

**National Network of Libraries for Health/
Réseau national des bibliothèques pour la santé**



Concept of Operations

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**CANADIAN HEALTH LIBRARIES ASSOCIATION /
ASSOCIATION DES BIBLIOTHÈQUES DE LA SANTÉ DU
CANADA**

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OVERVIEW

The provision of high quality health care requires that health care providers use the best available evidence to inform their decisions about patient care, service provision, program planning and system management. In recognition of this, countries such as the United States and the United Kingdom have directed resources towards the creation and maintenance of national health information networks that facilitate access to current, evidence-based information resources at the time and place of need. In the United States, the US National Library of Medicine coordinated the development of the US National Network of Libraries of Medicine (NN/LM), a system linking regionally based health libraries and information services. In the United Kingdom, the National Library for Health (NLH) was developed to provide access to information resources to health professionals across the UK through the coordination of existing National Health Service libraries.

In Canada, provincial health information networks exist in Saskatchewan (SHIRP: Saskatchewan Health Information Resources Partnership), Alberta (the HKN: Health Knowledge Network), Nova Scotia (The Atlantic Health Knowledge Partnership), British Columbia (e-HLbc the Electronic Health Library of BC) and Newfoundland & Labrador (Newfoundland and Labrador Health Knowledge Information Network). However, there is no national network with equitable and coordinated access to information for health professionals across the country.

In the absence of a nationally coordinated network, many health care providers have little or no access to information, whereas others have access to a wide range of information resources and services, in some cases with a significant level of duplication or redundancy.

Both Health Canada and the Canadian Health Libraries Association/Association des bibliothèques de la santé du Canada (CHLA/ABSC) have done significant background work around the concept of a national network over the last decade (Appendix 1). For the past six years, the National Network of Libraries for Health/Réseau national des bibliothèques pour la santé, a Taskforce of CHLA/ABSC has completed the groundwork towards a) identifying the key issues and obstacles that Canadian health care providers face in accessing information, and b) examining existing national, international and regional models for the coordinated and responsive delivery of health information resources and services. Recent stakeholder meetings with representatives from government, the academic community and professional organizations have confirmed the need to move ahead in the design and development of a unique Canadian solution to these issues.* In 2006, funding was obtained from key stakeholders to engage a consultant to develop a business plan for the Network. The first step toward this business plan is the definition and development of a detailed concept of operations based upon the vision and goals described below.

* Canadian Association of Occupational Therapists, Canadian Public Health Association, Canadian Medical Association, Canadian Nurses Association, Canadian Physiotherapy Association and the Canadian Dental Association, all endorsed the>NNLH concept during the June 17th, 2005 meeting at the Canada Institute for Scientific and Technical Information (CISTI).

THE NEED FOR A NATIONAL NETWORK OF LIBRARIES FOR HEALTH

While many local, regional and specialty health libraries do an exemplary job of providing high quality information services to their defined clientele, there currently is no national, interprovincial or cross jurisdictional coordinating body to ensure that health care providers across Canada have cost effective and universal access to the best health research information in support of patient care. In October 2004, the Canadian Health Libraries Association/Association des Bibliothèques de la Santé du Canada (CHLA/ABSC) held a preliminary stakeholders meeting with representatives of various associations including the Canadian Medical Association, the Canadian Nurses Association, the Canadian Pharmacists Association, health librarians and researchers to discuss the issue. In June of 2005, a formal meeting held with representatives from key stakeholders from across the health and library community confirmed that:

- While all health care providers need easy access to evidence based information, many face significant barriers and inequities:
 - In urban centres, physicians, who are affiliated with teaching hospitals and universities may have multiple avenues for access to library services and to electronic databases and journals to support their practice,
 - Rural or urban, many health care providers have no such affiliation and therefore no access to the information they require,
- Barriers to access include remote geographic location, lack of adequate technological infrastructure, lack of a hospital or health library in their organization/facility;
- Even where some access to resources is available, many health care providers do not have the time or skills to effectively access these resources, or experience confusion or frustration with access and navigation;
- Increased subscription costs coupled with financial cut-backs have affected all hospitals but have especially hindered smaller and rural hospitals in providing library services to their affiliated health care providers;
- While internet access to full text electronic resources is of significant benefit, it is only one part of an effective overall strategy to connect health care providers with the information they need;
- Only a small portion of the key online information resources (including bibliographic databases and electronic full-text) are freely available; the majority require the purchase of a license;[◇]
- Cost-effective access to those resources not freely available requires the involvement of a library service staffed by information professionals; and
- Some provincial initiatives are underway to provide library service to some underserved health professionals – but they have not eliminated all the gaps in access.⁺

[◇] In the U.S., the National Library of Medicine provides links to the full text of about 50% of its total 3100 current journal holdings, again for a fee.

⁺Canadian Health Libraries Association / Association des bibliothèques de la santé du Canada (CHLA/ABSC) National Network of Libraries for Health (NNLH). Provincial Initiatives. [web document] 2005 [Cited June 30, 2006]. Toronto: CHLA/ABSC. Available from: <http://www.chla-absc.ca/nnlh/prov.html> .

A number of provinces, territories and professional associations have responded to these concerns by developing national or provincial/territorial licenses for e-resources for either their members' professional development (e.g., the Canadian Nurses Association NurseONE portal (funded in large part by Health Canada's First Nations and Inuit Health Branch)) or to support the health care system that they fund. In the latter case, the British Columbia government recently persuaded its six regional health authorities to fund the provincial purchase of licenses to e-resources to provide a common standard of information to supplant those licenses previously purchased by over 40 different organizations including post-secondary education institutions, teaching hospitals and other acute care facilities. Saskatchewan has created a Health Information Resources Partnership (SHIRP) to address the challenges of equitable access to quality, evidence-based medical information. Ontario clearly articulated the need for a coordinated approach to the provision of information resources "Ontario needs a province-wide eHealth Library that would offer both a rich suite of health information resources to all health providers across the continuum of care".ⁱ Other provinces such as Alberta (the HKN: Health Knowledge Network), Nova Scotia (The Atlantic Health Knowledge Partnership) and Newfoundland & Labrador (Newfoundland and Labrador Health Knowledge Information Network) are also striving to overcome the above-noted challenges. Such action clearly demonstrates the importance being placed on the need to ensure equitable access to information resources and services.

The increasing number of uncoordinated responses is quickly leading to duplication of resources available to certain health professionals and a paucity of resources for others. As a result, ongoing inequities between provinces and territories and between different health professionals are being perpetuated. By the same token, economies of scale in terms of resources, purchasing power, effort and cost are not being fully maximised.

The United States and the United Kingdom, recognizing the importance of providing equitable and effective access to evidence based health information, provided the leadership to enable the creation of national networks of health libraries. Other nations have supported the development of national licenses for access to specific resources - Australia, Denmark, Finland, Ireland, Norway, Wales, Spain, Sweden and South Africa, have all negotiated national licences for access to the systematic reviews of The Cochrane Library, a key evidence-based resource. Canada has yet to exercise leadership in creating a network for the effective coordination of health information resources.

Access to evidence for health care providers to use in practice is critical. Without this access Canadian health care providers and their patients are deprived of important evidence to guide health and healthcare decisions, ensure quality and minimize risk. The importance of supporting the flow of knowledge from generation through to implementation has been discussed in Canada by the Canadian Institutes of Health Research and the Canadian Health Services Research Foundation.^{ii,iii} If the end goal is to implement or use new evidence and research to improve patient care, then decision and policy makers need to pay particular attention to the development of effective strategies for disseminating research results to Canadian health care providers. The proposed>NNLH can play a critical role in ensuring this flow.

Physicians have identified a number of barriers to practicing evidence-based medicine. These include lack of information skills and time.^{iv} A number of studies have demonstrated that access to clinically focused, evidence-based health information to

support the decision making of health care providers at point of need can have a significant impact on the health of patients as well as on the health care system.

In a 1991 study of 208 physicians in 15 hospitals in the Rochester NY area,^v

- 80% of participating physicians indicated that they handled their patient's care differently due to the information that they received through the hospital library – these changes included diagnosis (29%), choice of tests (51%) and reduced length of stay (19%)
- 96.5% reported that the information provided contributed to higher quality care
- 85% reported that the information provided saved them time
- 93% reported that the information provided them with new knowledge, with resulting costs savings and improved patient care for their institutions.

At the end of this study the physicians rated the information provided by the librarian more highly than that provided by other information sources such as diagnostic imaging, lab tests, and discussion with colleagues.

While the results of the Rochester study indicate the impact that access to information has on practice, results of a study on the information needs of residents working in clinic settings indicated that over 70% of their questions remain unanswered due to lack of time, forgetting the question, and a perception that an answer would/could not be found.^{vi}

A recent Canadian pilot study called JIT (Just in Time) evaluated the impact of a library consultation service in primary care. The study results showed that the service saved physicians clinical time, had a positive impact on patient care and improved their knowledge and confidence in the treatment offered. Below are quotations from study participants speak to the value of this service to primary care practitioners.^{vii}

"It has been a pleasure using the JIT service. Patients would be so impressed when I told them that I had access to a medical librarian and that I would be able to get them the latest info on whatever the topic of inquiry. I hope that there will be funding to somehow to keep the service. I'll miss you guys."

"You know, I love questions. I like my questions; my patients' questions and I like finding answers. Your service helps."

"I just wanted to give you feedback about how useful and on-target all the answers have been to my questions. I'm not looking forward to when this "experiment" is over!"

While the exact financial impacts of access to information are difficult to calculate, a pilot evaluation of the impact of the United Kingdom's National Electronic Library for Health indicated an estimated annual cost saving per year of over 25 million dollars, based only on professional's estimates of time savings in accessing information, and not the actual impact of applying the information to practice.^{viii} On a smaller scale, a recent case study calculated the institutional cost savings gained by using the information provided in a

single literature review done by a librarian at Harbourview Medical Center in Seattle Washington to be \$ 167,500 U.S.^{ix}

It is clear that easy and equitable access to timely evidence-based health information is crucial to the health and well being of Canadians and of our health care system. Ensuring that all health care providers across the country have ready access to information resources and services not only supports evidence-based practice; it also improves professional development and competence, enhances decision-making and quality of care, and helps minimize risks and costs across the continuum of care. Barrier-free access to information resources can also provide significant time savings and valued support for health professionals – an increasingly significant consideration given the staffing shortages faced in many health care settings.

VISION

The National Network of Libraries for Health (NNLH) will ensure that all health care providers in Canada will have equal access to the best information for patient care. It will be designed to fit the Canadian health care model and address information gaps inherent in a complex health delivery system.

GOALS

The NNLH will support health care providers in offering the best possible care by:

- Eliminating information disparities;
- Providing barrier free access to high quality health information;
- Improving decision making through access to best evidence;
- Improving skills for information retrieval, evaluation and application; and
- Developing customized content and user interfaces that reflect and respond to the information needs and contexts of health care providers across the country.

The NNLH will provide an efficient and cost effective approach that:

- Ensures effective coordination and leveraging of existing resources, services and programs; and
- Provides a collaborative framework that optimizes resource identification, acquisition and allocation

THE>NNLH MODEL

A variety of approaches to developing a national network were reviewed and evaluated. The recommended model, detailed below, provides a coordinated, comprehensive and cost-effective approach to delivering the>NNLH vision. It is designed to ensure that health professionals across the country can connect easily and effectively to the information services and resources that they need to support effective decision making, high quality patient care and continuing competence.

DESCRIPTION OF THE MODEL

The>NNLH will provide health care providers, students, researchers and health decision makers with fast and seamless access to the critical information they need to ensure that Canadians receive the best, evidence-based health care and advice. It will do this by collaborating with existing health libraries and information networks, non-profit organizations, and professional associations across Canada to build a network that will maximize information sharing and access, ensure optimal resource allocation, and support and enhance the ability of local and regional libraries to respond rapidly to unique local needs. The>NNLH will reach out to those health care providers who currently have limited or no access to information resources and services. The network will be developed based on careful and systematic assessment of client needs to ensure that it is highly usable, relevant, and responsive.

The foundation of the proposed>NNLH model is a National Coordinating Office (NCO). The NCO will be responsible for: identifying and leveraging existing local and regional resources to ensure equitable national access; collaborating with existing libraries, resource centres, associations and agencies to develop and enhance content; and coordinating and managing information on a nationally accessible bilingual portal. The>NNLH will also be responsible for supporting local and regional libraries through training and development programs; providing direct support to those health care providers who have no affiliation with or access to information services, resources, training or support; and conducting user needs assessments, usability tests and service evaluations.

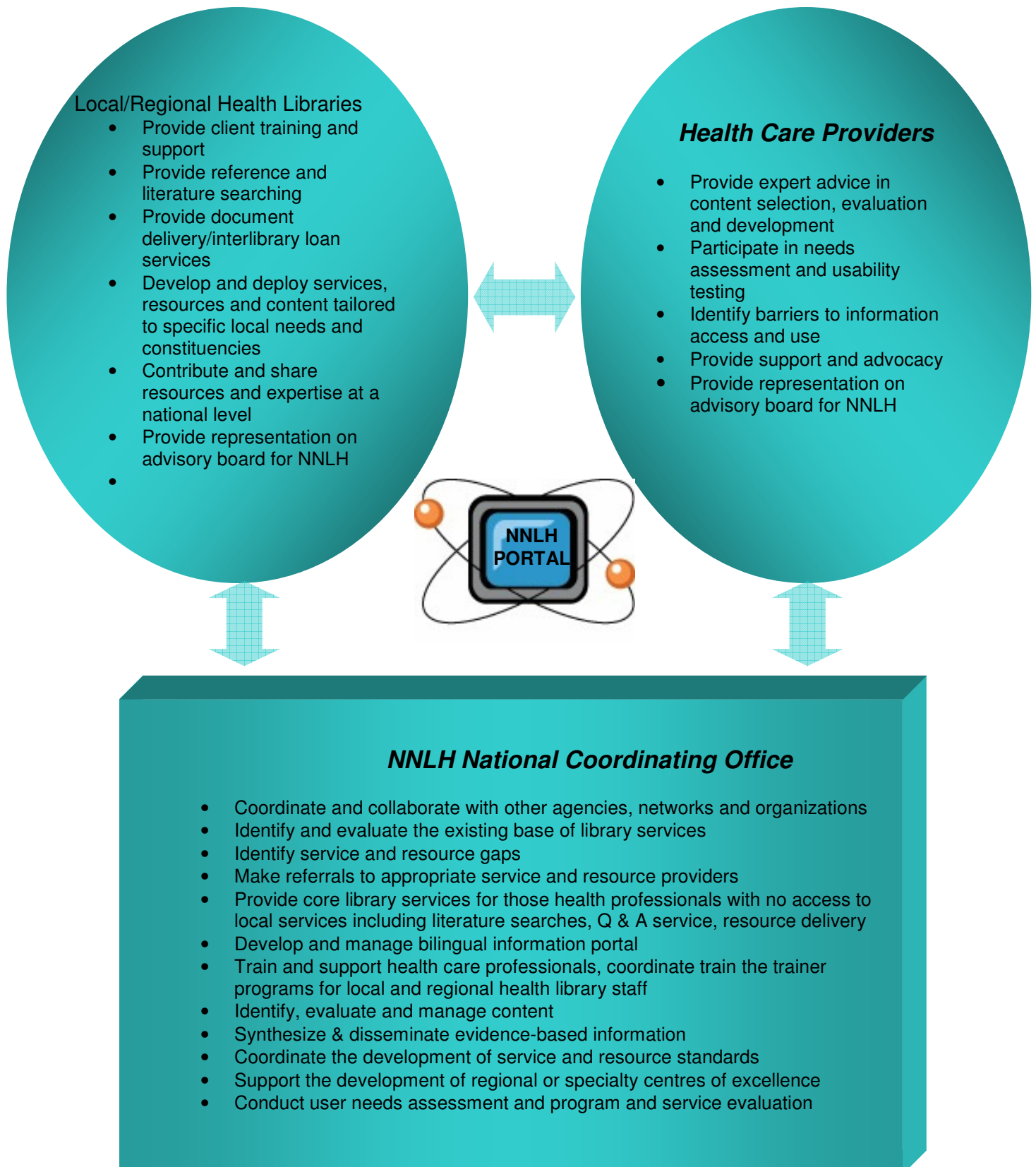
Consultation, Collaboration and Cooperation

The>NNLH model is based on the development of strong partnerships between the Network and key stakeholder groups through careful consultation, collaboration and cooperation. This will ensure that resource and service providers, funders and end-users derive optimal value from this system. Roles and responsibilities of the network and key stakeholders are outlined in the diagram below:

Key Principles

- Building on existing resources – the Network will identify and leverage the current base of resources and expertise to optimize resource allocation, enhance access and close gaps
- User-centered – all aspects of Network development will be based on systematic needs assessment and usability testing

- Evidence-based – ongoing evaluation of network services, resources and operation to assess impact and value and ensure that it is meeting needs and goals



National Coordinating Office

The most critical component of the NNLH is the National Coordinating Office (NCO). Although the role of the NCO will evolve and expand based upon ongoing needs assessment and program evaluation, it is anticipated that, as a minimum, it will:

- Provide core library services for those individuals with no or very limited access to library services and resources. Core library services would include:
 - Literature search and question and answer services;
 - Delivery of information resources;
 - Training programs and curricula to support literature search, retrieval and appraisal skills;
- Develop and maintain a searchable knowledge base of existing library services, resources and expertise in Canada. This will facilitate effective referral, coordination and collaboration;
- Design, implement, operate and maintain a bilingual portal through which the NCO, local, regional and specialty libraries and health professionals can access and share information;
- Provide a platform to develop, share and distribute training tools, resource guides and other materials;
- Develop an interface and navigation tools that consolidate and provide for easy identification, access to and retrieval of open access resources; and an authentication mechanism for licensed resources
- Coordinate and provide training and support for librarians including train the trainer initiatives to enhance local expertise and support
- Provide and coordinate the development of the Network's core content by:
 - Establishing standards and protocols for e-resource selection, licensing and access;
 - Coordinating and negotiating purchase and funding agreements to leverage existing investments, maximize group buying power, and avoid unnecessary duplication of resources
- Support the development, publication and distribution of literature reviews and syntheses of available evidence on key issues;
- Coordinate and support the establishment, development and/or recognition of specific libraries across Canada as centres of excellence in key areas such as Aboriginal People's health, population health, etc.

The NNLH NCO would be housed in the Canada Institute for Scientific and Technical Information (CISTI).[∞] There are significant advantages to locating the NCO within an existing large national library. The NCO would be able to draw on the resources, infrastructure and expertise that exist at CISTI, including an extensive national collection of journals in science, technology and medicine, as well as a modern document delivery service. Locating the NCO at CISTI would allow effective coordination of programs and activities to ensure maximum benefit to both organizations and ultimately, to health care providers across Canada.

[∞] The skilled staff that would provide the services needed for the NNLH NCO would be funded by the NNLH and not by CISTI.

Local and Regional Health Libraries and Information Networks

The second component of the NNLH is the local, regional and specialty library services and information networks that will complement the activities of the NCO. The NCO will work collaboratively with local and regional health libraries and information networks to effectively coordinate and leverage the existing base of skills, resources and tools, and would provide support and assistance to these libraries as required.

These libraries, including those in existing health agencies, health authorities, health facilities (including hospitals), universities, public health units and professional associations will continue to provide their defined constituents with a full range of services including:

- Reference and literature search services;
- Inter-library loans and document delivery;
- Collections of print, multimedia and other resources; and
- Training and orientation.

Local libraries would also add value to the network by sharing and contributing training programs, subject and resource guides, and other tools and materials that they have developed that have value and applicability far beyond local client groups.

Where local or regional health libraries have the potential capacity, interest, expertise and infrastructure to address an identified gap by extending services to a broader constituent base, the NCO will assist in supporting and coordinating this development.

Health Care Providers

Health care providers will play a critical role in network development, initially assisting with the identification of existing gaps and obstacles to information access as well as the identification and prioritization of user needs. It is also expected that representatives from various disciplines and specialties will provide expert advice on resource selection, evaluation and development. It will be particularly critical to gather feedback and advice from health care providers working on the front lines in rural, remote and isolated areas.

As previously noted, a number of professional associations have developed portals, resources and tools for their members to facilitate access to information resources. The NCO will work closely with these associations to enhance the visibility and accessibility of these services and resources and assist in ensuring that licensing and resource sharing agreements provide the best possible value for their constituencies.

The proposed model will enable the NNLH to deliver:

- Services, resources and infrastructure developed based upon
 - Careful assessment and leveraging of the existing resource base
 - Identification of user needs and priorities
 - A clear understanding of the gaps and barriers to information access that health care providers face in the diverse settings in which they work across the country

- Core content that:
 - Is purchased with new money with appropriate licensing conditions to enable access to all health care providers across the country
 - Is identified and selected based on systematic assessment of client needs
 - Is professionally reviewed, evaluated and selected to ensure that the network provides ready access to resources of a sufficiently high quality and breadth to provide the essential information required by health care professionals
 - Leverages, expands and enhances existing resources
 - Emphasises evidence based resources, and unique Canadian content
 - Considers the unique needs and access barriers for front line practitioners in rural, remote and isolated settings
- A bilingual portal which:
 - Provides a readily accessible, easy to use, single point of access to information resources and services
 - Facilitates easy identification and access to information
 - Creates linkages that minimize resource duplication and fragmentation
 - Provides a platform to develop, share and distribute resources, tools and training materials
- Easy access to skilled information professionals who can:
 - Provide training and assistance in search and navigation
 - Assist in locating and retrieving resources not available in electronic full text
 - Support the synthesis, appraisal and delivery of information in ways that will support information uptake and knowledge transfer for busy clinicians

TARGET AUDIENCE

Canadian health care providers, particularly those working in publicly funded settings and in not-for-profit organizations or associations are the targeted users for the NNLH. The key target groups are defined as physicians, nurses, pharmacists, allied health professionals and health administrators, program planners and community health workers.

CORE ELEMENTS OF THE NNLH

In order to provide clinically focused, evidence-based health information to support the decision making of health professionals, the NNLH will encompass a number of core services and content. It will be structured and developed to meet the current and evolving needs of its client base.

CORE SERVICES

The following core services will be provided as a minimum and others will be added based on identified constituency requirements:

- TRAINING

The NCO will be responsible for developing standards and best practices for training and educational programs, in addition to providing the necessary training and advice to network users. The NCO will also provide and develop training opportunities for local and regional library staff as required, with a particular emphasis on train the trainer programs that will enhance the local support and expertise available to health care providers.

- LINKING AND REFERRAL SERVICES

The NCO will develop and maintain a knowledge base of existing library services and resources available to health care providers in Canada, and will develop an access and referral system allowing health care providers to easily identify and connect with the local and regional resources that are available to them. This knowledge base will also play a critical role in the identification and assessment of service and resource gaps, and in the identification of existing centres of excellence and expertise.

- “ASK A LIBRARIAN!” QUESTION AND ANSWER SERVICES AND CONSULTATION SERVICES

For those health care providers without access to local or regional library and information services, there will be direct access to mediated literature searches using various databases and resources. Help with searching, evaluating information, advising on authoritative Internet sites related to a wide variety of health-related topics, etc, would also be provided. The emphasis will be to provide health care professionals with timely and accurate information. Depending on the question, librarians would either forward queries to specific local or regional libraries, or centres of excellence, or answer them themselves. Users would have a choice of sending requests electronically to either the NCO or an appropriate local, regional or specialty library, or to connect directly by phone with an information specialist, who can provide the appropriate support or referral.

- QUESTION AND ANSWER DATABASE

The NCO will create a searchable database of frequently asked questions answered by NNLH information specialists. The database would provide both librarians and health care providers with a tool to review clinical questions and issues.

- E-MAIL ALERT SERVICE

An e-mail alerting service will send health care providers regular updates regarding new information in their selected area(s) of expertise. The alerting system will allow the customization of information requirements tailored to the individual subscriber's needs.

- DOCUMENT DELIVERY AND INTERLIBRARY LOANS

While the licensing initiatives undertaken through the NCO will ultimately provide access to wide range of full text resources, not all of the information that health

care providers require is available electronically. This means that there will need to be links to local and regional catalogues and document delivery services to provide easy resource identification and delivery where available. For those who do not have access to a regional library, the National Coordinating Office would facilitate access. The Network would coordinate with CISTI's existing document delivery services to allow constituents to order journal articles directly.

- **NNLH PORTAL**

The bilingual web portal will provide easy access to resources directly to the desktops of health care providers. The portal will act as a one-stop access point to relevant information and resources including licensed databases and e-resources, links to relevant open access health sciences web sites, current "hot topics" literature syntheses, e-forms for making information requests, training and resource guides and information about the NNLH. The portal would also offer links and information regarding local, regional and resource libraries and other relevant national information portals and repositories.

- **CONTENT LICENSING, COORDINATION MANAGEMENT**

The NCO will negotiate Canada-wide licenses for electronic resources and facilitate access to this content through the NNLH portal. Health care providers will be actively involved in content identification, review and selection. Core content will include access to full-text resources and databases, links to authoritative health sciences Internet sites, etc., as indicated in Appendix 2. A critical component of content management will be the development of effective, secure but easy to use authentication mechanisms for licensed resources.

- **KNOWLEDGE BROKERING AND DISSEMINATION**

Librarians will identify, evaluate, organize and disseminate high-quality, synthesized literature reviews in electronic formats. This would be done either by a weekly "hot topics" section on the portal, or, for example, MedNews of the Week articles, to provide an easy way for busy practitioners to monitor the latest news and developments.

- **DEVELOPMENT OF STANDARDS AND PROCEDURES**

The NNLH NCO will be responsible for developing standards and best practices for the services and resources offered by the Network, and local and regional libraries participating in and contributing to the Network.

CORE CONTENT

Core content will include relevant databases, e-journals, e-books and other resources licensed or made available through the NNLH and accessed through its portal. The core content suggested by the NNLH Task Force as a starting point is described in Appendix 2. Development of core content for the NNLH will begin with open access content and expand to licensed content as funding and internal capability to negotiate and coordinate licenses increase.

The listing contained at Appendix 2 is provided as a starting point only. Final content decisions and selection will be driven by user needs, funding, product availability, and vendor receptivity to licensing under an NNLH model. While it is anticipated that in some areas content will at first duplicate resources that individual hospitals, consortia or networks have already licensed, it is expected that initial licensing negotiations will recognize this duplication when arriving at pricing algorithms, and that over time the NCO will coordinate and facilitate licensing at a national level that will address gaps and inequities and be beneficial and financially advantageous to all.

ORGANIZATIONAL STRUCTURE

When it is fully operational, the structure of the NNLH NCO will include an advisory board and staffing as shown below. Additional details on staffing, and an organizational chart can also be found in Appendices 3 and 4.

Advisory Board

A Board of Advisors made up of representatives from the following constituencies will guide the NCO:

- health care providers
- professional health associations
- provincial and regional health library and information networks

NNLH Staffing

- Director, NNLH
- Manager, Communication and Marketing (Communications Professional)
- Manager, NNLH Services:
 - Coordinator, Training and Educational Programs (Librarian)
 - Information Specialist (3 Librarians)
 - Coordinator, Licensing and Contracts (Librarian)
 - Coordinator, Knowledge Brokering and Dissemination (Librarian)
 - Coordinator, Document Supply (Librarian)
 - Coordinator, Knowledge base Development (Librarian)
 - Administrative Support (1)
- Manager, Web Development and Information Technology
 - Web Developer (IT Specialist)
 - Coordinator, Content Development (Librarian)
 - Specialist, Web Support (IT specialist)
 - Administrative Support (1)

AN OPTIMAL DELIVERY MODEL

The NNLH model offers the best opportunity to quickly establish an effective network that will provide equitable access to high quality knowledge based information for health care providers. Not only will this model effectively address the needs of Canadian health care providers, it will also be ideally positioned to exploit relationships with other national and international health and research networks and professional associations.

The NNLH offers the federal government an optimal opportunity to demonstrate leadership in ensuring excellence in access to health information and supporting evidence based health care. It is expected that negotiating licenses for e-resources at a national level could provide the ability to exert more influence over the content of vendor packages, enhance accessibility and realise potential economies of scale.

The value proposition of the NNLH ultimately resides in the improved availability of readily accessible health information to support evidence-based decision-making for all health care professionals while ensuring effective resource allocation by eliminating duplication of effort through more effective and efficient coordination.

BUILDING THE NNLH

In order to demonstrate proof of concept, a phased and cost-effective roll out and validation strategy is proposed. The table below outlines the three broad building phases for the Network. A notional budget providing costing for Phase 1 is included as Appendix 5.

Phase	Timeframe	Description of Activities
Phase 1 – Foundation Positions (11) staffed by end of Year 1: Director, NNLH Manager, NNLH Services Information Specialist (3) Coordinator, Knowledge Base Development Manager, Communication and Marketing Manager, Web Development and Information Technology Web Developer Coordinator, Web Content Development Administrative Support (1)	Year 1	<ul style="list-style-type: none"> • Create Advisory Board • Establish NCO • Begin building a knowledge base of existing health library and information services within Canada as well as constituents served. Data gathered will support referral service as well as gap identification • Establish Portal • Begin development of a bilingual portal providing easy access to and identification of existing open access content • Develop marketing strategy with an initial focus on constituencies with limited or no access to resources and services • Begin basic service roll out for these constituents • Identify, evaluate and organize open access health information resources

Phase	Timeframe	Description of Activities
Additional Positions (7) staffed by the end of Year 2 Coordinator, Training and Educational Programs Coordinator, Licensing and Contracts Coordinator, Knowledge Brokering and Dissemination Coordinator, Document Supply Administrative Support (1) Specialist, Web Support	Year 2	<ul style="list-style-type: none"> • Conduct needs assessments and product evaluations to identify core services and resources • Begin coordination and development of training and orientation materials and programs for health care professionals and librarians • Identify, evaluate and select licensed health information resources for the portal Initiate vendor dialogues for e-licensing
Phase 2 - Operation	Years 2-4	Phase 1 initiatives ongoing Expand portal based on needs assessments Develop authentication mechanisms for licensed products Add licensed core content including e-journals and e-books, based on Phase 1 assessments and evaluations Add core services based on Phase 1 assessments and evaluations Expand constituent base in response to demonstrated needs assessment Continue needs assessment and service and resource evaluation as content and services expand (ongoing through all years) Market service to libraries and health professionals Investigate and develop specialist/topical libraries/miniport Investigate potential approaches to the development of centres of excellence
Phase 3 - Evaluation	Year 5	<ul style="list-style-type: none"> • Phase 1 and 2 initiatives ongoing • Program evaluation, report and determination of next steps

EVALUATION AND PLANNING

It is important to recognize that the Network will not only support evidence-based practice, but will, itself, be based on evidence-based practice. The proposed multi-phase approach to Network development provides for careful and systematic assessment and evaluation of constituent needs, and the use, satisfaction and impact of the resources, services, tools and programs that the network will provide. This will ensure a collaborative and cost-effective approach that will link health care professionals to the information and services that they require as easily and effectively as possible.

Evaluation metrics will include the following:

- Analysis of web logs of NNLH portal use
- Breadth of information contained in the knowledge base of existing services and resources
- Training and educational programs developed and presented
- Measurement of services provided to health professionals; referrals to local libraries
- Satisfaction surveys
- Evaluation of impact on practice
 - Change in treatment decisions
 - Time and cost savings
 - Maintenance of competence requirements
- Impact on resource allocation

CONCLUSION

In the recent past, the federal government has developed and supported a number of health networks for health consumers, researchers, managers and administrators through the following initiatives:

- Canadian Health Network (CHN) – provides the Canadian public with information on how to stay healthy and prevent disease;
- Canadian Health Portal (CHP) – provides Canadians with single-window, on-line access to citizen-centered, fully integrated authoritative and trusted health information and services;
- Canadian Institutes of Health Research (CIHR) –creates new health knowledge and translates it from the research setting into practical applications to result in improved health for Canadians, more effective health services and products and a strengthened Canadian health care system;
- Canadian Health Services Research Foundation (CHSRF) – supports evidence-based management of Canada’s health care system by facilitating knowledge brokering and exchange – bridging the gap between research and health care management and policy; and
- Canadian Institute for Health Information (CIHI) – provides essential statistics and analysis about the performance of the Canadian health system, the delivery of health care, and the health status of Canadians.

It is strongly contended that a key element - the provision of equitable access to clinically focused, evidence-based health information to support the decision making of health care providers, at point of need - is a necessary complement to the above initiatives and can play a major role in positively impacting the health of Canadians and the quality and efficiency of Canada’s health care system.

Appendix 1 – NNLH Background Documents

The following chronology is adapted from A Project Overview – The National Network of Libraries for Health – January 2001 prepared by H  l  ne Valin, NNLH Project Coordinator.

1995-96

Dr. Joanne Marshall is hired as a consultant by Health Canada to provide advice in the Health Canada Libraries review. Discussion of the concept of a national network led to the development of a paper.

1995 December

The National Health Library of Canada (NHLC) – A brief concept paper submitted by Dr. Marshall to R. Van Loon.

Paper called for a feasibility study; building on existing resources through improved coordination, technological infrastructure, training, and resource sharing; and Health Canada to provide leadership and partner with other organizations. Paper outlined the need to refine the vision; consult/discuss with key stakeholders; explore experiences from other countries; and develop a detailed plan for the NHLC including various scenarios with different budgets, based on the mix of partnerships, activities, collections, etc.

Required corporate commitment and funding. Was submitted in the 1996-97 IM/IT work plan. Funding not secured due to conflicting priorities.

1996 June

Contract prepared for a Feasibility Study on a National Health Library Network

1997 October

Knowledge for Canadian health care through a Health Libraries Assistance Act - submitted by J. Henderson to the Minister of Health.

Proposal for a national network of health libraries mandated by a Health Libraries Assistance Act seeking federal coordination and funding to encourage adherence to national standards; evidence-based practice (health professionals) and informed choices and decisions (patients, consumers, and administrators); and wise and effective use of health care resources. Recommended – changes to the MRC (Medical Research Council) Act to accelerate the transfer of research into practice. Noted: - Internet will be more useful with organized Canadian content available; a database indexing publications about Canadian health care is needed.

This proposal did not receive required support.

1997 December

A National Health Library and Information Network for Canada HealthLINC – A brief concept paper presented by Dr. Marshall to A. Nymark.

Original paper revised in light of the Health I-Way initiative, and outlined steps to explore HLINC: e.g., identify team and consultations; discuss and explore and develop a detailed proposal.

1998 July

Contract awarded to Dr. Marshall for a concept development study for a national Network of Health Libraries to show the value of a national network of health libraries, clearly define stakeholder benefits, and recommend strategies upon which to proceed.

1998 November

An interim report: Informing Health – A proposal for a National Network of Libraries for Health prepared by the Office of Health and the Information Highway submitted by Dr. Marshall and J. Henderson to Health Canada.

Required supplementary analysis and development of a supporting budgetary / resource plan.

1999 March

Final Report: Informing Health – A proposal for a National Network of Libraries for Health submitted by Dr. Marshall and J. Henderson to the Office of Health and the Information Highway.

Describes a comprehensive definition and description of the NNLH, as well as a concise analysis of the benefits of the network. Explains value added of a nationally coordinated approach to health library and information services (combined with a national approach to certain activities). The report recommends a regional or provincial network structure with centralized support for national licensing of electronic health information resource, research, training and coordination. Public, government, agency and private sector will provide broad base of participation and support the network.

1999 April

A proposal for a bilateral approach to the development of electronic libraries for health (Initial Framework) submitted to D. Gauthier by the NHS, Oxford.

Proposal for a bilateral approach to the development of an electronic library for health. This also pointed to an interest to be part of a bid for the European Union Fifth Framework.

2000 January

Implementing a national Network of Libraries for Health. A proposal submitted to Health Canada by the CHLA/ABSC to OHIH.

Brokering of Information to knowledge to practice; geared tot Canadian practitioners and policy makers. NNLH will provide funding and opportunities for networking and collaboration to meet regional, provincial and national needs. Identification is made of three potential pilot projects.

2000 November

National Network of Libraries for Health

A revised proposal submitted to Health Canada by the CHLA/ABSC.

2003 January

CHLA/ABSC establishes the National Network of Libraries for Health/Réseau national des bibliothèques pour la santé Task Force. The NNLH/RNBS Task Force conducts an environmental scan of existing provincial and regional initiatives aimed at providing access to quality health information for health care providers.

2004 October

NNLH/RNBS preliminary stakeholders meeting held in conjunction with Cochrane Colloquium.

2005 June

NNLH/RNBS stakeholders meeting held in Ottawa with 15 participating organizations. Stakeholders strongly support the NNLH/RNBS concept.

Appendix 2 – Core Content

The listing proposed below is provided as a starting point only. User needs, funding, product availability, and vendor receptivity will drive final content decisions and the selection of licensed resources under an NNLH model. While content will in some areas duplicate resources that individual hospitals, consortia or networks have already licensed, it is expected that initial licensing negotiations will recognize this, and that over time, the NCO will coordinate and facilitate licensing at a national level that will be beneficial and financially advantageous to all.

- **Bibliographic Databases**

- **Subscription Based**

- CINAHL

- **Open Access**

- PubMed/MEDLINE

- **Drug Information**

- e-CPS

- e-Therapeutics

- **Systematic Reviews/Clinical Practice Guidelines**

- The Cochrane Library

- Clinical Evidence

Identifying, aggregating and organizing Canadian Clinical Practice Guidelines is a potential NNLH initiative.

- **E-Journals**

- **Canadian**

- Canadian Association of Radiologists journal

- Canadian family physician

- Canadian journal of anesthesia

- Canadian journal of hospital pharmacists

- Canadian journal of cardiology

- Canadian journal of clinical pharmacology

- Canadian journal of emergency medicine

- Canadian journal of gastroenterology

- Canadian journal of infectious diseases and medical microbiology

- Canadian journal of plastic surgery

- Canadian journal of surgery

- Canadian Medical Association Journal (CMAJ)

- Canadian journal of occupational therapy

- Canadian journal of rural medicine

- Canadian nursing home

- Canadian operating room nursing journal

- Canadian pharmacists journal

Canadian respiratory journal
Clinical and investigative medicine. CMA
Experimental and clinical cardiology
Journal of pharmacy and pharmaceutical sciences
Journal of psychiatry and neuroscience
Journal of sexual and reproductive medicine
Pain research and management
Paediatrics and child health

The potential of digitizing Canadian journals that have very limited availability in electronic full text such as the Canadian Journal of Public Health should be investigated.

Non-Canadian

ACP journal club
American family physician
American journal of occupational therapy
American journal of public health
American journal of psychiatry
American journal of speech-language pathology
American nurse
American rehabilitation
Annals of emergency medicine
Annals of internal medicine
British journal of nursing
British medical journal
Evidence-based medicine
Evidence-based nursing
Health psychology
Journal of allied health
Journal of healthcare management
Journal of nursing administration
Journal of the American Dietetic Association
Journal of the American Medical Association
Journal of healthcare management
Lancet
New England journal of medicine
Physical therapy
Social work in health care

Open Access

Biomed Central
PLOS

▪ **Electronic Textbook Collections**

StatRef Online Library

▪ **Canadian Documents and Reports**

Digitize key Canadian documents and reports where required. Ensure that portal design supports rapid compilation, identification and retrieval of Canadian materials.

Appendix 3 – Proposed Structure of the NNLH/RNBS

NNLH NATIONAL COORDINATING OFFICE

The NCO would encompass the following positions/responsibilities:

Advisory Board

The Advisory Board would include representation from the main partners and funders of the NNLH as well as representation from the health agencies, organizations and associations served by the NNLH. The objectives of the Board would be to:

- Set the vision, mission, goals and priorities of the Network;
- Monitor Network development and outcomes;
- Provide advice, direction and support to the Director;
- Ensure that the views and needs of users are central to the strategic development of the NNLH; and
- Ensure that the NNLH is governed not only as an effective and efficient knowledge service, but also in accordance with any policies and procedures set by the Government of Canada.

Director, NNLH

The Director would maintain the overall vision for the network, develop the strategic plan, set policy, develop and maintain external relationships, liaise with the Advisory Board, and manage the overall budget.

Manager, NNLH Services

The Manager, NNLH Services would guide and oversee the activities of the positions below. This position would report to the Director.

Coordinator, Training and Education Programs (Librarian)

This position would identify and coordinate existing training resources and programs and develop new resources and programs as required. Training programs would be developed both to support health care providers in developing their information search, evaluation and navigation skills and to support local and regional librarians in developing and enhancing their training skills and resources, with an emphasis on train the trainer programs. The Coordinator would also be responsible for developing strategies to promote and evaluate these services.

Information Specialists (Librarians)

The Information Specialists would answer questions received from health practitioners and refer clients to libraries where services are available to them. They would also conduct research, direct users to appropriate resources, develop the Question and Answer database and the alerting services and contribute to needs evaluations for client groups.

Coordinator, Licensing and Contracts (Librarian)

This position would prepare, negotiate and draft license agreements for resources. Resources must support clinical needs and must be high quality, timely and appropriate. The Manager would aim to create stable, long-term arrangements for the national purchase of electronic content to reduce reliance on paper-based resources and provide equitable access to all clients through the Web portal. The Coordinator would work actively with the Coordinator, Knowledge Base Development to develop an accurate inventory of existing license agreements as the foundation for the development of realistic pricing algorithms to be used in the development of Canada-wide licenses.

Coordinator, Knowledge Brokering and Dissemination (Librarian)

This position would be responsible for organizing and disseminating synthesized literature reviews and for identifying mechanisms and processes to increase information uptake and knowledge transfer for busy health professionals. The Coordinator will follow developments and best practices in knowledge brokering and dissemination in Canada and internationally.

Coordinator, Document Supply (Librarian)

The Document Delivery Manager would manage the interlibrary loan (ILL) and document delivery services offered to regional and local clients. The Manager would collaborate with other networks, as well as with CISTI's document delivery services, to offer timely access to information not found on the portal or in other regional libraries, and would also work collaboratively with CISTI to ensure that local and regional libraries contribute to resource discovery tools including Docline and Amicus.

As support staff, a CISTI ILL library technician on secondment to NNLH would be beneficial as she/he would be familiar with the workings of CISTI's large print collection and document delivery services.

Coordinator, Knowledge base Development (Librarian)

The Coordinator would survey and inventory existing health library resources and services in Canada and update information regularly. The resulting knowledge base would be a tool for library referrals and provide a baseline for identifying service gaps and opportunities, planning program growth and evaluating outcomes.

NOTE: Many of these positions under Services would likely require additional support staff depending upon the workload and growth of the Network.

Manager, Communication and Marketing (Communication Professional)

Reporting to the Director, NNLH, this position would be responsible for the development of the NNLH communications plan and marketing strategy and would manage the development and distribution of NNLH/RNBS marketing and promotional materials and campaigns.

Manager, Web Development and Information Technology

The Manager, Web Development and Information Technology would ensure that the NNLH portal supports the delivery of a customer-focused service that facilitates the delivery of resources and services. This includes the development of tools and processes to support effective site navigation, organization and maintenance, the capture and analysis of access and usage data, and the development and management of authentication mechanisms. Reporting to the Director, NNLH, the Manager would oversee the activities of the following positions.

Web Developer (IT specialist)

The Web Developer would be responsible for the overall development, design, implementation and maintenance of the web portal, and for the support of any integrated systems. The Web Developer would analyze usage statistics and establish appropriate IT standards and guidelines to meet customer requirements and maximize the efficient use of IT systems.

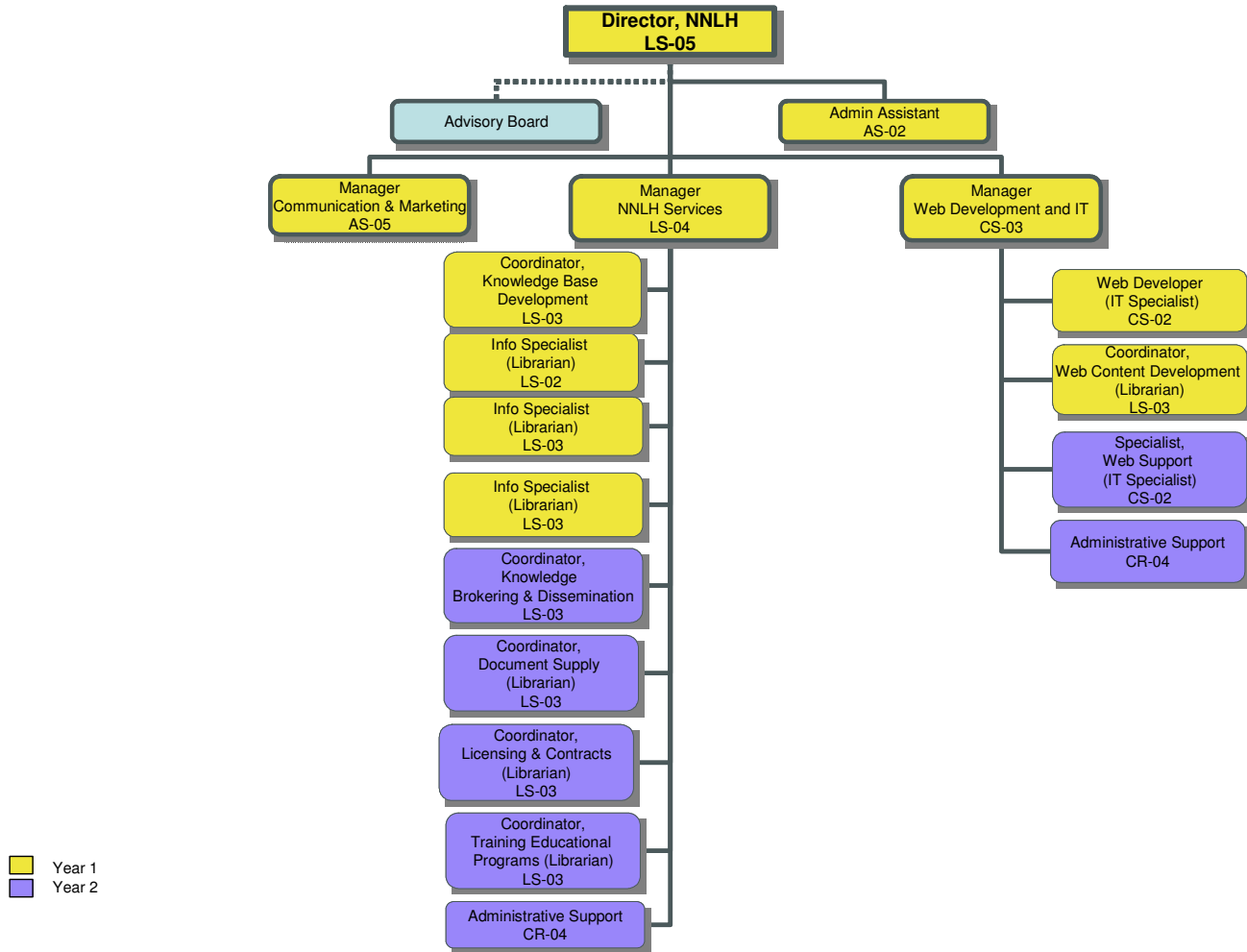
Coordinator, Content Development (Librarian)

The Content Coordinator would provide a vision for the development of NNLH information on the portal, coordinate content organization across the NNLH, identify current and future content needs and priorities; and manage the development and implementation of Web content policy, procedures and standards. The Coordinator would liaise with the Coordinator, Licensing and Contracts, and with other existing and potential content providers and creators. The Coordinator would also be responsible for ongoing consultation with key stakeholders and subject experts to ensure the quality, currency, relevance and usability of site content.

Specialist, Web Support (IT specialist)

The Web Support Specialist would provide web support and maintenance, including staffing a help desk to provide technical assistance to Network contributors and users.

Appendix 4- NNLH Organizational Chart



Appendix 5 - Notional Budget Requirements by Phase

Phase 1 – Year 1			
Salaries (full cost)		10 Positions	\$800,000
Up-fitting of NNLH offices	Computer purchase	Purchase of 10 desktop computers and 3 laptops and 3 printers and one high speed scanner and a fax machine	\$65,000
	Desk and chairs	Funding for office space at CISTI	\$50,000
Licenses	Cochrane Library and CINAHL, journals		\$550,000
Bilingual Portal	Initial portal work consulting support	Design and functionality	\$50,000
	Purchase of server and hub	In preparation for portal	\$65,000
Translation	Translation of NNLH materials		\$20,000
Survey and awareness campaign			\$10,000
Temporary Duty - Travel			\$15,000
Membership and conference fees			\$5,000
Creation of Advisory Board	Temporary Duty - Advisory Board Creation	1 in person meeting and monthly teleconference costs	\$15,000
Notional Cost			\$1,645,000

Phase 1 – Year 2			
Salaries (full cost)		18 Positions	\$1,500,000
Licenses	Cochrane Library and CINAHL, journals		\$815,000
Bilingual Portal	Portal work Consulting Support	Design and functionality	\$50,000
	Purchase of additional connectivity equipment		\$30,000
Translation	Translation of>NNLH materials		\$20,000
Survey and awareness campaign			\$10,000
Temporary Duty - Travel			\$35,000
Staff Training			\$20,000
Membership and conference fees			\$5,000
Advisory Board	Temporary Duty - Advisory Board Creation	1 in person meeting and monthly teleconference costs	\$15,000
Notional Cost			\$2,500,000

Note that the Phase 2 and 3 budgets will depend on refined needs analysis, the success of broader licensing and user requirements. Notionally, Phase 2 and 3 budgets will be relatively similar to Phase 1.

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