. Recommendations from this sector study included the development of strategies to address skills shortages focusing on HIM occupational groups and considering measures such as expanding the “role of skill certification by building on certification programs that are already in place”. Work is underway currently to complete another sector study focused on HI and HIM human resource requirements in Canada in the public and private sectors. The completed report is planned for May 2014.

Building on the sector study, CHIMA undertook a Workforce Transformation initiative that identified eight new categories of HIM functions needed in the future. The new functions include data capture; information integrity; identity management; access, disclosure and retention; information management governance; content compliance; information/knowledge asset management; and consumer support. Complimentary work was completed through the Evolve the College initiative which resulted in a recommendation for an advanced certification in terminology standards.

To further validate this resource need, a survey was conducted in the fall of 2013 to assess:

- Interest in pursuing a professional certification in terminologies;
- Needs for resources with training in SNOMED CT and LOINC;
- Interest in certification in this area to support resource recruitment;
- Potential for sponsoring staff to pursue this certification;

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- Length of time to recruit currently; and
  - Anticipated resource needs in three year.

The survey was shared with members of CHIMA, the Standards Collaborative, and ITAC Health. Overall, there were 294 responses. Most survey respondents indicated that they currently have the designation of CHIM and were working in a hospital/healthcare facility setting. The results provided some further validation of the business need including the following highlights:

- 57.8% of survey respondents indicated that they would consider pursuing a professional certification in terminologies to help with their current role and/or future career progression. 31.6% indicated that they were unsure and only 10.5% said no.
- 37 responses were from those in a recruiting position, of which 53.8% were looking for training in SNOMED CT in their recruitment of resources and 51.3% were looking for training in LOINC.
- 56.4% of those in a recruiting role would like to see certification in this area to support their resource recruitment needs with 41.0% indicating that they were unsure. Only 2.6% said no.
- 69.2% of those in a recruiting role indicated that they would consider sponsoring their staff in pursuing a professional certification in terminologies to help with their current role and/or future career progression.
- 32.3% of terminology positions are taking more than seven months to fill and 29% are taking 4-6 months to fill.
- Most recruiters indicated that they anticipated their human resource needs in three years for individuals with training in terminology will increase with 36.1% predicting their needs will slightly increase; 33.3% indicating that their needs will moderately increase and 19.4% indicating that their needs will significantly increase.
- Additional feedback from survey respondents emphasized the need for flexible and distance learning opportunities.

During the advisory group meetings, the group confirmed that they felt the evidence articulating this business need was compelling.

### **2.3.2 Prioritized Requirements (High Level)**

The following outlines the core (“must have”) requirements to address the business need, with input from the advisory group incorporated:

- Employer driven - Priority focus on learning content identified by employers to address current and anticipated resource knowledge gaps with respect to implementation and use of terminologies.
- Ongoing alignment with related international standards organizations - sharing approach and exchanging information to foster alignment with international certification approaches as they are developed.
- Investment leveraged – Investment in development of courseware leveraged to support delivery across Canada.
- Currency of courseware – Maintaining currency of courseware given advancements of knowledge and use in this area.

- Development of standard core content to be leveraged in programs
- Support from academic institutions.
- Open to non-HIM professionals that meet specified core foundational knowledge and/or experience requirements.

The following outlines the requirements that were rated as desirable, those that the advisory group thought should be considered on a cost-benefit basis.

- Accreditation of programs to support core content delivery (increase number of new professionals with these skill sets – to address “employment effect”);
- Accreditation of fast-track programs to support core content delivery (e.g. skill broadening) for people already working in the industry;
- Development of standard core content to be leveraged in fast-track programs for people already working in the industry;
- Nationally recognized credential of specialization offered;
- Certification exam – examination to test core content (if credential offered);
- Approach for ongoing maintenance of knowledge (e.g. to maintain credential).

### 2.3.3 Assumptions

Assumptions	Impact	Reliability Level
<p>1. There is a market for a clinical terminology professional certification. This assumption extrapolates from the sector study assumption that the projected numbers of required HIM-Standards professionals will continue to grow in this field. Estimates from the sector study for 2009 – 2014 represented a growth between 3-17%. Assumption of projected growth of 5% from 2014-2017. Sector study estimated that of the projected 2014 employment opportunities, 35-86% of the resources would require skill broadening. Assumption for outcomes of this work is that additional skill broadening related to SNOMED CT would be in the range of 20-40%. Projection that the number of certifications will continue at a steady rate per year for the initial five year period. Targets for number of professionals certified in the next three and five years based on these numbers. The market is assessed as being a “specialist” type market so overall numbers are anticipated to be in the lower hundreds and not to be in the thousands.</p>	<p>Positive. This assumption has a major effect on investment.</p>	<p>High</p>

Assumptions	Impact	Reliability Level
2. There is the ability to create an agreed upon core learning content document for use by educational groups to develop programs. This assumption has been tested with some key stakeholders and there is some initial confirmation that they would be willing to participate.	Positive. Important for consistency across Canada in program content offerings at core level.	Medium
3. There is the ability to produce and maintain a certification exam, credential, and maintenance program	Positive.	High

### 2.3.4 Constraints

The following constraints have been identified and validated based on an analysis of the proposed project environment:

- **Timelines** – Although no deadline is set at this time, there is an urgency to move this work forward in order to address current resource shortages and to support ongoing human resource and skills requirements.
- **Budget** – Development of the business case will be completed by internal resources from CHIMA and *Infoway*. Budgets for implementation of business case will need to be approved by applicable organizations.
- **Subject matter expertise** – There are constraints with accessing clinical terminology standards subject matter experts in this area that will be needed to support the operationalization of a professional certification in this area.
- **Economic factors** - Continuing education money is decreasing across Canada.
- **Organizational capacity** – The capacity of an organization to handle certifications (e.g. exam, curriculum document development, administration).

### 2.3.5 Dependencies

There is a dependency on this work for academic organizations to successfully build a business case for their role in meeting the identified business need. Representatives from five academic organizations were consulted and their feedback indicated that there was interest in this given what has been shared with them as part of the development of this business case.

## 2.4 Scope

The following scope definition was developed with input from the Advisory Group as well as additional validation with a few key stakeholders.

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The scope of this initiative will include the following “terminology” topics that have been identified as in demand or anticipated to be in demand as work in this area progresses. The depth of coverage of these topics will be identified as part of the definition of learning outcomes for this certificate. It is anticipated that some items will be covered as core and other items may be considered elective.

- **Terminology Subsets:** create, maintain, extend, quality assure, and distribute and/or publish subsets and supporting derivatives.
- **Terminology Maps:** create, maintain, extend, quality assure, and distribute and/or publish maps and supporting material.
- **Terminology Management Processes/Policies:** develop, manage, and update policies and processes to manage terminologies including how to create subsets and terminology maps, how to maintain terminologies and requests for change, how to engage clinical experts for validation and overall decision making processes related to terminology management.
- **Terminology Business Analysis:** gathering terminology requirements and defining terminology needs for e-health solutions and/or other tools (e.g. terminology tools, tools to support health analytics), development of recommendations for adopting, adapting or developing terminologies to meet specific business needs, supporting the definition of functional requirements, evaluating requirements as part of a procurement process, documenting workflow, providing terminology guidance to support configuration as required, support deployment of solutions from a terminology perspective (e.g. may include development of training manuals, development of test scenarios, testing, etc.).
- **Adoption Planning and Deployment of Terminologies:** support adoption planning and deployment of terminologies within an organization, region, or jurisdiction as part of an overall strategic plan or solution deployment including communications, education, change management, etc.
- **Data Retrieval and Analysis:** utilize terminologies for effective meaning-based retrieval to support epidemiology, research, evidence gathering and service planning (clinical and administrative), and ensuring the organization is using health information standards appropriately and effectively.
- **Decision Support Protocols, Guidelines and other Knowledge Resources:** provides guidance from a health information management perspective on how to integrate terminologies into these resources.

The scope will also include key foundational information that will underpin these terminology topics including:

- Introduction to terminologies
- Awareness of the adoption of terminologies nationally and internationally
- Awareness of Canadian extensions/localizations and related processes

This foundational information will build on the knowledge currently covered in Health Information Management (HIM) programs (reference Learning Outcomes for Health Information Management Diploma/Degree Programs).

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## 3. Option Analysis

### 3.1 Preliminary Options Analysis

#### 3.1.1 Evaluation Criteria

Building on the requirements defined, input was solicited from the Advisory Group to define the following evaluation criteria:

- Does the option align with the mandate and strategic priorities of the participating organization(s)?
- Is there alignment and/or support from the applicable international Standards Development Organizations (e.g. IHTSDO and Regenstrief)?
- Is it possible to launch the option in the upcoming 12-18 months?
- Is it a viable project idea?
  - Can the project be rolled out nationally?
  - Is the option viable from a financial perspective?
  - What is the cost per client?
- Does the option address the needs, preferences and characteristics of the target market?
- Does the option make learning content available to support developing expertise and experience in applying knowledge in this newly emerging area?
- Is there available expertise as part of the proposed option to successfully deliver the option?
- Does the option leverage expertise nationally and internationally?
- Does the option ensure there is ongoing continuing education given the emerging nature of this area of specialty?

#### 3.1.2 Possible Options & Initial Screening

Based on input from the Advisory Group, a long list of options was created. An initial screening exercise leveraging the rated requirements as well as related organizational considerations was completed to identify a short-list of viable options for further assessment. A high-level summary of initial screening is included in Appendix D for reference. Based on the initial screening, the following options were retained for further assessment:

- **Option 1: Status Quo** – Retained as baseline for comparison.
- **Option 2: Graduate Certificate** – Development of a graduate certificate by academic organizations based on core learning outcomes identified and validated with key stakeholders nationally and the incorporation of some core learning material developed and maintained by stakeholders nationally. Core content would be validated with applicable Standards Development Organizations.
- **Option 3: Professional Certification** - Development of a Canadian professional certification by CCHIM based on core learning content identified and validated with key stakeholders nationally including the Standards Collaborative, employers etc. Academic organizations offer a program that covers the identified learning criteria and on completion of the program students and/or those that meet experience criteria can challenge a national exam for professional certification. Core learning material developed and maintained by stakeholders nationally and core content

validated internationally with applicable Standards Development Organizations. Requirement for continuing education to maintain credential.

- **Option 4: Professional Certification & Program Accreditation:** Development of a Canadian professional certification by CCHIM based on core learning content and exam questions identified and validated with key stakeholders nationally and internationally including the Standards Collaborative, applicable Standards Development Organizations, employers etc. CCHIM accredits academic organizations offering a program that covers the identified learning criteria and on completion of the program students and/or those that meet experience criteria can challenge a national exam for professional certification. This builds on the model already developed and managed by CCHIM with regards to the CHIM credential. Core learning material developed and maintained by stakeholders nationally and core content validated internationally with applicable Standards Development Organizations.

### 3.2 Assessment of Viable Options

The following provides a comparison summary with further details of the short-listed viable options as well as the baseline option.

	<b>Option 1: Status Quo</b>	<b>Option 2: Graduate Certificate</b>	<b>Option 3: Professional Certification</b>	<b>Option 4: Professional Certification &amp; Program Accreditation</b>
National exam that can be challenged by professionals that meet specified academic and/or experience qualifications.	No	No	Yes	Yes
Continuing educational requirements to maintain credential.	No	No	Yes	Yes
Standards Collaborative advisory role (e.g. participate in group to define learning content and review core content material) and support role (e.g. facilitate liaison with international Standards Development Organizations, support promotion of certification).	No	Yes	Yes	Yes

	<b>Option 1: Status Quo</b>	<b>Option 2: Graduate Certificate</b>	<b>Option 3: Professional Certification</b>	<b>Option 4: Professional Certification &amp; Program Accreditation</b>
CCHIM advisory role (e.g., participate in group to define learning content and review core content material).	No	Yes	Yes	Yes
CCHIM management of national professional certification exam and professional designation.	No	No	Yes	Yes
CCHIM management of program accreditation to support ongoing quality assurance of educational programs as part of their mandate to advance the field of HIM, to ensure standards are attained and maintained by educational institutions offering this program and to provide guidance to educational institutions when they need to implement revisions to their programs.	No	No	No	Yes

### 3.2.1 Alignment

In reviewing the four viable options noted above against the strategic direction of the participating organizations, Option 3 (Professional Certification) and Option 4 (Professional Certification & Program Accreditation) are more strategically aligned with the outcomes of the Evolve the College Initiative. Although these options are not restricted to HIM professionals, it has been identified that there are a large number of HIM professionals and other interested professionals that need skill broadening to meet the needs of evolving roles in their profession, including more advanced roles that require terminology standards expertise.

### 3.2.2 Costs

The following chart estimates the high-level costs and related assumptions for each of the short-listed options.

<p><b>Option 1: Status Quo</b></p>	<ul style="list-style-type: none"> <li>• <b>CCHIM</b> – no additional costs</li> <li>• <b>Academic organizations</b> – assume full costs for development and delivery of educational courses and or programs that may cover parts of this scope.</li> <li>• <b>Standards Collaborative</b> – no additional costs beyond current services and support provided in the use of pan-Canadian Standards</li> </ul>
<p><b>Option 2: Graduate Certificate</b></p>	<ul style="list-style-type: none"> <li>• <b>CCHIM</b>– advisory and support role building on core HIM program criteria – estimated cost of .2 FTE in the first year and .05 FTE in subsequent years. No revenue stream for CCHIM.</li> <li>• <b>Academic organizations</b> – leverage investments made above and assume all other costs for development and delivery of educational programs. Revenue stream from students participating in the programs.</li> <li>• <b>Standards Collaborative</b> – advisory and support role estimated cost of .1 FTE in the first year and .05 FTE in subsequent years. No revenue stream for Standards Collaborative other than related membership fees for those that purchase premium memberships in order to use the standards and/or standards tools.</li> <li>• <b>Key stakeholders</b> – in kind contributions to support development of learning criteria and core content.</li> </ul>
<p><b>Option 3: Professional Certification</b></p>	<ul style="list-style-type: none"> <li>• <b>CCHIM</b> – additional contribution to what was identified in option 2 would be needed to set-up and run a national credential exam and ongoing maintenance of the certification. Anticipated to be established on a cost-recovery basis with revenue from certification exams.</li> <li>• <b>Academic organizations</b> – could include some additional costs over what was identified for option 2 above.</li> <li>• <b>Standards Collaborative</b> – advisory and support role additional contribution to above of .05 FTE in the first year to support creation and validation of exam questions. Ongoing investment thereafter of an additional .025 FTE.</li> <li>• <b>Key stakeholders</b> – in kind contributions to support development of exam questions.</li> <li>• <b>Applicable Standards Development Organizations</b> – costs to participate in review of learning outcomes related to applicable standard and to help with validation of related exam questions.</li> </ul>
<p><b>Option 4: Professional Certification &amp; Program Accreditation</b></p>	<ul style="list-style-type: none"> <li>• <b>CCHIM</b> – additional contribution to what was identified in option 3 to set up and manage program accreditations. Anticipated to be established on a cost-recovery basis with revenue from program accreditation fees.</li> <li>• <b>Academic organizations</b> – additional cost of accreditation process and fees.</li> <li>• <b>Standards Collaborative</b> – no additional costs over option 3.</li> <li>• <b>Applicable Standards Development Organizations</b> – no</li> </ul>

	additional costs anticipated over what was identified above in Option 3.
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### 3.2.3 Benefits Assessment

The following benefits have been identified for each of the short-listed options.

<b>Option 1: Status Quo</b>	<ul style="list-style-type: none"> <li>No benefits identified as this option is not helping to accelerate solutions to address the business need identified. Academic institutions may decide to work in this space and evolve existing related programs but there will be no investments leveraged to support this nationally.</li> </ul>
<b>Option 2: Graduate Certificate</b>	<ul style="list-style-type: none"> <li>Employer driven with engagement of representatives in the definition of learning outcomes and core content.</li> <li>Ongoing alignment/engagement with applicable Standards Development Organizations.</li> <li>Investment leveraged in development/sharing of some core content nationally and development of learning outcomes.</li> <li>Currency of courseware and learning outcomes will be addressed at a high-level through a national advisory group.</li> </ul>
<b>Option 3: Professional Certification</b>	<ul style="list-style-type: none"> <li>Employers and other stakeholders have the benefit of knowing that core knowledge and understanding of specified content has been tested in a standardized method nationally for professionals with this professional certification. Helps to avoid hiring of professionals that do not have the required skills/knowledge for jobs despite having completed a related program.</li> <li>Professionals with this certification have the benefit of a recognized national credential to highlight their expertise/knowledge in this area.</li> <li>Ongoing continuing education requirements ensure professionals with this designation maintain currency of knowledge/expertise and thus builds confidence in the credential by potential employers</li> <li>Programs that lead to certification may be able to attract more students.</li> </ul>
<b>Option 4: Professional Certification &amp; Program Accreditation</b>	<ul style="list-style-type: none"> <li>Accreditation offers additional benefits of quality assurance, consistent learning content development and delivery, and support for educational programs.</li> <li>Gives students assurances of quality programs that will position them well for achievement of a national credential.</li> <li>Gives employers confidence in consistent learning content delivery and consistency of employee attributes.</li> </ul>

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### 3.2.4 Implementation and Capacity Considerations of Viable Options

CCHIM has a robust national credentialing process and accreditation program already established for its CHIM designation. With terminology standards certification being identified as a key strategic priority to address, the existing processes and program can be leveraged with minimal up-front costs to offer a new advanced certification for clinical terminology. The main upfront cost will be the engagement of a project manager/subject matter expert related to the development of the learning content items and participation in a one-time in-person meeting. It is anticipated that individual meeting participation costs for any in-person meeting will be covered by each participant.

All options above leverage the existing expertise and knowledge in delivery of educational programs by academic institutions. It is anticipated based on consultations with representatives from the academic community that some academic organizations are tentatively planning and will be able to build a business case within their organization to launch and/or evolve an existing program in this area, leveraging existing platforms and expertise with delivery of online education. Educational institutions also have the infrastructure and support for students as part of their core services.

The Standards Collaborative is also uniquely positioned to contribute in an advisory and support role given its mandate, including its liaison role with related international Standards Development Organizations. The Standards Collaborative supports SNOMED CT and LOINC (pCLOCD) use in Canada and has resources with this specialized knowledge that can contribute to identification of learning outcomes and some core content to be leveraged in programs.

### 3.2.5 Risk Assessment

The following highlights whether the risk assessment for each of the options is acceptable.

<b>Option 1: Status Quo</b>	<ul style="list-style-type: none"><li>• The risk of maintaining the status quo is increased costs across the country for organizations that will need to try to recruit and train staff and/or consultants to meet implementation and ongoing operational needs for terminology expertise and for delays in service delivery and implementation of e-health solutions. This is assessed as a medium to high risk for organizations.</li></ul>
<b>Option 2: Graduate Certificate</b>	<ul style="list-style-type: none"><li>• Risk that key stakeholders will not contribute to the definition of learning outcomes and some core content. Risk assessed as low given confirmation by some key stakeholders engaged in this work to date that they would be willing to support this moving forward.</li><li>• Risk that academic organizations will not be able to build a business case within their organization to offer this specialized program. Risk assessed as low-moderate given feedback from</li></ul>

	<p>academic representatives engaged in this work.</p> <ul style="list-style-type: none"> <li>• Risk that students will not pursue this specialized program. Risk assessed as low-medium given the indication that these programs would be offered in a flexible, online format and initial costing for students shared appears to be reasonable compared to other graduate certificate programs. The survey conducted with potential candidates for this program had positive results indicating interest in pursuing this type of program. Results from the survey also indicated good support from potential employers to sponsor staff in pursuing this type of a program.</li> </ul>
<b>Option 3: Professional Certification</b>	<ul style="list-style-type: none"> <li>• In addition to the risks identified above, this option has the risk of eligible candidates not challenging the exam to obtain the national credential. This is assessed as a low to medium risk given the strong base of engagement achieved with CHIM designation.</li> <li>• There is also a risk that the initial investment costs for CCHIM to set up and manage a national credential will not be recovered with the revenue from exam fees. This is assessed as a low risk given an existing infrastructure and robust processes already developed at CCHIM to manage the existing CHIM credential.</li> </ul>
<b>Option 4: Professional Certification &amp; Program Accreditation</b>	<ul style="list-style-type: none"> <li>• In addition to the risks identified above, this option also has the risk that the initial investment costs for CCHIM to set up and manage program accreditation will not be recovered with revenue from accreditation fees. This is assessed as a low to medium risk given the existing infrastructure and robust processes already developed at CCHIM to manage HIM program accreditation. Additionally, consultations with academic representatives indicated that if they were interested in launching a program in this area that they felt accreditation would help to build their business case and provided that fees were not too expensive, that they would be willing to pay fees to have their program accredited.</li> </ul>

## 4. Recommendation

### 4.1 The Preferred Option

The recommendation is to proceed with Option 4 to develop and launch a clinical terminology professional certification in Canada with educational programs being accredited by CCHIM. CCHIM will develop, promote, and manage the professional credential and program accreditation with support from the following:

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- Academic organizations will develop and obtain approval within their organizations to launch this specialized program and will participate in obtaining program accreditation.
  - The Standards Collaborative will participate in an advisory role (e.g., participate in an advisory group to define learning outcomes and content, contribute and /or review core content material, and support development/review of exam questions). The Standards Collaborative will also participate in a support role (e.g., facilitate liaison with applicable international Standards Development Organizations), and support promotion of certification, etc.;
  - Key stakeholders representing HIM professionals, potential employers, academic institutions, and applicable Standards Development Organizations will contribute as applicable to the definition of learning outcomes, share and/or help to validate core learning material, and/or help to develop and validate exam questions.

#### **4.1.1 Deciding Factors**

Based on the assessment of costs and related benefits, Option 4 offers the most benefit with a marginal risk assessment that the additional up-front costs for CCHIM to establish a professional certification and program accreditation will not be recovered. This recommendation is based on the assumption that academic institutions will be able to build business cases for their organizations to offer this program. Initial feedback shared by academic representatives engaged in this work also indicated that based on the work shared with this business case, that they felt it was likely that they could build a complimentary business case from their perspective. Benefits identified include the following:

- Employer driven with engagement of representatives in the definition of learning outcomes and core content.
- Ongoing alignment/engagement with applicable Standards Development Organizations.
- Investment leveraged in development/sharing of some core content nationally and development of learning outcomes.
- Currency of courseware and learning outcomes will be addressed at a high-level through a national advisory group.
- Employers and other stakeholders have the benefit of knowing that core knowledge and understanding of specified content has been tested in a standardized method nationally for professionals with this professional certification. Helps to avoid hiring of professionals that do not have the required skills/knowledge for jobs despite having completed a related program.
- Professionals with this certification have the benefit of a recognized national credential to highlight their expertise/knowledge in this area.

- Ongoing continuing education requirements ensure professionals with this designation maintain currency of knowledge/expertise and thus builds confidence in the credential by potential employers
- Accreditation offers additional benefits of quality assurance, consistent learning content development and delivery, and support for educational programs.
- Gives students assurances of quality programs that will position them well for achievement of a national credential.
- Gives employers confidence in consistent learning content delivery and consistency of employee attributes.

#### 4.1.2 Costs

The following outlines the high-level costs associated with this option:

<p><b>CCHIM</b></p>	<ul style="list-style-type: none"> <li>• Costs to set-up and run a national credential exam and ongoing maintenance of the certification including 0.2 FTE project manager/subject matter expert. Anticipated to be established on a cost-recovery basis with revenue from certification exams.</li> <li>• Costs to set up and manage program accreditations. Anticipated to be established on a cost-recovery basis with revenue from program accreditation fees.</li> <li>• Costs to cover expenses for staff to participate in person for meetings as applicable. Anticipation that this will be minimal as key stakeholders will be required to sponsor their participant for any travel involved.</li> <li>• Cost recovery within a three to five year period following certification and accreditation implementation.</li> </ul>
<p><b>Academic Organizations</b></p>	<ul style="list-style-type: none"> <li>• Resource costs to contribute to the development and validation of learning outcomes, contribute/validate to core learning content.</li> <li>• Costs to cover expenses to participate in person for meetings as applicable. Anticipation that this will be minimal.</li> <li>• Costs to develop and obtain approval for business case within their organization.</li> <li>• Costs to obtain accreditation of program (estimate \$1000-\$3,000 not including site visit).</li> <li>• Costs to develop, launch, and maintain this program, leveraging core material available to support this nationally.</li> <li>• Revenue from students registered in programs/courses.</li> </ul>
<p><b>Standards Collaborative</b></p>	<ul style="list-style-type: none"> <li>• Advisory and support role estimated cost of .15 FTE in the first year and .075 FTE in subsequent years.</li> <li>• Costs to cover expenses for staff to participate in person for meetings as applicable and to host meetings within <i>Infoway</i> offices</li> </ul>

	<p>as feasible. Anticipation that this will be minimal.</p> <ul style="list-style-type: none"> <li>No revenue stream for Standards Collaborative other than related membership fees for those that purchase premium memberships in order to use the standards and/or standards tools.</li> </ul>
<b>Key Stakeholders</b>	<ul style="list-style-type: none"> <li>In kind contributions to support development and validation of learning criteria, core content as applicable, and/or development and validation of exam questions. (e.g. AHIMA, ehealth delivery organizations, and vendors.)</li> </ul>
<b>Applicable Standards Development Organizations</b>	<ul style="list-style-type: none"> <li>Costs to participate in review of learning outcomes related to applicable standard and to help with validation of related exam questions.</li> </ul>

### 4.1.3 Risks Identification & Mitigation

<b>Risk</b>	<b>Mitigation Approach</b>
<ul style="list-style-type: none"> <li>Key stakeholders will not contribute to the definition of learning outcomes and some core content. Risk assessed as low given confirmation by some key stakeholders engaged in this work to date that they would be willing to support this moving forward.</li> </ul>	<ul style="list-style-type: none"> <li>Establish stakeholder commitment to participate in next steps of this work as an initial milestone. Suspend further work if unable to get sufficient engagement from stakeholders to support this work.</li> </ul>
<ul style="list-style-type: none"> <li>Eligible candidates will not see the value of obtaining the professional designation and thus will not challenge the specialty certificate exam. This is assessed as a low to medium risk given the strong base of engagement achieved with CHIM designation. Professional Certification.</li> </ul>	<ul style="list-style-type: none"> <li>CCHIM will develop marketing campaign to raise awareness of the value and highlight opportunities as part of the evolution of the HIM profession.</li> <li>Infoway and other partners will support raising awareness of the credential.</li> <li>CCHIM will work with the QC HIM program to promote value in QC.</li> </ul>
<ul style="list-style-type: none"> <li>The initial investment costs for CCHIM to set up and manage a specialty certificate exam and designation will not be recovered with the revenue from exam fees. This is assessed as a low risk given an existing infrastructure and robust processes already developed at CCHIM to manage the existing CHIM credential.</li> </ul>	<ul style="list-style-type: none"> <li>The marketing efforts noted above will help to mitigate this risk.</li> <li>Delay work on this item to follow successful establishment of learning outcomes as an indicator of continued stakeholder endorsement and support.</li> </ul>
<ul style="list-style-type: none"> <li>The initial investment costs for CCHIM to set up and manage program accreditation will not be recovered with revenue from accreditation fees. This is assessed as a low to medium risk given the existing infrastructure and robust processes already developed at CCHIM to manage HIM program accreditation. Additionally, consultations with academic representatives</li> </ul>	<ul style="list-style-type: none"> <li>Obtain confirmation of intent to apply for accreditation from some academic organizations prior to investing in the development of this accreditation program.</li> </ul>

<p>indicated that if they were interested in launching a program in this area that they felt accreditation would help to build their business case and provided that fees were not too expensive, that they would be willing to pay fees to have their program accredited.</p>	
<ul style="list-style-type: none"> <li>• Misalignment of this certification with IHTSDO certification if they decide to move forward with this internationally.</li> </ul>	<ul style="list-style-type: none"> <li>• Include IHTSDO as a partner in this work to align approaches and share resources as applicable.</li> </ul>

#### 4.1.4 Implementation Plan

The following identifies a high-level implementation plan on obtaining final approval of this business case and key milestones in implementing the recommended option. Key stakeholders that will be involved will need to be engaged to validate targets.

- Approval (endorsement) of recommended option by CHIMA Council on Education and Professional Practice (CEPP) – February 2014
- Approval by *Infoway* leadership – March 2014
- Approval by CHIMA Board of Directors – April 2014
- Identification of advisory group to support development of learning criteria and some core content – May 2014
- First draft of learning criteria developed – October 2014
- Approval of learning criteria for first year December 2014
- Identification of key learning content that can be developed and/or leveraged to support programs – December 2014
- Development of learning content as identified – start in January 2015
- Launch of accreditation program– January 2015
- Development of draft exam questions – March – September 2015
- Approval of exam questions – October – December 2015
- Launch of programs at educational institutions – September 2015

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## Appendix A – Clinical Terminology Standards Overview

Clinical terminology covers complex concepts such as diseases, operations, treatments and medicines. Examples of clinical terminology standards being used in Canada include SNOMED Clinical Terms (SNOMED CT) and the pan-Canadian LOINC Observation Code Database (pCLOCD). The following provides a high-level overview of SNOMED CT and LOINC/pCLOCD.

### **SNOMED CT**

Systematized NOmenclature of MEDicine Clinical Terms (SNOMED CT) is the most comprehensive, multilingual clinical healthcare terminology in the world. It is an internationally recognized terminology standard to capture, retrieve, aggregate and share relevant clinical information across health care settings and providers in a consistent, safe and reliable manner.

SNOMED CT contains more than 300,000 active concepts with unique meanings, ranging from diagnoses and therapies, to medications, results and orders. Each concept is linked to multiple descriptions, which allows clinicians to express a clinical concept in a way they would prefer without losing the intended meaning. SNOMED CT is designed to allow the International Edition to be enhanced by adding content that meets national requirements. The Standards Collaborative is developing and maintaining a Canadian Extension which encompasses English and French components.

The International Health Terminology Standards Development Organization (IHTSDO) is a not-for-profit organization, which acquires, owns and administers the rights to SNOMED CT and related Terminology standards. IHTSDO develops, maintains, promotes and enables the uptake and correct use of its terminology products around the world. Canada is a member country of IHTSDO and Canada's representative is Infoway's Standards Collaborative, providing a single point of contact within Canada.

Further information about SNOMED CT can be access at <https://www.infoway-inforoute.ca/index.php/programs-services/standards-collaborative/pan-canadian-standards/systematized-nomenclature-of-medicine-clinical-terms-snomed-ct>.

### **LOINC/pCLOCD**

The pan-Canadian LOINC Observation Code Database (pCLOCD) Nomenclature Standard allows access, management and storage of patient laboratory orders and results across the continuum of care through a jurisdictional Laboratory Information System.

Laboratory results are a critical factor in clinical decision making. Many patients' complete tests are located in different health care locations. When online sharing of test information is limited, tests results are often duplicated when a patient then visits different health care providers. This lack of available laboratory test information limits timely clinical decision making.

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The pCLOCD was created using the LOINC® records and attributes that specifically meet Canadian laboratory ordering and reporting requirements. It will include records that cover most laboratory domains and that pertain to laboratory testing on humans and non-humans.

The pan-Canadian Laboratory Nomenclature (pCLN) is not expected to be “complete” at any given time since laboratory testing technology changes continually as new tests are devised and reporting requirements change. The pCLOCD will be maintained and revisions published bi-annually by the Standards Collaborative.

Regenstrief Institute’s informatics group developed the LOINC terminology coding system to standardize laboratory test result names, clinical observations and test requests. Regenstrief Institute remains the overall steward or Standards Development Organization responsible for LOINC, including its distribution, development and maintenance.

Further information about pCLOCD can be accessed at <https://www.infoway-inforoute.ca/index.php/programs-services/standards-collaborative/pan-canadian-standards/pan-canadian-loinc-observation-code-database-pclocd-nomenclature-standard>.

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## Appendix B – External Advisory Group Members

The external advisory group established to support this work included the following:

- Kelly Abrams, Vice President, Canadian College of Health Information Management (project co-lead)
- Marsha Bryan, Director, Business Development Services, Standards Collaborative, Canada Health Infoway (project co-lead)
- Sandra Cotton, HIM Program Coordinator, Centre for Distance Education, Digital Arts Technology Training Institute
- Denise Downs, Implementation and Education Lead, Information Standards Delivery, NHS, UK
- Kimberly Durofil, Coordinator & Faculty, HIM Program, George Brown College
- Shari Dworkin, Director, Standards Collaborative, Canada Health Infoway
- Marguerite Foote, Manager EHR Standards, Newfoundland & Labrador Centre for Health Information
- Jennifer Garcia, Senior Classification & Clinical Terminology Specialist, Provincial Standards, Health Information Management, Alberta Health Services
- Andrew Grant, Full Professor. Faculté de Médecine et des sciences de la santé, Univ de Sherbrooke
- Kerry Johnson, Senior Lecturer, Faculty of Health Sciences, University of Ontario Institute of Technology
- Abdul Roudsari, Professor and Director, School of Health Information Science, University of Victoria
- Sue Schneider, Director, eHealth Standards, eHealth Ontario
- Brendan Seaton, President, ITAC Health
- Tasha Shaw-Verbic, Specialist, Business Development Services, Standards Collaborative, Canada Health Infoway
- Leonie Stranc, Acting Manager, Information Architecture and Standards, Manitoba eHealth
- Paula Weisflock, Director of Examination and Professional Practice, Canadian College of Health Information Management

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## Appendix C – Examples of Clinical Terminology Standards Use in Canada

The use of clinical terminology standards, such as SNOMED CT and LOINC/pCLOCD across the country has been increasing as part of the increased investments in health information technologies. A few examples of use for illustrative purposes are provided below.

- University Health Network (Toronto) – Clinical Documentation Projects– Clinical documentation to capture synoptic, coded clinical encounter data including: patient medical history; cancer treatment history; ambulatory visits; medication reconciliation; discharge summaries; and pharmacy issues and interventions. SNOMED CT terms are used where possible to encode clinical encounter data.
- eHealth Ontario – Diagnostic Imaging (DI) SNOMED CT Terminology Project - Standardized procedure terms used for sharing of diagnostic imaging studies and reports across Ontario. SNOMED CT is being used to map the provincial user interface terms for DI procedures, which in term, will be used to map the local DI procedure codes.
- Canadian MedicAlert® Foundation – Their objective is to provide pertinent medical information about MedicAlert members to emergency responders and health care professionals. MedicAlert is mapping SNOMED CT to local codes for medical conditions. Once this is complete, MedicAlert plans to extend the map to include allergies, medical devices and implants.
- Canadian Partnership Against Cancer (CPAC) Synoptic Reporting – The National Staging Initiative is looking at national population-based collaborative stage data collection for cancer cases. The electronic version of the CAP cancer protocols and checklists are SNOMED CT encoded by the CAP where codes exist. The data is being collected for cancer surveillance purposes at the provincial, national and international level.
- Public Health Surveillance – Panorama - System for early detection and containment of possible outbreaks. Implemented in BC and Yukon. SNOMED CT used to encode clinical information (e.g. disease, agents, antigens, signs and symptoms, causative agents, etc).
- Nova Scotia Department of Health – Provincial Surgery Project – The objective of this initiative was to provide a common terminology for reporting surgical procedures as part of a province-wide wait time management system. Procedure codes from regional surgical systems were mapped to an equivalent SNOMED CT concept. Provincial reports will be created using the common SNOMED CT concepts.
- eHealth Saskatchewan – Laboratory Information System – Mapping of the major LIS test catalogues in each Health Authority to pCLOCD. Transmitting all LIS tests that have been mapped to a Central Lab Repository (SLRR), which provides view access and distribution of standardized electronic lab results to physician EMR's
- British Columbia – Laboratory Information System - Mapping of the public and private LIS test catalogues in each Health Authority to pCLOCD. Transmitting all LIS tests that have been mapped to a Central Lab Repository (PLIS), which provides view access of standardized lab tests.
- New Brunswick – Laboratory Information System - Mapping of the major LIS test catalogues in each Health Regions to pCLOCD. Transmitting all LIS tests that have been mapped to a Central Lab Repository (OPOR), which provides view access of standardized lab tests.

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- Ontario – Laboratory Information System - Mapping of the public and private LIS test catalogues in most Health Regions to pCLOCD. Transmitting all LIS tests that have been mapped to a Central Lab Repository (OLIS), which provides view access of standardized lab tests.
  - Manitoba – Laboratory Information System - Mapping of the public and private LIS test catalogues in major Health Regions to pCLOCD. Transmitting all LIS tests that have been mapped to a Central Lab Repository which provides view access of standardized lab tests.

## Appendix D – Initial Option Screening Assessment Summary

The following summary highlights the results from the initial screening of the options. The screening was completed leveraging the rated requirements as well as related organizational considerations to identify a short-list of viable options for further assessment.

Option	Assessment Summary
<ul style="list-style-type: none"> <li>Status quo –no partnership or collaboration in addressing this specific resource gap in Canada and no specific organization working to cover the full breadth of this scope.</li> </ul>	<ul style="list-style-type: none"> <li>Retained as baseline.</li> </ul>
<ul style="list-style-type: none"> <li>CHIMA/CCHIM developed and delivered training and certification</li> </ul>	<ul style="list-style-type: none"> <li>Not considered a viable option as it does not align with the mandate of CCHIM which specifies that it will partner with educational institutions, CCHIM members, industry, and employers to develop the competencies, skills and knowledge for the HIM profession.</li> </ul>
<ul style="list-style-type: none"> <li>Standards Collaborative developed and delivered training and certification</li> </ul>	<ul style="list-style-type: none"> <li>Not considered a viable option as the current business model for the Standards Collaborative education services is not positioned to support broad based education for professional skills broadening and/or development.</li> </ul>
<ul style="list-style-type: none"> <li>National credential and testing established by CHIMA based on identification of core content to be covered by this credential as determined by key stakeholders nationally. This option would allow candidates to challenge the exam for certification based on open eligibility or based on a specified number of years of experience and generic educational requirements (e.g. a bachelor diploma or degree). (An example of an open based certification is the approach taken by HL7 International).</li> </ul>	<ul style="list-style-type: none"> <li>Not considered a viable option as training opportunities in this area are very limited to date so it does not support candidates in developing experience and expertise in this newly emerging area.</li> </ul>
<ul style="list-style-type: none"> <li>Development of a graduate/advanced specialty certification by academic organization(s) based on how each organization defines learning outcomes and content.</li> </ul>	<ul style="list-style-type: none"> <li>Not considered a desirable option as it does not leverage investments in the development of learning criteria or core content to support delivery across Canada and with this option there is higher risk of content not aligning with employer needs across Canada.</li> </ul>
<ul style="list-style-type: none"> <li>Development of a graduate/advanced specialty certification by academic organization(s) based on core learning</li> </ul>	<ul style="list-style-type: none"> <li>Not considered a desirable option as it does not leverage investments in the development of core content to support delivery across Canada.</li> </ul>

<p>outcomes identified and validated with key stakeholders nationally including the Standards Collaborative, CHIMA, employers etc.</p>	
<ul style="list-style-type: none"> <li>• Development of a graduate/advanced specialty certification by academic organization(s) based on core learning outcomes identified and validated with key stakeholders nationally and incorporation of some core learning material developed and maintained by stakeholders nationally. Core content validated internationally with applicable Standards Development Organizations.</li> </ul>	<ul style="list-style-type: none"> <li>• Identified as a short-listed option for further assessment.</li> </ul>
<ul style="list-style-type: none"> <li>• Development of a Canadian professional certification by CCHIM based on core learning content identified and validated with key stakeholders nationally including the Standards Collaborative, employers etc. Academic organizations offer a program that covers the identified learning criteria and on completion of the program students and/or those that meet experience criteria can challenge a national exam for professional certification. Core learning material developed and maintained by stakeholders nationally and core content validated internationally with applicable Standards Development Organizations. Requirement for continuing education to maintain credential.</li> </ul>	<ul style="list-style-type: none"> <li>• Identified as a short-listed option for further assessment.</li> </ul>
<ul style="list-style-type: none"> <li>• Same option as above but with the Standards Collaborative delivering the education program rather than academic institutions.</li> </ul>	<ul style="list-style-type: none"> <li>• Not considered a viable option as the current business model for the Standards Collaborative education services is not positioned to support broad based education for professional skills broadening and/or development.</li> </ul>
<ul style="list-style-type: none"> <li>• Development of a Canadian professional certification by CCHIM based on core learning content and exam questions identified and validated with key stakeholders nationally and internationally including the Standards Collaborative, applicable Standards Development Organizations, employers etc. CCHIM accredits academic organizations offer a program that covers the identified learning</li> </ul>	<ul style="list-style-type: none"> <li>• Identified as a short-listed option for further assessment.</li> </ul>

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<p>criteria and on completion of the program students and/or those that meet experience criteria can challenge a national exam for professional certification. This builds on the model already developed and managed by CCHIM with regards to the CHIM credential. Core learning material developed and maintained by stakeholders nationally and core content validated internationally with applicable Standards Development Organizations.</p>	
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