

Building Vietnamese Health Information Capacity Through Medical Library/Librarian Development

A report to the
U.S. National Library of Medicine
International Programs Office

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Key Findings

Strengths

1. High literacy rate and appreciation of the value of education
2. Physicians' appreciation of the importance of evidence-based practice.
3. Growing network of university-based Learning Resource Centers (LRCs) funded by The Atlantic Philanthropies
4. Growing cadre of librarians trained in MLS programs abroad
5. Library leadership with domain knowledge in medicine
6. Enthusiastic support from opinion leaders and senior managers of universities and hospitals
7. Increasing initiatives for national library activities

Challenges

1. For Librarians and Health Information Specialists
 - Management skills
 - Resource use & management
 - Teaching & marketing: user expectations, librarian culture
 - Health domain knowledge limitations
 - Individual economic constraints
2. For Health Practitioners
 - Finding and applying evidence
 - Time limitations
 - Computer & Internet access
 - HINARI & PubMed® skills
3. For Medical Students
 - Lack of access to current information in print & online
4. For Patients, the Public and Public librarians
 - Insufficient access to information services and resources for patients, those seeking care, and the general public
5. General challenges
 - Language barriers
 - Lack of funding for training and materials
 - Distance education
 - Bandwidth and speed of Internet access

Key Recommendations

1. Access to electronic medical textbooks

It is the team's strong recommendation that funding be identified to provide electronic access to current medical textbooks for all Vietnamese health professionals and students.

2. Greater awareness and use of existing consumer health information resources, particularly MedlinePlus®

It is the team's strong recommendation that funding be identified to provide electronic access to consumer-level health information for use by Vietnamese health professionals and students, as well as by the general public.

3. Training Initiatives

It is the team's strong recommendation that funding be identified to develop a series of training activities that form a set of "Pathways to Leadership for Medical Libraries and Information Services: A Partnership Model," together with a "Train the Trainer" model to develop a cadre of instructors for Vietnamese library education programs and regional workshop presentations.

Introduction

The World Health Organization (WHO) recently issued a report stating that although Viet Nam is among the poorest in the world, its vital health indicators are comparable to those of middle income countries. Following the Doi Moi reform process, the government introduced important health sector reforms, including user fees for health services, legalization of private medical practice and the deregulation of the pharmaceutical industry.

Despite the measurable success of these reforms, the WHO report states there still remain important problems to be addressed. The government was not prepared to regulate and monitor the quality of services. The low quality of care and lack of patient oriented approaches prevent health services from functioning at their full potential. The WHO report also cites low salaries for publicly funded health staff as contributing to this problem. Although health insurance was introduced covering perhaps as much as 40% of the population, individual expenditures on health care are a main cause of poverty. The report noted that public servants such as health professionals often supplement their low primary incomes with additional employment or income sources, thus limiting the time and energy available for their primary salaried position in the healthcare system and increasing the vulnerability of the healthcare system to corruption. The lack of a strong legal framework for enforcement has sometimes led to irrational use of resources, especially in the pharmaceutical sector with large expenditures on unnecessary and sometimes useless drugs. The government response does not yet provide specific solutions for ensuring equal access to care, for improving the performance of the health system and raising the quality of care, for the rational use of and expenditure on drugs, or for responding to emerging public health challenges such as emerging communicable diseases and health problems arising from lifestyle issues such as traffic injuries. [1]

Developing the Vietnamese capacity for professional health information services could contribute to more informed providers and patients and thus, to an increase in evidence-based medical practice by health professionals, thereby improving performance of the health care system. Better informed healthcare professionals would apply new knowledge to their medical practice. Informed patients could understand their diagnosis and treatment more readily, and with enhanced understanding would be more likely to comply with prescribed treatment. An informed public is more likely to make rational health and pharmaceutical spending decisions.

As medical information is increasingly appearing in digital or electronic formats, the scientific and medical research enterprise is changing medical practice rapidly. Contemporary medical libraries require pro-active services leading to the integration of librarian expertise and evidence from the literature into clinical practice, research and medical education.

With that goal in mind, the US National Library of Medicine (NLM) has funded a number of training initiatives, and in 2006 began an effort to build capacity for medical information services in Viet Nam. Most recently, the NLM's International Program funded a team to travel to Viet Nam and assess medical information services and training needs, and make recommendations for changes in these services and the provision of training initiatives.

Previous Work & Existing Programs

Simmons College MLS Program for Vietnamese Librarians

Since 1993, the Harvard Yenching Institute, Luce Foundation and Starr Foundation have provided funding to Simmons College to prepare Vietnamese librarians for key leadership positions in the country's largest university libraries and educational programs for librarianship. In 2005, Atlantic Philanthropies funded them with a \$1.84 million dollar grant to educate a new class of 25 students for the LRCs they were building in Da Nang, Hue, Can Tho and Thai Nguyen. By 2004, the Simmons program had educated 30 MLIS-degreed librarians to work in the academic and public libraries of Viet Nam. In 2005, Simmons College received a second grant of \$1.8 million from The Atlantic Philanthropies to prepare a new generation of Vietnamese librarians for key leadership positions to run some of the country's largest university libraries and help further its educational system. The 2005 grant is funding an additional 25 Vietnamese librarians to study at Simmons in Boston, before returning to Viet Nam and completing coursework in their home country, where courses will be taught by Simmons faculty. Emphasis is placed on developing leadership and information management skills during their course of study. Upon successful completion of this program, the Vietnamese librarians will receive a master's degree in library and information science from Simmons. Librarians from a variety of Vietnamese academic institutions are participating. [2]

Vietnamese Medical Librarians Visit US Libraries

In 2006, four Vietnamese librarians from medical and public health institutions in Viet Nam visited five US libraries. The four medical libraries were the US National Library of Medicine, the Johns Hopkins University's Welch Medical Library, the NIH Library and the University of Pittsburgh's Falk Library of the Health Sciences. They also visited the Library of Congress, and the School of Information Sciences at the University of Pittsburgh, home to the nation's only online MLIS program with a specialization in health sciences and medical librarianship.

<http://www.bioinfohelpdesk.org/LibraryJan2006/>

HINARI resources and training in Viet Nam

The Health InterNetwork Access to Research Initiative (HINARI; <http://www.who.int/hinari/>), is a partnership led by the World Health Organization in which international publishers of research journals in biomedicine and related subjects offer free access to the full text of more than 3300 journals to medical researchers, clinicians, economists, and policy makers in 113 developing countries. Qualifying institutions in Viet Nam have free access to the entire collection. In the past few years, the training events listed below have been offered in Viet Nam to develop proficiency in the use of PubMed®, MeSH®, and HINARI:

- *HINARI and PubMed Workshop: Searching and Getting the Articles You Want:* The University of Medicine and Pharmacy at Ho Chi Minh City, April 28-29, 2005
<http://www.bioinfohelpdesk.org/PubMedApr2005/index.html>

- *HINARI and PubMed Workshop: Searching and Getting the Articles You Want: The University of Medicine and Pharmacy at Ho Chi Minh City, September 13-14, 2005* <http://www.bioinfohelpdesk.org/PubMedSep2005/index.html>
- *Searching and Retrieving Biomedical Research Articles and Information Using PubMed® and HINARI: Sept 12, 2006, at University of Medicine and Pharmacy at Ho Chi Minh City and Sept 13, 2006, at Hue University Learning Resource Center:* <http://www.bioinfohelpdesk.org/PubMedSep2006/>
- *HINARI Training Workshop [with Lenny Rhine] at Central Institute of Medical Science Information, Hanoi, March 6-9, 2007;*
- *HINARI Training Mini-Workshop [with Lenny Rhine] at Bach Mai Hospital, March 12, 2007, and at Hanoi College of Pharmacy, March 15, 2007*

Vietnamese MeSH® Initiatives

In an effort to move towards the completion of a Vietnamese translation for the Medical Subject Headings (MeSH®), Dr. Ly Nguyen and Dr. Tran Thanh Xuan came to NLM, March 22-April 2, 2004 for MeSH® Training. Stuart Nelson, from the National Library of Medicine, taught a MeSH® Translation Maintenance System workshop in Ho Chi Minh City from January 18-25, 2005.

The Assessment Team Visit to Viet Nam in January 2007

The U.S. National Library of Medicine International Program funded medical information training needs assessment in Viet Nam in January 2007, to develop recommendations for improving the medical information infrastructure and initiating specialized training programs. The assessment team was composed of two senior leaders in major US academic health sciences libraries, an experienced medical library educator, the NCBI training contractor who served as the trip organizer, and a Vietnamese medical librarian who served as a translator and advisor. The US librarians brought expertise in development of academic coursework in medical librarianship including fast-track and distance programs, in management of major medical libraries, and with needs assessment and information services research. Oliver has had previous experience in medical information settings in Viet Nam and other areas in Asia, and Detlefsen has had significant experience with library education in Japan. Biosketches for the US team members appear in Appendix I.

The assessment team spent two weeks in Viet Nam, January 17-26, 2007, visiting academic institutions, hospitals and other venues in Ho Chi Minh (HCM) City, Can Tho, Hue and Hanoi.

In Ho Chi Minh City

- Hospital for Tropical Diseases
- Hung Vuong Ob/Gyn Hospital
- University of Medicine and Pharmacy (<http://www.yds.edu.vn/>)
- Cho Ray Hospital (http://www.choray.org.vn/index_eng.php)
- University Training Center for Health Care Professionals

In Can Tho

- Can Tho University of Medicine and Pharmacy
- Can Tho University (<http://www.ctu.edu.vn/>)
- Can Tho Hospital
- Can Tho University Learning Resource Center (<http://www.lrc.ctu.edu.vn/DefaultE.aspx>)

In Hue

- Hue University (<http://www.hueuni.edu.vn/>)
- Hue University Learning Resource Center <http://www.lrc-hueuni.edu.vn/>)
- Hue University School of Medicine (http://www.hueuni.edu.vn/dh_ykhoa/en/index.php)

In Hanoi

- CIMSI: Central Institute of Medical Science Information (<http://www.cimsi.org.vn/>;
<http://www.cimsi.org.vn/ENGLISH/Index.htm>)
- Hanoi School of Public Health (<http://www.hsph.edu.vn/>)
- Hanoi University of Pharmacy and Drug Information Center
- National Library of Viet Nam (<http://www.nl.v.gov.vn/>)
- Hanoi Medical University (<http://www.hmu.edu.vn/>)
- Bach Mai Hospital

The team also met directly with the leadership of the National Library of Viet Nam in Hanoi <http://www.nl.v.gov.vn/> .

All of the specific sites which were visited, and the names of participants in group or individual interviews, are listed in Appendix II.

At each site, the team toured the facility and met with institutional and library leadership, as well as with library staff members and library users whenever possible. Information was gathered through presentations, interviews, written and oral surveys of library staff and library users, and written material and information packets where provided. Interviewees were extremely generous in sharing their time and insight with the assessment team.

In general, assessment team members asked about familiarity with health information, Internet access and self-assessed competence, access to and use of HINARI, barriers to health information access, and perceptions about training needs and most useful methodology. At some sites, clinicians were asked to describe a critical incident--a recent situation for which health information was needed, and how that need was satisfied (or not). Librarians were asked about collections and services, training needs, and professional challenges. Specific questions varied by site.

In both HCM City and Hanoi, Dr. Ellen Detlefsen presented a daylong workshop entitled *Medical Libraries and Medical Librarians: Moving into the 21st Century*. <http://www.bioinfohelpdesk.org/MedLibJan2007/> Participants included library leaders, educators, library staff, and some library users. The assessment team collected written and oral feedback from workshop participants.

Findings

Strengths

In their review of medical libraries and from information gained in interviews and conversations with librarians and health professionals, the assessment team identified significant strengths that form a strong foundation for future development:

1. High literacy rate and appreciation of the value of education

Education is traditionally a highly valued and respected activity in Vietnamese society. It is recognized that education is a central factor in the country's modernization. A large percentage of the population has a high school education, and there is a high literacy rate. The government devotes approximately 18% of its budget to education, with an emphasis on improving infrastructure, and development of information technology and Internet access. [3]

2. Physicians' appreciation of the importance of evidence-based practice.

There is widespread recognition that ready access to the most current information is key to the delivery of quality health care. Physicians turn to the Internet to search PubMed® and to access English-language medical and scientific journal literature via HINARI and INASP <http://www.inasp.info/>. There is great interest in evidence-based practice, i.e. patient treatment based on the research evidence in the published literature. Hospital-based physicians share information at weekly teaching rounds, journal clubs, and clinically-oriented email lists.

Hospital-based physician educators also expressed interest in identifying and training "physician information officers", e.g. physician colleagues with skills in information access and critical appraisal of the literature who would serve as information consultants and trainers for their clinical colleagues.

3. Growing network of university-based Learning Resource Centers (LRCs) funded by The Atlantic Philanthropies

The assessment team toured LRCs in Can Tho and Hue. These are modern and well-equipped libraries whose facilities and services rival those of universities in the United States, but they may lack some institutional infrastructure support. Among the goals of these LRCs are efforts to train staff, acquire electronic resources, digitize theses and other materials, develop innovative services to attract users, initiate marketing plans to attract students from other institutions and the general public to use LRC facilities, and to develop maintenance strategies for continued upgrading of facilities and equipment. In addition to the LRCs in Can Tho and Hue that were visited by the assessment team, there are comparable LRCs in Da Nang, and Thai Nguyen, with one additional facility in final planning stages in Hanoi.

The initial LRC proposal was developed by Professor Huynh Dinh Chien, MD, PhD, who is currently the LRC Director for Hue University, and holds an appointment as a lecturer in that University's medical school. The Hue LRC was the first to be constructed, and serves as a

model for the others. Though it is the central University library for students in all disciplines, the majority of its student and faculty users are from the health professions. Funding for books and other resources has been received from the Asia Foundation, the Sabre Foundation, and The Atlantic Philanthropies. [4]

The University of Can Tho LRC has a staff of 61, with ten librarians currently studying abroad for their master's degrees in librarianship. There are more than 400 computers with Internet access, including 55 for staff use. In addition, there are two computer classrooms with approximately 30 computers each. The Can Tho University Rector, Vice Rector, and the Acting Director of the LRC each expressed strong interest in collaborating to develop a training curriculum for medical librarians and health professionals that would take advantage of the LRC capabilities. There are 100 students already enrolled in the University's undergraduate curriculum in Library Science, but there is no specialization in medical librarianship offered in that undergraduate program.

The LRCs know that a union catalog for at least the LRCs in Hue, Can Tho, Da Nang and Thai Nguyen is needed, which will greatly facilitate resource sharing among these schools.

4. Growing cadre of librarians trained in MLS programs abroad

The assessment team met with librarians who have received MLIS degrees from Simmons College in Boston, and from the Victoria University in Wellington, New Zealand. Since 1993, the Atlantic Philanthropies has provided funding to Simmons College to prepare Vietnamese librarians for key leadership positions in the country's largest university libraries and educational programs for librarianship, with another grant in 2005 to train a new class of 25 students. [2] However, the Simmons program offers only one course annually in medical or health sciences librarianship.

These MLIS librarians, who already work in facilities such as the Hanoi School of Public Health and the LRCs in Hue and Can Tho, are enthusiastic leaders in developing new models of public service, library management and outreach to users. The LRC in Hue, directed by a physician, aspires to offer a university-based MLIS degree, with an upper-level medical library track.

The library at the Hanoi School of Public Health is particularly noteworthy as a model. Two of the librarians at the School's LRC are graduates of the Simmons College program, and adhere to a "mindset of welcome for users." The school's dean and other academic leaders are strongly supportive of the library's potential to contribute positively to the educational environment.

5. Library leadership with domain knowledge in medicine

A continuing challenge for health sciences libraries in the United States is the difficulty of attracting staff who not only have MLIS degrees, but also possess sufficient domain knowledge in the health sciences to offer advanced reference consultation to users. While there are some US health sciences librarians with medical, nursing, or pharmacy degrees, they are still very rare. In contrast, a number of the leaders of Vietnamese academic medical libraries have earned medical degrees. As practicing physicians, they are attuned to the information needs of health

professionals and may be expected to support continuing education on medical topics for their library staff. However, they may not routinely do any specific library work.

6. Enthusiastic support from opinion leaders and senior managers of universities and hospitals

Without exception, the administrators and senior academic leaders who met with the assessment team expressed wholehearted support for enhanced access to health information and development of training programs for medical librarians and health professionals.

7. Increasing initiatives for national library activities

The evidence is strong that the professional library community in Viet Nam is growing, as evidenced by the founding of a Viet Nam Library Association in October 2006, with a membership sub-section specifically for medical librarians. The establishment of a national ISBN Center for the country, and a Cataloguing in Publication (CIP) program, both of which offer promise for shared cataloging and cooperative resource sharing efforts among all types of libraries in Viet Nam, would be desirable. The National Library of Viet Nam is taking the leadership role in these efforts.

Challenges

Health is not being well-served by the current state of health information services in the medical libraries in Viet Nam. The needs assessment conducted in January 2007 revealed a need for a coherent and comprehensive training curriculum in health information management and application for librarians, health practitioners, medical students and the public. The needs assessment discovered a number of challenges in achieving a health information infrastructure to serve the health needs of Viet Nam.

1. For Librarians and Health Information Specialists

Librarians and library directors interviewed by the assessment team identified a number of professional issues including skill development. Training needs identified included management skills, resource knowledge and management, teaching, marketing, professional network building and use, and health domain knowledge. Because Vietnamese students generally make their career and university choices while in high school, many do not find librarianship an attractive career option. Individuals who decide to become librarians after working in a library and liking their work do not or can not afford to return to school for an additional degree. Income constraints and the desire to advance in income earning capacity through professional education were also identified as issues for library staff and other information professionals. Appendix III contains a classified list of specific training needs articulated by the librarians, library directors, and library users who were interviewed. Appendix IV lists the curricula for the existing undergraduate and graduate library and information science programs in Vietnamese universities, but there is no evidence of specific coursework focused on medical library practice.

Management Skills

Library directors in academic institutions expressed a need for training in library management. When a hospital had a library, the management of the library was often shared with a physician, with the librarian serving in an archival or technical capacity.

Resource Use & Management

Librarians expressed a need for formal training in the use and knowledge of health information resources. Medical terminology in English and a strong knowledge base in the domains of medicine, pharmacy, and public health were specifically identified as training needs. Furthermore, there appeared to be a lack of infrastructure for library resource sharing, particularly in the duplication of cataloging efforts across libraries.

Teaching & Marketing: User Expectations, Librarian Culture

Librarians in Viet Nam are not now seen in a teaching role by their users. Though this picture is changing, Vietnamese libraries have been largely archival in nature, with a limited service tradition. In the Can Tho and Hue LRCs, and in the Hanoi School of Public Health the assessment team observed that, professionally trained librarians were engaged in both marketing and user training initiatives. Librarians interviewed by the assessment team often lamented their limited teaching and marketing skills and experience, and expressed their desire to learn more about these topics. Many librarians also expressed concern about professional isolation and their desire to learn about new methods for sharing expertise and experience with other librarians. These individuals felt a need to establish a good working relationship with medical faculty, especially in order to market successfully the library's role in supporting faculty research and teaching.

Health Domain Knowledge Limitations

Many of the librarians and library staff members who were interviewed described their limited knowledge of, or training in, health domains. Physicians who were interviewed made similar observations about the librarians whom they supervised or with whom they worked. Librarians who did have health domain knowledge were usually in administrative posts or had managerial responsibilities, and did not often provide direct information services to library users or health providers.

Individual Economic Constraints

Finally, as with other government-funded professionals, librarians often sought or held more than one job, in addition to their primary library position. The low salaries paid to most individuals who work in Vietnamese medical libraries made this practice an unfortunate economic necessity. Anecdotal evidence suggests that while physicians may earn the equivalent of \$250 - \$350 per month, medical librarians often only make \$90/month or less. Because of these low salaries, it is difficult to attract individuals with a background in science or medicine to a career in librarianship.

Library staff members, as opposed to librarians or library directors, were nurses or others who had little training in library and information science. Most of their training was done as on-the-job or in-service activities. If specific standards for medical librarians could be established (similar to the Public Library Standards work that is underway in Viet Nam), medical library staff will benefit.

2. For Health Practitioners

Finding and Applying Evidence

Nearly all of the interviewed educational administrators and faculty described Vietnamese medical education as traditionally passive in nature, and not problem-based. University administrators, as well as medical practitioners, expressed the need to teach and mentor Vietnamese health practitioners in the skills and tools of evidence-based medicine. Health practitioners sought training for skills in critical appraisal of the literature. “Students need to know how to read a paper,” stated Dr. Tran Son Thach, Vice-Director of the Hun Vuong OB/GYN Hospital in Ho Chi Minh City. He elaborated that students need a stronger background in the theory and interpretation of epidemiology and statistics. While many hospital physicians described weekly meetings to present cases and discuss evidence-based problem solving, they also said that health practitioners needed stronger information skills to locate the best evidence. Physicians in tertiary care facilities that offered consultation services to physicians in rural and general care facilities also expressed the need for stronger evidence-based practice skills, especially as rural doctors often report that they do not have time to read the journal literature or other sources.

A specific challenge for health practitioners is their comfort level with Internet and associated computer technologies. Younger physicians were seen as having greater exposure and experience with these technologies, and were often described as bringing Internet skill to the health care team. As a result, these individuals were described as good candidates for an informationist role, to bring evidence from Internet-based literature searches to case reports and discussions.

Dr. Hoàng Hoa Hải, Chief of Training and Research at the Cho Ray Hospital in Ho Chi Minh City, found the concept of the physician who serves as an information officer to be intriguing. He expressed interest in training 2-4 physicians in this role. Again, he offered that younger physicians would be ideal for this role. As most physicians at the Cho Ray Hospital are graduates of the University of Medicine and Pharmacy (UMP) in HCM City, he suggested that the physicians be trained in statistics, epidemiology, critical appraisal, and literature search skills at UMP and then be empowered to practice these information skills at the Cho Ray facility. Dr. Hai suggested that email groups would be a good way to encourage the exchange of new information. To be effective, these groups would need a leader, and suggested that a series of distance education experiences for small group of information officers would be helpful, especially for provincial physicians.

Time Limitations

Another challenge for physicians in seeking and applying evidence from the literature is time. A physician's work day leaves little time for searching the literature, because of the high ratio of patients to physicians. Most physicians interviewed stated that their pursuit of new knowledge or information to address patient care questions took place on home computers in the evening or during the scarce hours when they did not have patient care responsibilities.

Dr. Hài, from the Cho Ray Hospital, also noted time problems as a challenge, but saw trained "information officers" as a possible solution for this problem. The information officers could distribute information to colleagues, promote the practice of evidence-based medicine, lead workshops, email discussion groups or host blogs.

Computer & Internet Access

Computer access is limited in many health care and educational settings in Viet Nam, although the assessment team observed new computers and computer labs in a number of the sites visited. In hospitals, there many computers are dedicated to documentation and medical record keeping, but only a few that can be used to search the Internet. Most health care providers report use of home computers for Internet access.

HINARI & PubMed® Skills

Most of the health practitioners who were interviewed were aware of HINARI and PubMed®; most said they found the full text that they needed through HINARI, but used it in different ways. Typically, the libraries and health care facilities had one password for all institutional users, and awareness and use across institutions was described as intermittent. A number of informants commented that HINARI via their institutional Internet connections were slow. A number described strategies they used to get to the literature they needed, including searching PubMed® separately for references of interest because the HINARI search interface was not satisfactory. Once a citation was found on PubMed®, the physician then used HINARI to get to the full-text. Many physicians also described approaching colleagues, both in country and abroad, for those items that they couldn't get through HINARI. Most were unaware of document delivery services offered by CIMSI. One surgeon stated that the literature indexed in PubMed® did not have the information on techniques that he needed, and he preferred to use Google™ to find information on surgical techniques.

3. For Medical Students

Lack of access to current information in print & online

Medical students stated that they had the time to read, study, and learn, but that they experienced variable access to the Internet at their university and hospital settings. Unlike practicing physicians, financial constraints sometimes limited a medical student's home access to the Internet. Medical students frequently expressed a need and preference for current editions of standard medical textbooks. One student dramatically stated: "Forget the Internet; we need

books.” He brought a text on laparoscopy to the interview table to illustrate how he and his fellow medical students were using books that were 15 years old, and said, “this is what we have to use in learning what we are doing right and wrong ” in caring for patients. Other medical students participating in the interview concurred, stating that they liked to read and wished to have more books and more current texts.

Visual inspection of shelves in the medical and hospital libraries bore out the assertion that many textbook titles in these library collections were outdated. The student interviews revealed an urgent need for current textbook information, both in print and online, for additional computer access, and for high-speed Internet connections in public access facilities

In addition, the absence of a database covering traditional medicine information, as well as the absence of a bibliography or database with information about Vietnamese theses, was noted as a problem. Bibliographic access to the medical journal literature in Vietnamese is also a serious problem; there are no Vietnamese medical journals indexed for PubMed® at present.

4. For Patients, the Public and Public librarians

The interviews revealed specific issues related to information services and resources for patients, those seeking care, and the general public, for whom accurate and current medical information is important for maintaining health. The interviews at hospitals, and at the National Library of Viet Nam, offered some insight into the context and service structures currently in place for informing patients and the public.

In public hospitals, where there were many patients to be seen, the leaders estimated that doctors were able to spend 2-3 minutes with an individual patient. At one publicly funded hospital in Can Tho, patients and their families filled the available space near entrances, in the stairwells, in the corridors of the hospital and in hospital rooms. It was not unusual to have two patients to a bed, particularly in the public hospitals, and there were multiple beds in a single hospital room. Family members of hospitalized patients often stay with them and contribute to their daily care. In Can Tho Hospital, there was no evidence of organized information access or a medical library. Doctors noted in interviews that, while few patients had access to the Internet and it was still rare for patients to learn about their disease on the Internet, more and more patients were seeking health information from Web sources and then questioning their doctors. It must be noted that these patients were likely to be the more affluent and seen in private practice settings. One physician observed that private patients had more questions, more money and more time. Others stated it took less time to explain diagnosis and treatment to informed patients, and noted that informed patients were more compliant with their treatment.

Physicians, upon being told of the MedlinePlus® consumer health information service, spoke of language barriers in the use of the information, noting there was little available in Vietnamese. When offered the possibility of information in a graphical or pictorial format as one way to address language barriers, most responded that this form of information delivery would be helpful to patients and to nurses and doctors in training patients.

As a case in point, providing patient information was a problem for the Cho Ray hospital personnel. Patients needed information but there was insufficient time or staff to address this need. There are some video facilities in waiting areas, and videos on topics such as “how to prevent bird flu” were available, and there were some well-attended patient “clubs” for diabetes, CVA and chronic obstructive pulmonary disease that met every month or two on Saturdays in the hospital auditorium. These “club” meetings included physician presentations, videos and pamphlets.

Given the difficulties patients and their families may have in getting to clinics or hospitals, it may be more practical to utilize the existing public library system to provide consumer health information services to the general public. Public libraries in Viet Nam, organizationally under the National Library of Viet Nam, are organized by city and province. There are 64 provincial libraries, 600 district libraries and about 10,000 small resource libraries. Provincial libraries share collections; these collections rotate around the district libraries. The Director of the National Library of Viet Nam indicated that all public libraries should be equipped to provide health information at a consumer level. He stated that public libraries needed more consumer health information, and that public library staff members need training in health information resources. Regional training offered at the five Learning Resource Centers could enhance the feasibility of training public library staff. The Director expressed interest in this approach to training public library staff in health information resources and services. Working with television and radio journalists to disseminate consumer health information may also offer a conduit for dissemination of medical information targeted to the general public.

5. General challenges

Language barriers

Many of the Vietnamese medical libraries appeared to have multilingual collections, although English was not spoken universally. At the Hung Vuong OB/GYN hospital, the Director and Deputy Director both identified poor English skills as major problem, although they noted that younger doctors often knew more English than older doctors. In many healthcare and health education settings, librarians did not have good English skills and needed the assistance of the younger doctors in finding information. As English is often described as the “language of medicine,” especially for clinical issues, the need for health and library personnel to speak and read in English is vital. When planning for consumer health information, the need for information accessible to minority language groups must be considered.

Lack of funding for training and materials

While there was widespread interest in training programs for library and information services, there appeared to be limited institutional funds for a coherent and comprehensive training curriculum in health information services and management both in libraries and in health practice settings.

Distance Education

The university-based Learning Resource Centers offer excellent facilities for distance and on-site regional training. The leadership of these LRCs expressed strong interest in making their facilities available for training in health information services. The Director of the CIMSI also saw the LRCs as practical sites for regional training programs for both medical and public librarians, and indicated that CIMSI would support travel of up to one week for training at a regionally proximate LRC. A number of the physicians stated that distance education was not ideal, but in combination with other approaches, was better than nothing. On the other hand, the director for training at the Cho Ray Hospital has already used inexpensive distance education technology very effectively for provincial training, and stated that technology was accessible at the provincial level for extending the learning received at the “academy”. International Medical Conference (IMC) software is very convenient, uses webcam and LCD technologies, and can include PowerPoint™ slides, video and “chat”. The capacity for the use of IMC technology has already been used with great success at the hospital. All of the physician and library directors spoke of the need to build Vietnamese academic capacity for medical librarianship at the graduate level, and saw distance education as having a role in achieving this goal. However, the serious issues of sufficient bandwidth and speed must be solved for effective distance education to occur in Viet Nam.

Recommendations

The recommendations in this report seek to improve health in Viet Nam through a cooperative medical information training program for academic librarians, public librarians, and health professionals. To ensure sustainability and effective use of resources, the recommendations are designed to build on and work cooperatively with Vietnamese resources such as its National Library, public libraries, hospitals, medical schools and other educational institutions. Moreover, they are designed to build on and work with other externally funded efforts including the regionally-based LRCs, the Simmons College’s MLS Program for Vietnamese Librarians, INASP and the WHO. Any proposed program must be modeled on an emerging national collaboration in Vietnamese medical education, where there is interest in building a national curriculum for medical students that emphasizes a Skills Labs approach. [5]

Improvement of information resources

1. Access to electronic medical textbooks

Clinicians, students and librarians expressed great frustration with the lack of current medical textbooks. Though the journal articles accessible through HINARI fill a vital role in providing access to the most current research and clinical information, medical textbooks provide the basic summarized information on a wide range of topics needed by both students and clinicians. The assessment team heard complaints about the lack of current textbooks at almost every site visited. Because of the high cost of medical textbooks and the difficulty and time delays in ordering books from abroad, libraries and clinicians find it nearly impossible to maintain an updated collection of the most recent editions of important textbooks.

It is the team's strong recommendation that funding be identified to provide electronic access to current medical textbooks for all Vietnamese health professionals and students. This could be accomplished by (a) negotiating a national Vietnamese license to a medical e-book vendor such as STAT!Ref (www.statref.com), McGraw Hill's Access Medicine (www.accessmedicine.com) and/or Books@Ovid (www.ovid.com); or (b) aggressively pursuing inclusion of such material in HINARI. The ready availability of such information to Vietnamese clinicians and students could have a significant impact on both health care delivery and education.

2. Greater awareness and use of existing consumer health information resources, particularly MedlinePlus®

MedlinePlus®, a service of the United States National Library of Medicine (NLM) and the National Institutes of Health (NIH), brings together authoritative information from NLM, NIH, and other U.S. government agencies and health-related organizations. MedlinePlus® has extensive information about drugs, an illustrated medical encyclopedia, interactive patient tutorials, and latest health news. There is a rich collection of images, pictures, and pre-recorded hour-long webcasts of surgical procedures depicting actual operations performed at U.S. medical centers. There is also an extensive collection of "easy-to-read" educational materials and tutorials, a boon for students or professionals for whom English is a challenge.

It is the team's strong recommendation that funding be identified to provide electronic access to consumer-level health information for use by Vietnamese health professionals and students, as well as by the general public. Special emphasis needs to be placed on identifying materials in Vietnamese and in easy-to-read formats. Alternatively, graphically presented educational materials developed in other languages such as English could be explored and assessed for use. Heavily graphic pieces in MedlinePlus®, for example, could communicate relevant health messages or information without the need for translation, potentially expanding the amount of material that could be immediately available for use in Viet Nam. Such material would have to be carefully reviewed for cultural presentation, and a determination also made as to whether it would be suitable, from that perspective, for urban and/or rural Viet Nam.

3 Training Initiatives

It is the team's strong recommendation that funding be identified to develop a series that form a set of "Pathways to Leadership for Medical Libraries and Information Services: A Partnership Model." Given the frequently expressed needs for medical library training programs, it is wise to consider a multi-level approach that is focused on a suite of initiatives. Individual practitioners can choose the approach or topic that best suits their needs

A small group of Vietnamese physicians should be identified, and encouraged to take part in a specialized training study tour of US academic medical and teaching hospital libraries, of about 2 to 3 weeks in duration. These individuals will become the leaders for information services.

Upon their return to Viet Nam, these physicians would be expected to identify a larger group of librarian and physician participants for a suite of training opportunities that utilize distance

education on the Web, video conferences, face-to-face workshops, and coursework in Vietnamese medical and public health schools. These librarians and physicians will become library managers and teachers in medical schools, schools of pharmacy, nursing, public health, and library and information sciences.

Five specific tracks of training are envisioned for these librarians and physicians

- A. Vietnamese physicians, and library leaders, who are already directors/managers should be identified as candidates for a study tour of American academic medical libraries, large teaching hospital libraries, and the National Libraries of Medicine and Agriculture.
- B. Physicians and other health professionals who work in medical libraries should be trained as informationists, with emphasis on evidence-based medicine, information search/evaluation, and peer communication techniques. The training program should be delivered via video-conference, Internet tutorials, and in-country seminars.
- C. Librarians who have already earned a graduate MLIS degree (from Simmons, Victoria at Wellington, etc.) should be offered the opportunity to earn a post-master's Certificate of Advanced Study with a specialization in medical librarianship, to be done in the online FastTrack format from the University of Pittsburgh. Appendix V lists the curriculum for this Certificate.

Some of these librarians should be chosen specifically to pursue the PhD degree in LIS, which entails two years of coursework in Pittsburgh with at least a semester spent taking courses at the Johns Hopkins, and dissertation research done in Viet Nam. These individuals will become the leaders for a graduate curriculum in medical librarianship in one or two selected Vietnamese universities, thereby increasing the capacity for training medical librarians in the years to come.

- D. Librarians without a formal graduate LIS degree should be provided with an opportunity to earn a certificate in library management, information services, collections, organization of information, Internet/Web skills, medical terminology, domain knowledge, etc., via distance education, face-to-face workshops, and self-paced instructional tutorials. The possibility of providing regional workshops focused on specific skill sets (for both public and technical services in medical libraries) should be investigated. A cadre of Vietnamese lecturers may need to be trained for these regional efforts.
- E. Public library staff members should be enabled to follow a program leading to a certificate in consumer and patient health information, similar to the US Medical Library Association's CHIS certificate program for consumer health librarians [5]. The Vietnamese program should emphasize reference work, and the use of pictorial, A/V, and easy-to-read information on the most pressing health issues in country, and it should be delivered via both distance education and face-to-face workshops. A pilot

program to implement health information services in public libraries is recommended. The pilot, which would have an evaluation component, could be conducted in the region south of Ho Chi Minh city or in the area surrounding the Can Tho LRC, and, if successful, could be a model for development of public library-based health information services in other parts of Viet Nam

This suite of training opportunities will rely heavily on the facilities of the existing and future LRCs in Viet Nam, which clearly provide the best physical and technological support for distance learning and Internet and web-based initiatives. The training program is also predicated on a strong buy-in from both CIMSI and the National Library of Viet Nam, whose support is crucial for success.

It is also the team's strong recommendation that funding be identified to develop a model "Train the Trainer" program to develop a cadre of instructors for Vietnamese library education programs. In the short run, having a small number of Vietnamese medical librarians who could teach courses on medical librarianship in the nation's library education program will jump start the efforts to achieve the longer-range goal of more widespread medical library education. Members of the assessment team can [1] prepare the syllabus for a semester-long course on issues and resources for medical libraries, [2] send it to colleagues in the country for translation, and then [3] come to teach a selected group the methods for teaching the course and evaluating the experience for students.

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[6] http://www.mlanet.org/pdf/ce/chis_brochure_2006.pdf;
<http://www.mlanet.org/education/chc/nonhsl.html>

APPENDIX I: Biosketches for key personnel

[1] Ellen G. Detlefsen, MS, MA, MPhil, DLS, is a tenured faculty member in the School of Information Sciences at the University of Pittsburgh, with a joint appointment in the Department of Biomedical Informatics in the School of Medicine. She was educated at Smith College and Columbia University, and holds her doctorate from the Columbia University School of Library Service. Her areas of expertise and teaching competence include bio-medical and health sciences information, medical informatics, and resources and services for special populations such as patients and health care consumers, and the aging and their caregivers. The Departmental program in Medical Librarianship and Medical Informatics, which she directs, was ranked #1 in the United States in both the 1999 and e 2006 *U.S. News & World Report's Guide to Graduate Study*; the MLIS with a medical specialization is now available in both an on-campus format and in the University's FastTrack online program.

In May of 2002, she was honored by the Medical Library Association with the Lucretia McClure Excellence in Education Award, the organization's highest honor for an educator. Recent publications by Dr. Detlefsen include articles on research informationists, the education of an informationist, on World Wide Web materials on women's health and on depression in the elderly, on the information behavior of health professionals, and on changes in library education in response to a changing healthcare and medical school environment. She speaks frequently on the issues related to both formal and continuing education for the health information professions, on information behavior research, on consumer healthcare information, and on medical informatics. She is the developer/instructor for Internet workshops for the American College of Psychiatrists, the American Association for Geriatric Psychiatry, and the American Medical Association's Medical Communications Conference. She is also the Chief of the Information Dissemination Unit in the University of Pittsburgh's NIMH-funded research center on mood disorders in late life.

[2] Barbara A. Epstein, MSLS is Director of the University of Pittsburgh Health Sciences Library System, which serves the University's health sciences community as well as the 17 hospitals of the University of Pittsburgh Medical Center. She is also a core faculty member of the University's Medical Informatics Training Program. Epstein has served as Principal Investigator or Project Manager for numerous grants and contracts, including outreach contracts from the National Library of Medicine to provide training for public health professionals, and for public librarians in Western Pennsylvania. She has a longstanding interest in the education and training of health sciences librarians, and was instrumental in the development of the Pittsburgh Health Sciences Library and Bioinformatics Traineeship program funded by the National Library of Medicine. She has numerous publications and presentations.

Prior to assuming her current position in 2003, Epstein was HSLA Associate Director for eight years. Previously, she was associated with the Western Psychiatric Institute and Clinic Library, serving as Director, Associate Director and Reference Librarian. She received her undergraduate degree from the University of Pittsburgh, and MSLS degree with a specialization in medical librarianship, from Case Western Reserve University in Cleveland, Ohio.

[3] **Chuong Huynh, MS**, Senior Systems Analyst, is currently a contractor for Lockheed Martin Management Systems Designer, Inc. for the U.S. National Library of Medicine's National Center for Biotechnology Information (NCBI). He has been involved in developing biomedical and public health capacity development programs in developing countries for the past ten years in collaboration with a number of international organizations and governments. Since 2000, he has been involved in developing, teaching, and coordinating various international bioinformatics training workshops especially in developing countries including co-coordinating the WHO/TDR funded "Regional Training Courses in Bioinformatics Applied to Tropical Diseases" and the "Regional Training Course on Functional Genomics of Insect Disease Vectors" with the regional centers. In the past five years, he has coordinated and/or taught health information access related training workshops including the popular "HINARI and PubMed Workshop: Searching and Getting the Articles You Want" in Vietnam. Prior to his current position, he worked as a software and database engineer for NCBI on tropical disease pathogen and vector genomes, especially related to malaria genetics and genomics.

He has made eleven visit to Vietnam to provide workshops in support of training and capacity development for medical and health sciences information in the country. Huynh has also given seven workshops on biomedical information in other parts of Asia, in Africa, and in the US. Since 2003, he has been serving as a Consultant and NLM representative for the WHO Health InterNetwork Access to Research Initiative (HINARI) program.

[4] **Kathleen Burr Oliver, MSLS, MPH**, Associate Director of the Welch Library, is responsible for the Welch Library's information research, development and communication programs. She holds a faculty appointment in the Johns Hopkins School of Medicine's Division of Health Sciences Informatics. In 2006 Ms. Oliver developed a course offered through the School of Medicine, entitled "Informationist Seminar: Transferring Evidence to Practice." The course taught by a multi-disciplinary team of faculty in a lecture and lab format addressed the core skills for evidence-based practice. Ms. Oliver's funded research is in testing new health information services and roles. In 2007, Ms Oliver was named an Association of Research Libraries' Leadership Fellow. From 2003 to 2007 she served as an ORISE Fellow at the Centers for Disease Control (CDC) where she focused on developing the informationist role in public health. Out of that fellowship emerged a partnership between Johns Hopkins, the CDC Information Center (IC) and the CDC Global AIDS Program (GAP) to sponsor one of the first National Library of Medicine Informationist Fellows. Ms. Oliver served as the fellowship mentor, overseeing fieldwork in the CDC GAP's Vietnam and Zimbabwe programs.

Prior to her current position she directed education programming for the Welch advanced technology group, and led the development and presentation of several web-cast lectures made available on the Library's website. Ms. Oliver has also managed a number of small scientific and medical libraries including those of NIAID Rocky Mountain Laboratory, American College of Cardiology and AMA Washington Office. She served as a reference librarian and search analyst at the NIH Library, Pharmaceutical Manufacturers' Association, and UCLA's Biomedical Library. Ms. Oliver was a project director for Georgetown University's Public Services Laboratory in the conduct of a literature review of a 20th century cost of illness study, and with funding from NSF, developed science web resource pages for the public radio documentary group, Soundprint. Her public health training focused on maternal and child health policy, planning and evaluation, and her undergraduate degree is in biology and chemistry.

APPENDIX II: Sites Visited and Participants in Group or Individual Interviews

Ho Chi Minh City

- Hung Vuong OB/Gyn Hospital
 - Dr. Vu Thi Nhung, Director
 - Dr. Tran Son Thach, Vice-Director
- Hospital for Tropical Diseases/Benh Vien Benh Nhiet Doi
 - Dr. Lam Minh Yen, Deputy Director/Head, Tetanus Intensive Care Unit
 - Dr. Vo Minh Quang, Deputy Director, AIDS
 - Dr. Jeremy Farrar, Director, Oxford University Clinical Research Unit
- University of Medicine and Pharmacy
 - Dr. Phuoc Van Dang, Vice Chancellor; Dean, School of Medicine; Head, Department of Internal Medicine; Vice Director, Cho Ray Hospital
 - Dr. Huynh Anh Lan, Vice Dean, Faculty of Odonto-Stomatology; Head, International Relations Office; Head, Department of Oral Pathology
 - Dr. Tran Thanh Xuan, Director, Library
 - Dr. Nguyen Thi Ly, Vice Director, Library
 - Dr. Tran Diep Tuan, Department of Pediatrics and International Relations Office
 - 2 library staff members
- Cho Ray Hospital
 - Dr. Hoang Hoa Hai, Chief of Training and Research
- University Training Center for Health Care Professionals
 - Dr. Nguyen The Dung, Deputy Director
 - Dr. Vo Khoi Buu, Chief, Library
 - Dr. Ngo Thi Nghiep, Vice Chief, Library
 - Dr. Nguyen Thanh Nguyen, former Chief, Library
 - Trinh Trung Van, Head E-Library

Can Tho

- Can Tho University of Medicine and Pharmacy
 - Dr. Pham Hung Luc, Vice Rector
 - Dr. Pham Van Nang, Vice Dean, School of Medicine
 - Dr. Tran Van Nguyen, Head, Library (also Head, Urology Department, Can Tho Hospital)
 - Pham Thi My Ngoc, Head, Skills Lab
 - Vo Van Quyen, Media Lab
- Can Tho University
 - Dr. Le Viet Dung, Director, International Relations
 - Dr. Do Van Xe, Vice Rector
 - Huynh Thi Trang, Acting Director, Learning Resource Center
 - Dr. Nguyen Anh Tuan, Rector
- Can Tho Hospital
 - Dr. Tran Van Nguyen, Head, Urology Department

Hue

- Hue University, Learning Resource Center
 - Dr. Huynh Dinh Chien, Director

- Vo Thuy Hoa, Reference Library
- Hoang Thi Trung Thu, Reference Librarian
- Ho Thi Ngoc Han, Information Services Librarian
- Hue University School of Medicine
 - Dr. Nguyen Vu Quoc Huy, Vice-Head, Science, Technology, and International Relations
 - Dr. Tran Xuan Chuong, Chief, Medical Library
 - Nguyen Van Tue, Information Technology

Hanoi

- CIMSI (Central Institute for Medical and Scientific Information)
 - Nguyen Tuan Khoa, Director
 - Nguyen Thi Bich Nga, Chief, Planning and International Relations Division
 - Nguyen Thi An Trinh, Director, Library
 - Nguyen Thi Linh Ha, Planning and International Relations Division
 - Nguyen Thanh Thuy, Librarian
- Hanoi School of Public Health
 - Dr. Le Vu Anh, Dean and Head, Department of Epidemiology
 - Dr. Tran Huu Bich, Vice Dean
 - Dang Vu Trung, Lecturer
 - Mr. Dao Hoang Bach, Student
 - Nguyen Hai Ha, Director, Library
 - Nguyen Thi Thu Hang, Librarian
 - Bach Lan Phuong, Librarian
 - Bui T. Ngoc Oanh, Librarian
- Hanoi University of Pharmacy and Drug Information Center
 - Nguyen Thi Thanh Hang, Student
 - Vo Thi Thu Thuy, Lecturer
 - Dinh Vien Van, Drug Information Center
 - Nguyen Manh Pha, Drug Information Center
 - Phan Quynh Lan, Lecturer, Clinical Pharmacology
- National Library of Viet Nam
 - Pham The Khang, Director
 - Le Thuy Duong, International Relations Office
- Hanoi Medical University
 - Dr. Do Doan Loi, Vice Rector; also Vice Director, Bach Mai Hospital
 - Hoang Thi Ha, Head, Library
 - Nguyen Xuan Viet, Multimedia Librarian
 - Dr. Nguyen Thi Xuan, Librarian
 - Group of four 4th year medical students, two 5th year medical students, 1 resident physician, and one graduate student
- Bach Mai Hospital
 - Nguyen Thi Ylang, Library Manager
 - Nguyen Thi Lan, Librarian
 - Dr. Tran Hanh Tung, Surgeon
 - Dr. Nguyen Thanh Hoi, Physician, Respiratory Medicine Dept

APPENDIX III: Training needs as expressed in interviews

1. Staff librarians' training needs

- GENERAL
 - overview of medical librarianship
 - training in medical librarianship
 - institutional repositories
 - library management

- MANAGEMENT
 - team work
 - library marketing
 - human resource management

- DOMAIN
 - medical terminology
 - domain knowledge in medicine
 - domain knowledge of public health and medicine
 - drug information
 - domain knowledge – medical information, searching, etc

- EBM/EXPERT SEARCHING
 - how to add information skills to the “curriculum”
 - critical evaluation
 - skills in critical appraisal – how to study a study
 - role of the librarian in EBM
 - how to become a subject librarian/subject specialist

- ORGANIZATION OF INFORMATION
 - training in MeSH®/UMLS/NLM classification
 - “classification” incl, NLM and Dewey Decimal system.
 - training and information about integrated library systems
 - OPACs
 - cataloging, organization of the library collection
 - cataloging, with focus on national standards, and a unified system
 - retrospective conversion needed for older Vietnamese materials
 - ILS software
 - training for standards

- COLLECTIONS
 - collections development
 - e-information resources
 - how to use medical resources
 - collection digitalization (especially for IT)
 - digital collection management and preservation

- REFERENCE
 - information services
 - reference services and instruction
 - reference training
 - basic skills in lit searching
 - information searching skills

- RESOURCE SHARING
 - resource sharing and electronic document delivery/ILL
 - quick and easy way to distribute updated information to doctors
 - how to share knowledge about free Internet resources in a systematic way
 - pictorial information for education/training patients.
 - resource sharing, esp. with medical AV materials, images and digital resources
 - professional communication techniques
 - building a professional association, creating online journal clubs, reference case reports, email information tips, marketing – creating brochures and pamphlets

- TECHNICAL SKILLS
 - how to use the Internet and Blackboard™
 - how to create and produce teaching videos
 - better camera/photography skills
 - audiovisual/graphical resources
 - role of IT in libraries

2. training needs for physicians who are library directors

- in-country, face-to-face training in groups, with distance/teleconferenced education to follow.
- library management skill set study tour/“internship” (2-3 weeks) to US academic health sciences library w/ hospital, consumer health exposure

3. Faculty/clinicians/health professionals’ training needs

- departmentally-focused/discipline-focused workshops on EBM
- information searching habits
- library skills

4. public librarians’ training needs

- health/medical information resources/services
- pictorial information for education/training patients/consumers

APPENDIX IV: Existing curricula for Undergraduate Bachelor of Library and Information Science programs in Viet Nam

- Curriculum from the University of Culture, Hanoi

Compulsory subjects

	Subject	Number of credits	Notes
1	Library studies	4	
2	Information studies	4	
3	Bibliography studies	4	
4	Document and Archive studies	3	
5	Book and library history	3	
6	Library-Information laws	2	
7	Maths in library-information activities	3	
8	Research methodology in library and information science	2	
9	Informatics and documentation	3	
10	Fundamental of information technology	2	
	Total	30	

Professional knowledge

	Subject	Number of credits	Notes
1	Collection development	3	
2	Stack organization and preservation	3	
3	Classification	5	
4	Subject heading and keywords assignment	4	
5	Doing abstract, annotation and review	3	
6	Cataloging	4	
7	Information archive and searching system	4	
8	Information searching	4	
9	Working with users and information services	4	
10	Documentary softwares	4	
11	Information and computers network	3	
12	Electronic libraries	2	
13	Electronic publishing	2	
14	Library facilities	2	
15	Regional bibliography	2	

16	Library and information center management	4	
17	Foreign language	5	
	Total	58	

Optional subjects

	Subject	Number of credits	Notes
1	Different kinds of libraries: <ul style="list-style-type: none"> • Children libraries • School libraries • University libraries • Academic libraries (in research institutions) 	2	
2	NGOs in library-information field	2	
3	South-East Asia library and information system	2	
4	Specific bibliographies: <ul style="list-style-type: none"> • Political – social bibliography • Scientific – Technology bibliography • Cultural bibliography 	2	
5	Specific information: <ul style="list-style-type: none"> • Science and Technology information • Social and Humanities information • Measurement-Standards information • Industrial property document information • Information for leaders and managers • Cultural information 	2	
6	Information society and knowledge-based economy	2	
7	International information resources	2	
8	Other classification schedules	2	
9	Other cataloging rules		
10	System analysis and design	2	
11	Microsoft ACCESS	3	
12	Library softwares	2	

13	Programming for Automation and mechanization in library and information tasks	2	
14	HTML and web design		
15	Library economic	2	
16	Essay	2	
	Total	12	

o Curriculum from the Can Tho University LIM Programme

YEAR 1 SEMESTER 1

#1 LIM111 – Information and Society

Introduces the types, functions and services of information institutions such as libraries, archives, information and learning resource centres in a knowledge society.

Number of classes: 60
 Number of contact hours/wk: 2 x 90
 Number of credit points: 4
 Prerequisite for: All other LIM courses

Learning objectives:

By the end of LIM111, students will be able to:

1. Explain how organised information contributes to the knowledge society.
2. Identify and describe the roles of the key institutions in Vietnam that create and manage the production and dissemination of information.
3. Describe the services provided by each type of information institution.

YEAR 1 SEMESTER 2

#2 LIM121 – Identifying and Evaluating Library and Information Resources

Introduces strategies and techniques for searching and evaluating library and Internet-based information resources. Resources covered include print and online bibliographic, directory, and full-text information sources, using examples related to university study.

Number of classes: 75
 Number of credit points: 5
 Prerequisite for: LIM 322, 312

Learning objectives:

By the end of LIM121, students will be able to:

1. Identify the main kinds of reference sources in print and online formats, including bibliographies, indexes and abstracts, and full-text information resources.
2. Demonstrate effective searching strategies and techniques.
3. Understand the significance and purpose of resource evaluation in information organisations.
4. Develop and apply evaluation criteria appropriate to Vietnamese information

resources both in print and online.

YEAR 2 SEMESTER 1#3

LIM211 – Knowledge Organisation and Structures in Library and Information Services

Introduces the techniques and tools used in libraries and information services for organising and structuring knowledge, including descriptive and subject cataloguing, indexing and abstracting, classification, metadata, websites and portals. Uses examples of various types of records and structures created by using those tools.

Number of classes: 60
Number of credit points: 4
Prerequisite for: LIM 222, 224, 314, 321, 325

Learning objectives:

By the end of LIM211, students will be able to:

1. Explain the purpose of descriptive cataloguing and standards such as the International Standard Bibliographic Description and AACR.
2. Describe the tools for structuring information such as MARC and XML and explain their purpose in the transmission of cataloguing and metadata records.
3. Explain the role of controlled vocabularies including subject headings lists (e.g., Library of Congress Subject Headings) and thesauri (e.g. ERIC Thesaurus) in providing access to the content of recorded knowledge through subject cataloguing, and indexing and abstracting services.
4. Describe the purpose of classification in libraries and archives and explain the differences between enumerative and faceted schemes.
5. Demonstrate a basic knowledge of metadata.

#4 LIM212 – Information Systems and Technology

Introduces the information life cycle concept and the role of automated systems for organising information and their transformation from manual techniques. Covers records, files, databases (indexes, catalogues, full-text), networks (local area, distributed).

Number of classes: 60
Number of credit points: 4
Prerequisite for: All IT-related courses

Learning objectives:

By the end of LIM212, students will be able to:

1. Explain the information life cycle and its relationship to information systems design and development.

2. Identify and explain the purpose of the key techniques (e.g., files, indexes, databases and catalogues) used to organise information in Vietnamese libraries and information services.
3. Describe how information and communication technologies are transforming these techniques in modern Vietnamese libraries and information services.
4. Explain the implications of the introduction of automated systems in Vietnamese library and information services.

YEAR 2 SEMESTER 2

#5 LIM221 – Introduction to Management in Libraries and Other Information Organisations
Introduces basic management concepts and principles and their application and importance in libraries and other information organisations.

Number of classes: 60
Number of credit points: 4
Prerequisite for: LIM 225, 315, 322, 326, 411

Learning objectives:

By the end of LIM221, students will be able to:

1. Describe basic organisation and management theories, and their application to libraries and information organisations.
2. Identify and explain the importance of the key areas of practical management in libraries and information organisations.
3. Demonstrate an understanding of the broad role of management within the organisation and in relation to the wider society.

#6 LIM222 – Information Organisation and Retrieval Systems

Covers automated systems used to organise and retrieve information in libraries and information centres, including integrated library management systems, text retrieval systems, search engines and digital library systems.

Number of classes: 75
Number of credit points: 5
Prerequisite: LIM211
Prerequisite for: LIM416

Learning objectives:

By the end of LIM222, students will be able to:

1. Identify and exhibit familiarity with the key types of automated systems used to organise and retrieve information in libraries and information centres.
2. Explain the roles of these systems in the Vietnamese information context.
3. Discuss the basic structure of each system in relation to the type of information environment, the nature of the information resources being organised and the needs of the users.

#7 LIM223 – Basic Principles of Web Design

Covers the rationale and principles of Web-based information delivery. Particular attention is paid to the basic tools including software and standards as well as techniques for designing websites in an information service context.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM212
Prerequisite for: LIM313

Learning objectives:

By the end of LIM223, students will be able to:

1. Design basic functional web pages and websites.
2. Arrange folders and files when creating web pages.
3. Use web page authoring programs to create web pages and websites.
4. Use hypertext/hyperlinks, image maps, anchors, tables and other useful web design tools.
5. Create a basic web site consisting of a home page and at least three supporting pages.

#8 LIM224 – Bibliographic Description

Covers the creation of bibliographic records to describe information resources using standards including ISBD, AACR and MARC.

Number of classes: 75
Number of credit points: 5
Prerequisite: LIM211

Learning objectives:

By the end of LIM224, students will be able to:

1. Explain the major concepts and principles in bibliographic organisation.
2. Discuss the purpose of, and major tasks involved in, descriptive cataloguing.
3. Explain the use of main international standards for bibliographic description, including ISBD, AACR and MARC.
4. Apply the standards competently in the creation of bibliographic records in a variety of formats used in Vietnam.

#9 LIM225 – Communication in Libraries and Other Information Organisations

Teaches communication skills required by staff working in libraries and other information organisations, including written and oral communication at the personal level as well as intra- and inter-organisational communication. Includes academic writing using international conventions regarding quotations, citations and bibliographic referencing.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM121
Prerequisite for: LIM326

Learning objectives:

By the end of LIM225, students will be able to:

1. Explain the function and/or impact of various forms of communication for specific situations in information organisations.
2. Critique and evaluate the structure of professional reports, journal articles, and manuals.
3. Employ effective writing skills in essays, memos, press releases and other document types for specific audiences.
4. Demonstrate an understanding of international conventions regarding quotations, citations and appropriate bibliographic referencing.
5. Plan, develop, structure and deliver effective presentations of various types.

YEAR 3 SEMESTER 1

#10 LIM311 – Archives and Records Management

Examines the basic concepts and theories of archives and records management including the principles, practices and systems involved in the care, management and use of records and archives, both traditional and electronic. Discusses the relationship between archives and records management and other information professions.

Number of classes: 30

Number of credit points: 2

Learning objectives:

By the end of LIM311, students will be able to:

1. Explain the functions of archives and records management and the relationships between the archivist's work and the work of records managers and other information professionals.
2. Define the distinctive characteristics of archives/records in relation to other forms of recorded information.
3. Discuss major considerations, tools, and processes involved in records management and archives programmes.
4. Articulate the major issues related to the environment within which records management and archives management operate in Vietnam.
5. Discuss the major technological issues facing records managers and archivists, particularly electronic records.

#11 LIM312 – Understanding and Servicing User Information Needs

Investigates techniques used in reference services to understand the information needs of specific user groups in all information settings. Explores specific strategies and techniques used to meet the information needs of user groups through reference services. Includes the reference interview, developing path finders, bibliographies and other aids for assisting users in meeting their information needs.

Number of classes: 75
Number of credit points: 5
Prerequisite: LIM121
Prerequisite for: LIM322, 324

Learning objectives:

By the end of LIM312, students will be able to:

1. Select and apply appropriate techniques to undertake basic information needs assessment.
2. Understand the nature of reference enquiries and services.
3. Interact effectively with a range of users in determining and clarifying their specific information needs.
4. Develop appropriate tools to assist users in identifying needed information.

#12 LIM313 – Web Design Applications

Looks at various models for, and examines principles used in the design and evaluation of websites, web portals, home pages of information organisations and in web publishing. Employs software applications for hands-on work.

Number of classes: 75
Number of credit points: 5
Prerequisite: LIM223
Prerequisite for: LIM413

Learning objectives:

By the end of LIM313, students will be able to:

1. Use a range of software applications, including open source software, for designing websites, portals and home pages of information organisations, and for web publishing.
2. Demonstrate an understanding of various models and employ basic principles of good design including how to meet specific audience needs.
3. Articulate key issues associated with design and evaluation of web pages and portals.
4. Use colour graphics and text effectively in websites.
5. Apply appropriate methods for evaluating websites.

#13 LIM314 – Subject Analysis and Classification

Covers principles for subject analysis and techniques for providing subject access to information resources including: controlled vocabularies such as subject headings and thesauri; uncontrolled vocabularies such as key words and full-text; abstracts; measures of effectiveness. Examines theory and principles of classification schemes for organising and retrieving information resources, including faceted, enumerative and synthetic schemes. Includes practical work in classifying using Dewey Decimal Classification.

Number of classes: 90
Number of credit points: 6
Prerequisite: LIM211

Prerequisite for: LIM321

Learning objectives:

By the end of LIM314, students will be able to:

1. Articulate the theory and functions of subject retrieval metadata, including controlled vocabulary systems such as subject headings lists and thesauri, in an information retrieval system.
2. Identify the differences between uncontrolled and controlled vocabulary and apply them in particular contexts.
3. Apply the theory in the practice of constructing indexes and abstracts, and select appropriate index terms and abstract entries.
4. Outline some measures of evaluation and effectiveness for a text-based information retrieval system.
5. Explain the theory and functions of classification schemes including faceted, enumerative and synthetic schemes for organising and retrieving information resources.
6. Relate the role of classification to other controlled vocabulary systems.
7. Describe the arrangement of classification schemes, including BBK, UDC and DDC.
8. Apply the Dewey Decimal Classification scheme competently in conducting subject analysis for bibliographic resources.

#14 LIM315 – Marketing the Services and Products of Libraries and Other Information Organisations

Examines strategies for marketing the services and products of libraries and other information organisations using public relations, promotion and other approaches drawn from management and communication materials.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM221

Learning objectives:

By the end of LIM315, students will be able to:

1. Demonstrate an understanding the effectiveness of marketing strategies, including needs assessment, for information services and products.
2. Articulate the role of communication theory in creating effective promotional activities.
3. Demonstrate effectiveness in the use of public relations in organisational promotion.
4. Demonstrate the ability to mount a campaign promoting an information service or product.
5. Apply appropriate techniques and technologies to the creation of effective media presentations for promoting information services and products.

YEAR 3 SEMESTER 2

#15 LIM321 – Database Creation

Covers the criteria for selecting and evaluating database software, and the principles involved in designing and creating a text retrieval database to resolve an information management problem using a controlled vocabulary. Involves consultation with users so that students can create their own sample database.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM314

Learning objectives:

By the end of LIM321, students will be able to:

1. Select and evaluate database software for text retrieval.
2. Explain the principles involved in developing a text retrieval database to resolve an information management problem using a controlled vocabulary.
3. Determine and incorporate the needs of the users when designing a text retrieval database
4. Identify the relevant attributes of the information resources.
5. Incorporate the users' needs and select the relevant attributes of the information resources in designing and creating a straightforward text retrieval database using standard database software.

#16 LIM322 – Information Resource Management

Examines the principles, policies and practices for the development and management of collections and quality control of resources to meet the information needs of specific user groups. Includes the procedures and processes involved in policy development, selection, acquisition and preservation of all types of information resources, print and digital. Also includes principles of de-selection and collection evaluation strategies.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM121, 312
Prerequisite for: LIM411

Learning objectives:

By the end of LIM322, students will be able to:

1. Explain the role of collection management policies in information organisation.
2. Describe the roles of the principal players and the practices involved in selecting, acquiring and preserving the various types of information resources.
3. Demonstrate familiarity with the key tools used in selecting and evaluating different types of resources, including Conspectus.
4. Explain various methods for assessing the quality of resources and collections.

#17 LIM323 Preservation Management in Libraries and Other Information Organisations

Examines the principles and practice of information preservation, with an emphasis on the management of activities in Vietnam. Topics include preventive preservation planning, such as control of climate and light, security, fire prevention, housekeeping and storage, and routine care of materials. Disaster planning and reformatting programmes are also included.

Number of classes: 45
Number of credit points: 3

Learning objectives:

By the end of LIM323, students will be able to:

1. Demonstrate familiarity with the intrinsic characteristics of paper and other information media and the principal causes of damage and deterioration.
2. Describe and employ practical methods to manage the long-term preservation of information resources.
3. Plan and establish in-house programs of preventive maintenance in order to minimize danger to collections.
4. Describe the elements of a disaster plan.

#18 LIM324 – Information Literacy

Examines the principles and practices in developing information literacy programmes for different information environments such as school, public, academic and special libraries. Includes the educational and philosophical underpinnings of information literacy.

Number of classes: 45
Number of credit points: 3
Prerequisite: LIM312

Learning objectives:

By the end of LIM324, students will be able to:

1. Demonstrate an understanding of the background and rationale for information literacy.
2. Articulate the educational principles and pedagogical techniques in the creation and delivery of information literacy programmes.
3. Enumerate the practical issues involved in creating and evaluating an effective information literacy programme.
4. Create a basic information literacy programme for a specific user group.

#19 LIM325 – Metadata Applications

Examines the application of metadata schemes by different information communities such as the education and archives sectors. Includes the creation of metadata records using standards such as the Dublin Core.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM211

Learning objectives:

By the end of LIM325, students will be able to:

1. Explain the role of different types of metadata in managing information resources.
2. Articulate the importance of adherence to international metadata standards such as the Dublin Core and the Encoded Archival Description.
3. Demonstrate knowledge of metadata applications in a variety of information communities.
4. Select and apply a metadata standard in the creation of records for managing electronic information resources in a Vietnamese information context.

#20 LIM326 – Organisational and Human Resource Management in Libraries and Other Information Organisations

Examines management, organisational and human resource theories, practices and issues relevant to libraries and other information organisations in Vietnam. Includes current issues in the planning and management of finances, facilities and human resources in libraries, archives and other information organisations. Uses case studies, role playing and other simulation techniques to link learning to the environments in which information organisations operate.

Number of classes: 75
Number of credit points: 5
Prerequisite: LIM221, 225

Learning objectives:

By the end of LIM326, students will be able to:

1. Apply knowledge of management, organisational and human resource theories, principles and practices in a framework of ethical and legal decision-making in Vietnam.
2. Describe models for organisational structures and evaluate their strengths and weaknesses in application to the Vietnamese library and information service context.
3. Demonstrate proficiency in short-term, long-term and strategic planning processes, including:
 - articulating a vision, mission statement, goals and objectives;
 - project planning and management, and the use of project management tools.
4. Explain the major functions and principles of human resource management, including planning and selection, training and appraisal.
5. Describe and apply effective employee motivation techniques.
6. Articulate the issues involved in developing and managing physical facilities.

YEAR 4 SEMESTER 1

#21 LIM411 – Digital Resource Management

Examines the rationale for, and practical approaches to, creating and managing digital resources including digital libraries. Discusses the selection of resources to be digitised, standards and best practice for digitisation, aggregating resources into distributed digital collections, and long term preservation of digital resources.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM322

Learning objectives:

By the end of LIM411, students will be able to:

1. Identify the various components of digital resource management (hardware, software, information resources, development resources, and users).
2. Discuss the principles and criteria involved in determining which materials to be digitised.
3. Articulate an awareness of critical issues involved in organising, maintaining and providing access to digital collections, including security, preservation and intellectual property.
4. Describe and critique the important features of major digital library projects.

#22 LIM412 – Research in Information Environments

Examines the role of research in an information environment. Evaluates published research in order to understand methodologies and analytical techniques appropriate to investigating problems and phenomena of interest in Vietnamese information environments.

Number of classes: 75
Number of credit points: 5
Prerequisite: 60 LIM credit points

Learning objectives:

By the end of LIM412, students will be able to:

1. Explain the role of research in library and information management environments.
2. Articulate how research is applied to problem solving in an information environment.
3. Evaluate the validity and relevance of published research studies and methodologies.
4. Demonstrate an understanding of a range of commonly employed research methodologies, appreciating their advantages and disadvantages.

#23 LIM413 – Web Content Management

Examines the application of information retrieval and information architecture principles and techniques to the design and ongoing management of accessible websites, including usability testing. Discusses the role of staff such as web content managers.

Number of classes: 60
Number of credit points: 4
Prerequisite: LIM313

Learning objectives:

By the end of LIM413, students will be able to:

1. Apply the principles of information retrieval and information architecture to the design of websites and intranets.
2. Develop strategies for improving the usability of websites and intranets.
3. Apply usability principles and testing in web design decisions.
4. Define the role of a web content manager.

#24 LIM415 – Information Policy

Examines the information infrastructure in relation to information policies and procedures at the institutional, national and international levels. Looks at the issues and processes involved in the development of information services and facilities in Vietnam.

Number of classes: 45

Number of credit points: 3

Learning objectives:

By the end of LIM415, students will be able to:

1. Explain the role of international, national and institutional information policies in the Vietnamese context.
2. Discuss information issues in Vietnam with respect to topics such as intellectual property, access to information, and trans-border data flow.
3. Understand information issues such as censorship and privacy.
4. Relate the development of information policies at the institutional level to the information life-cycle.
5. Explain the processes and various groups involved in the development of the information infrastructure and policy in Vietnam.
6. Articulate the role of information professionals in Vietnam and the issues and trends that are most likely to impact upon their future.

#25 LIM416 - Integrated Library Management Systems

Provides an overview of the components and structure of integrated library management systems (ILMS) and discusses the evaluation, selection process, implementation and maintenance of ILMS software.

Number of classes: 75

Number of credit points: 5

Prerequisite: LIM222

Learning objectives:

By the end of LIM416, students will be able to:

1. Define an integrated library management system (ILMS) and describe its general features and basic functional modules.
2. Apply appropriate techniques to determine the requirements for an ILMS in a specific context.
3. Match library needs and the existing ICT environment with the features and functions of the ILMS at appropriate intervals.
4. Master the procedures for evaluating ILMSs, including hands-on testing.

5. Critique a request for a proposal, including selection criteria, to purchase an ILMS.
6. Design and manage a strategy to implement and maintain an ILMS.

o Curriculum from the University of Social Sciences and Humanities, Ho Chi Minh City

Bachelor of Library and Information Science Curriculum

	Course	Credit
01	Fundamentals of library science	4
02	Fundamentals of information science	4
03	Fundamentals of bibliography studies	4

Professional knowledge

Core courses – 65 credits

01	Library laws	2
02	History of books, history of library	3
03	Collection development	4
04	Descriptive cataloging	4
05	MARC 21	2
06	Subject heading assignment	4
07	Classification	3
08	DDC	3
09	Collection organization and preservation	4
10	Building of searching system	4
11	Information searching	3
12	Summary method	2
13	Key word assignment	2
14	Integrated library management system	3
15	Library marketing	3
16	Regional monography	2
17	Organization and management of library and information activities	4
18	ICT 4 application in library	

19	Electronic library, digital library	3
20	Information products and services	4
21	Electronic publishing	2

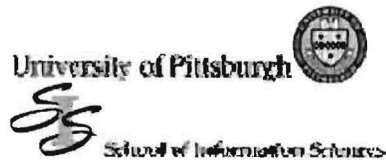
Optional courses – 12 credits

01	Fundamentals of archiveology	2
02	Social psychology	2
03	Age psychology	2
04	Communication studies	2
05	Children library	2
06	Libol - Library management software	2
07	ILib - Library management software	2
08	Virtual- library management software	2
09	Political and social bibliography	2
10	Scientific and technological bibliography	2
11	Literature and art bibliography	2

Internship, thesis or final examination – 10 credits

Total: 97 credits

APPENDIX V: Curriculum for the University of Pittsburgh Certificate of Advanced Study in Library & Information Science



Certificate of Advanced Study in Library and Information Science (CAS/LIS)

Overview

Students enrolled in the Certificate of Advanced Study in Library and Information Science (CAS/LIS) program are, in most cases, seasoned professionals who have advanced in their careers in librarianship and information management and wish to update their skills and knowledge and enhance their professional development through a planned program of individualized study beyond the MLIS/MLS degree. This flexible program provides options that vary from working closely with a faculty member in a specific research area to taking a range of course work.

The 24-credit certificate program provides an individualized program of study beyond the master's degree, and allows experienced professionals to explore such specialized fields as:

- Archives and Records Management
- Information Systems and Technology
- **Medical Librarianship/Medical Informatics (available online through the FastTrack)**
- Library Systems Management
- Services to Children and Youth
- Preservation Management

CAS/LIS Admission Requirements

For admission to the Certificate of Advanced Study in Library and Information Science (CAS/LIS) Program, applicants must:

- Possess a Master's degree from a program accredited by the American Library Association or a Master's degree in Information Science, with a quality point average of 3.00 (on a scale with A having a value of 4 points per credit), or equivalent qualification.
- Choose a DLIS advisor who agrees to direct the student's work in the CAS/LIS program. A personal interview with the advisor is recommended.

CAS/LIS Program Requirements

To receive a CAS/LIS you must complete a total of 24 credits of course work acceptable to the advisor with a grade of B or better.

CAS/LIS Statute Of Limitations

Requirements for the CAS/LIS must be completed within a period of four calendar years from the student's initial registration in the program.

The specific courses for the **ONLINE CAS/LIS with a specialization in Medical Librarianship/Medical Informatics** are

Four courses are required

- LIS 2586 Health Sciences Information Resources & Services
- LIS 2585 Health Consumer Information Resources & Services
- LIS 2587 Applications in Medical Informatics
- LIS 2901 SuperCourse: Epidemiology and Public Health

Choose four from the following list

- LIS 2542 Indexing and Abstracting
- LIS 2670 Digital Libraries
- LIS 2635 Information Architecture
- LIS 2830 Marketing & Public Relations for Libraries
- LIS 2850 Library Instruction: the Role of Library in Teaching and Learning

Students may transfer up to 2 graduate courses (6 credits) from an accredited university, providing that the courses have not been used for another degree. If one or two courses are transferred, then the elective course load is reduced to two or three LIS courses.

Adapted from <http://www.sis.pitt.edu/~dlis/degrees/cas.html> April 17, 2007