Research Plan

The Maine Ariel Project

A. Specific Aims

The Maine Ariel Project is a state-wide initiative by Maine Medical Center (MMC), Maine’s largest health care provider, teaching hospital and research center, in collaboration with the Health Science Libraries and Information Consortium (HSLIC), a non-profit coalition of 45 of Maine’s medical, academic, and research center libraries. The Maine Ariel Project is designed to significantly enhance the capacity of health science libraries to use the Internet and other technologies for faster and more convenient access to biomedical and scientific journal articles, resulting in major improvements in the quality of document delivery. The Maine Ariel Project builds on HSLIC’s long-established foundation of resource sharing and education among libraries in Maine’s hospitals, higher education institutions, and research centers. The project also follows the successful model of the Maine Electronic Document Delivery Project of the New England Regional Library of Medicine that has demonstrated the many advantages of speed, efficiency and document quality for libraries using the Ariel® Software program.

The Maine Ariel Project has this goal:

Maine’s health care professionals, public health officers, allied health professionals, researchers, educators, students, and other citizens will have a timely, reliable and convenient system to access information from biomedical and scientific journals as well as from consumer-oriented health newsletters and magazines.

The Maine Ariel Project has these three Specific Aims:

1. To improve speed, convenience and document quality in the delivery of up-to-date biomedical and scientific journal articles to health care professionals, public health officials, allied health professionals, educators, and students.

The Maine Ariel Project meets the goals of the National Library of Medicine (NLM) Information System Grant program to build, improve, and foster the use of computer and telecommunications technologies to coordinate and disseminate health information. The project is designed to broaden the sharing of information resources among hospitals, educational institutions, and other libraries in Maine. It strengthens and expands the connections between existing components of Maine’s interlibrary loan systems. It enables Maine libraries, as interlibrary loan lenders and borrowers, to better utilize and contribute to global databases of biomedical and scientific information. The project will better enable health professionals to have information at the point of patient care, whether in hospitals or in the community, especially in Maine’s remote, rural areas.

The Maine Ariel Project follows the successful model of the Maine Electronic Document Delivery Project of the New England Regional Library of Medicine. This pilot project, involving seven Maine health science libraries, clearly demonstrated how using a
system with Ariel® Software gives library patrons faster and more convenient access to information, and a highly improved quality of documents in both electronic and printed formats. The project will enable health science library patrons to request and receive documents via e-mail, eliminating the problems of faxing or postal delivery that currently impede access.

The Maine Ariel Project is designed to enable the staff and volunteers of health science libraries to more efficiently respond to the need for fast and efficient access to biomedical and scientific information. The project promotes the use of resources such as MEDLINE®/PubMed, and DOCLINE®, and Loansome Doc.

By the end of the funding period, the project expects that with the electronic document delivery capacity that Ariel affords, libraries that now require several days to deliver a document to a patron, will be able to fill 80% of those requests in one day.

The project closes a gap in technology capacity that separates libraries in Maine’s larger communities from smaller, community hospitals that are located in very rural areas. The project also advances the goals of the Maine Five-Year State Plan (2003–2007) of the Library Services and Technology Act that encourages library collaboration and expanded use of technology.

The Maine Ariel Project is an investment in Maine’s universities and technical colleges that are committed to increasing the number of graduates in health care fields to meet a shortage of skilled workers. The project also bolsters Maine’s efforts to increase research and development, particularly biomedical research.

Potential users of this system are among the more than 100,000 health care, public health, and research professionals in Maine and educators and students in the state’s University System, Technical College System, and private colleges.

Among the contributions of the Maine Ariel Project to the efforts of Healthy People 2010 is its development of an improved system to share biomedical and scientific resources. The project, as a faster, more efficient information delivery system, helps to overcome a key barrier to quality health services identified in Healthy People 2010: time constraints on physicians and other providers. The project also improves health communication and informs the public about health research so that they can make healthier choices. The project provides the research data that Maine needs to measure its progress in meeting the national goals of Healthy People 2010.

The ultimate beneficiaries of the project will be patients whose health care providers will have information where and when they need it—and in a more usable format.

2. To improve the awareness, knowledge and skills of staff and volunteers in Maine’s public libraries and secondary school libraries to access biomedical and scientific journals.

The Maine Ariel Project is designed to improve the capacity of public libraries and secondary school libraries across Maine to meet the needs of their patrons for biomedical and scientific information. The project is designed to enhance the working relationships already established between health science libraries, public libraries, and secondary school libraries. An expected outcome of the project is an improved
understanding among the staffs and volunteers of public and secondary school libraries about the resources available in health science libraries in Maine and around the globe and systems for the delivery of journal articles. The project is also designed to help public and secondary school libraries better direct their patrons to resources such as NLM Gateway.

The Maine Ariel Project can serve as a model in collaboration among health science libraries and public libraries and secondary school libraries.

3. To raise the awareness, knowledge and skills of consumers to find and use the biomedical and scientific journal articles and consumer-oriented health publications they need to make health care and lifestyle decisions.

The Maine Ariel Project recognizes the growing demand among consumers for medical information and the importance of that information being accurate and timely. Consumers—patients, their families, and the general public—are increasingly using the Internet in conjunction with or instead of using libraries to search for and retrieve health care information. By reaching out to health-related community organizations, such as the Maine Chapter of the Multiple Sclerosis Society, the project will help make consumers better aware of the health information resources available online, in public libraries, and in health science libraries; will provide information on how to get copies of journal articles, and will help consumers understand the importance of using up-to-date, accurate health care information.

B. Background and Significance

Maine’s Demographics and Geographic and Economic Climate

The timely, efficient delivery of biomedical and science information is essential to health care, disease prevention, research, education, and personal health and well-being. In the state of Maine, many barriers prevent professionals and consumers from accessing this information.

Population and Geography: Maine is geographically isolated and one of the most rural states in the nation. According to the 2000 Census, Maine’s population is 1,274,923—40th in the nation.

Maine residents are scattered across 33,215 square miles, most along the southern coast. Maine’s land mass equals the other five New England states combined. The distance from Presque Isle, in northern Aroostook County, to Kittery, the Maine’s southernmost town, is more than the distance from Portland, Maine, to Washington, DC.

Maine has 3,500 miles of coastline, and 80% of the state’s land is forested. Great distances separate many Maine communities. With the exception of buses and a few taxis in a handful of communities, Maine has no public transportation. Travel is especially difficult in winter.

Maine’s population is 96.67% white. The state has 13,156 Native American: the two largest Native American populations are the Passamaquoddy Tribe and the Penobscot Nation. Portland, Lewiston, and Bangor have growing communities of people from Asia.
and Africa, including Cambodia, Thailand, and Somalia. Hospitals, schools, and other service providers are working to make their programs more responsive to the needs of these non-English speakers.

**Maine’s Public Health Issues:** Maine has significant public health issues and is working to help consumers make informed health care and better lifestyle choices.

Maine has the nation’s 4th highest percentage of people who die from the four major chronic diseases of cardiovascular disease, cancer, chronic lung disease, and diabetes, according to the Maine Bureau of Health.

According to the American Cancer Society, Maine had the 6th highest cancer death rate in the United States from 1996–1998. And among males, Maine has one of the nation’s highest rates of mortality from lung cancer.

Though Maine’s traditional industries of lumber, papermaking, farming, and fishing are on the decline, the state’s workplace injuries and work-related illnesses remain well above national averages.

In the *Community Health Profile 2000*, the Maine Center for Public Health compiled the self-reported health status of some 24,000 Maine residents. The study showed that Maine people are more likely than the national average to be sedentary and obese and are less likely to eat fruits and vegetables. The *Health Profile* and other reports also show that Maine has high rates of dental disease.

**Education in Maine:** While Maine has one of the highest high school graduation rates in the U.S., the Census shows it is 46th nationwide in college achievement. In 1998, only 19% of Maine adults had a four-year degree (compared to a 30% national average). The Maine Science and Technology Foundation, in its November 2001 report, *30 and 1000*, ranks Maine’s spending on research and development at 44th nationwide. The Foundation says Maine’s R&D spending is $255 per worker, (compared to a $1,000 national average). The Foundation adds that Maine is 37th in the nation with its per capita income of $23,529 (compared to a $28,000 national average), and that this low per capita income means that Maine has an economic gap of some $3 billion per year.

Maine needs an educated and informed citizenry to be economically competitive in the 21st century. Numerous efforts are underway to raise the aspirations of Maine’s students and to increase post-secondary graduation rates. Maine State government, using goals set in *30 and 1000*, wants to bring Maine to or above the national average in college graduation, research and development spending, and per capita income. The key to Maine’s future, says the Maine State Planning Office that is leading the *30 and 1000* initiative, is a knowledge-based economy.

Toward that end, Maine has begun reforms at all levels of education: K-12 learning results, standardized tests, and a Technology Endowment Fund that provides laptop computers for seventh graders. At the post-secondary level, Maine has established a Community College, cooperatively implemented by the Maine Technical College System and the University of Maine System. Within the community college is a distance education system that utilizes televised and Internet-based courses, enabling Maine residents in even very remote communities to pursue undergraduate, post-graduate,
and continuing education and professional certification courses that originate at a distance.

**Maine’s Technology and Biomedical Environment:** In November 1998, Maine voters approved $20 million for research and development that includes support to the University of Maine for R&D facilities and the Maine Technology Institute to provide grants to companies and labs. Last year, the Legislature and Governor approved one-time funding of $10 million for biomedical research at the state’s non-profit laboratories, $5.5 million for a technology center serving biomedical research and other targeted technologies; and $300,000 to establish the Maine Patent Program at the University of Southern Maine.

**The Beneficiaries: Maine’s Health Care and Public Health Community, Libraries, and Consumers**

**Health Care Providers:** Health care directly accounts for nearly 60,000 full-time and part-time jobs in Maine and for some additional 35,000 related jobs. Hospitals alone provide nearly 25,000 full-time and part-time jobs, and health care represents 10% of Maine’s employment and 15% of direct private sector payroll. All of these professionals are potential beneficiaries of the Maine Ariel Project.

The Maine Department of Human Services reports the state had 2,843 physicians in 2000, including 2,494 allopathic physicians and 349 osteopathic physicians. The Maine State Board of Nursing says the state has 19,515 Registered Nurses, 1,416 Advanced Practice Nurses, and 3,323 Licensed Practical Nurses. Maine’s CNA Registry lists about 34,000 Certified Nurse Assistants.

Among other professionals in health-related fields currently licensed in Maine, or reported by professional organizations and employers, are the following:

- Acupuncturists: 89
- Naturopathic Doctors: 18
- Alcohol and Drug Counselors: 348
- Audiologists: 51
- Chiropractors: 352
- Dentists: 870
- Dental Technicians: 715
- Dieticians: 254
- Dietary Technicians: 132
- Emergency Medical Technicians and Paramedics: 378
- Medical and Clinical Laboratory Technologists and Technicians: 528
- Occupational Therapists: 752
- Certified Occupational Therapy Assistants: 150
- Medical Records and Health Information Technicians: 246
- Optometrists: 198
- Pharmacists: 1,301
- Pharmacy Technicians: 197
- Physical Therapists: 1,565
- Physician Assistants: 201
- Podiatrists: 77
- Psychologists: 588
- Radiation Therapists: 94
- Recreational Therapists: 37
- Registered Nurses: 6,950
- Respiratory Therapists: 544
- Speech Pathologists: 549
- Surgical Technologists: 182
- Veterinarians: 614

In addition to needing biomedical and scientific information for direct patient care, these clinicians need journal articles in continuing education and for re-certification.

The seven universities in the University of Maine System and the seven colleges in the Maine Technical College System had approximately 6,000 undergraduate students in 69 health care programs in 2001. The State’s only medical school is at the University of New England. Seven other private Maine colleges, including Bates, Bowdoin, Colby, and Husson colleges, offer health education programs. The undergraduate and
graduate students at these institutions need fast access to journal articles for on-campus courses, distance learning courses, and in their clinical training.

A September 22, 2002 study for the Pew Internet and American Life Project, *The Internet Goes to College*, authored by Steve Jones, describes Internet use as a staple of the educational experience for today’s college students. These students use the Internet to communicate with their professors and classmates, do research, and access library materials. The study found that 73% of college students use the Internet more than the library, while only 9% use the library more than the Internet to search for information. While students will continue to rely on the web to search for and receive much of their information, they still face limited web access to the full text of journal articles only available through libraries. Maine’s health science libraries, particularly those in colleges and universities, need the capacity to respond to the needs of this growing community of Internet savvy students.

Health and biotechnology are a major focus of the push to increase graduation from Maine’s post-secondary programs. A September 2001 report, *Maine’s Health Care Workforces Needs Survey*, by the Center for Career Development at the Maine Technical College System and the Maine State Chamber of Commerce, says that Maine needs at least 1,000 new nurses a year. In eight other health care professions, more than 300 skilled workers will be needed over the current number of Maine graduates. While Maine’s health care worker shortage is less severe than in some states, the state has significant barriers to overcome, including geographic isolation and wages that are lower than the national average. The report says Maine cannot compete with other states unless it finds solutions through the sustained collaboration by the health care industry and higher education—and with State government playing a significant role.

The project can help support this cooperative effort by providing biomedical and scientific information that the health care and education communities need.

**Consumers’ Information Needs:** Maine, like the rest of the nation, is seeing increased demand among consumers for on-line and other health-related information. With managed care, consumers must take increased responsibility for health care decisions. They need a range of information to work with their health care providers and to make healthy lifestyle choices.

Research shows that Internet-based information is and will increasingly be an important tool for consumers. In the study *Vital Decisions*, (May 22, 2002), for the Pew Internet and American Life Project, authors Susannah Fox and Lee Rainie found that from 2000 to 2002 the number of Americans relying on the Internet for critical health decisions rose from 52 million to 73 million. These consumers were researching prescription drugs, exploring new ways to control their weight, and preparing for doctor’s appointments, among other activities. *Vital Decisions* reports that on a typical day, 6 million Americans go online for medical advice—more people than actually visit health professionals. However, the report showed that when looking for Internet-based health information, a substantial majority of consumers do not follow all the verification protocols recommended by the Medical Library Association and other experts.
Hospital-based health science libraries in Maine primarily serve physicians, nurses, and allied health professionals, but also serve patients, their families, and the general public. Several of these are seeing a rise in requests from consumers for health- and disease-related information in journals and in consumer-oriented newsletters and magazines such as Arthritis Today, Cleveland Clinic Advisory, FDA Consumer, Women’s Health Watch, Health Magazine, Health After 50, and Natural Health.

For example, Stephens Memorial Hospital in Norway, serving Western Maine, had 335 consumer requests in 1999, 420 in 2000, and 531 in 2001. Eastern Maine Medical Center in Bangor now estimates that 10% of its information requests are from patients, their families and other consumers.

The Technology Gap in Libraries: Maine has 45 health science libraries that are HSLIC members; another eight hospitals, without libraries or with very low interlibrary loan volume, are not members. HSLIC is working to involve all of the state’s health science libraries in its organization.

There are about 400 public and independent libraries in Maine, all with varying organizational structures, collection sizes, staff, and operating hours. Public libraries do not have large collections of biomedical and scientific journals. Public libraries do provide health-related books and consumer-oriented health newsletters and magazines as well as Internet connections for patrons to search for health information. Maine has 125 libraries in secondary schools.

The high cost of subscriptions to journals, such as The Journal of Neurosurgery or The British Journal of Radiology, limits the ability of most Maine health science and other libraries, especially small, rural hospitals, to maintain large journal collections.

Though many health care professionals, many consumers, and some librarians are not fully aware of how to use them or lack the technology to maximize access to them, many resources are available for patrons to search for and order journal articles and for libraries to locate them.

In Maine’s health science libraries, the current gap is in the delivery of articles to patron. Typically, once a patron of a Maine health science library identifies a needed journal article, he or she visits or phones the library or makes an electronic request using Loansome Doc. If the journal is not available at that library, the library then uses several online listings of holdings to locate where that journal is held and requests an interlibrary loan. The holding library may send a copy of the article directly to the patron. But Maine libraries, limited to fax technology, usually receive the article by fax or mail. The Maine library then re-faxes or mails the document to the patron.

With this system, the document that is delivered to the patron—a second or third generation copy—is too often of poor print quality and difficult to read. This is a critical problem when journal articles provide statistics, specify dosages, and depict radiological images or photographs that affect patient care. And, the process is staff-intensive and time-consuming. Health science libraries across Maine that do not have Ariel generally tell patrons that an article coming from out of state will take more than a week and that a document coming from an in-state library will take at least two or three days. At the
Foundation for Blood Research, the average turn-around time for documents was 5.74 days in 2001. But at the University of Southern Maine’s Library, an Ariel user, documents requests from in-state libraries are filled in one day.

Equally important to the problems of serving their own patrons, Maine health science libraries lack the capacity to meet their obligations to lend to other in-state and out-of-state libraries with state-of-the-art speed and quality.

The following is a selected list of Maine libraries and their annual volume of interlibrary loans for journal articles:

<table>
<thead>
<tr>
<th>Library</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridgton Hospital</td>
<td>186</td>
</tr>
<tr>
<td>Cary Medical Center</td>
<td>228</td>
</tr>
<tr>
<td>Central Maine Medical Center</td>
<td>2,114</td>
</tr>
<tr>
<td>Eastern Maine Medical Center</td>
<td>1,835</td>
</tr>
<tr>
<td>Foundation for Blood Research</td>
<td>423</td>
</tr>
<tr>
<td>Franklin Memorial Hospital</td>
<td>897</td>
</tr>
<tr>
<td>Goodall Hospital</td>
<td>31</td>
</tr>
<tr>
<td>Husson College</td>
<td>1,997</td>
</tr>
<tr>
<td>Jackson Laboratory</td>
<td>2,901</td>
</tr>
<tr>
<td>Maine Coast Memorial Hospital</td>
<td>174</td>
</tr>
<tr>
<td>Maine General Medical Center/Waterville</td>
<td>1,368</td>
</tr>
<tr>
<td>Maine Medical Center</td>
<td>6,318</td>
</tr>
<tr>
<td>Mid Coast Hospital</td>
<td>645</td>
</tr>
<tr>
<td>Southern Maine Medical Center</td>
<td>940</td>
</tr>
<tr>
<td>Southern Maine Technical College</td>
<td>20</td>
</tr>
<tr>
<td>St. Mary’s Regional Medical Center</td>
<td>1,961</td>
</tr>
<tr>
<td>Stephens Memorial Hospital</td>
<td>489</td>
</tr>
<tr>
<td>Togus Veterans Administration Medical Center</td>
<td>1,113</td>
</tr>
<tr>
<td>University of Maine, Fort Kent</td>
<td>267</td>
</tr>
<tr>
<td>University of New England</td>
<td>3,236</td>
</tr>
<tr>
<td>University of Southern Maine</td>
<td>9,333</td>
</tr>
</tbody>
</table>

In this era of decreased length of patient stay, hospital clinicians must make care decisions immediately. And health professionals, allied health professionals and public health officers providing services throughout the community—often in the most remote areas of Maine—need information quickly, in a useable format, at the point of care. They need electronic access that will enable them to avoid costly and long travel time that could be better spent on patient care.
C. Preliminary Studies/Progress Report

Maine has a well-established structure of libraries and interlibrary lending policies and procedures. The Maine Ariel Project, bringing together Maine’s largest medical and research institution and the state’s coalition of health science libraries, strengthens and enhances the existing system by using a proven model for accessing information through interlibrary loans.

The Collaborators: Maine Medical Center and HSLIC

Maine Medical Center (MMC) is a non-profit community hospital for the people of central and southern Maine and is the premier tertiary care center for northern New England. The hospital provides comprehensive inpatient services in all medical specialties. MMC is developing centers of excellence in cancer care, heart care, children’s services, and other areas, building from existing excellence in multi-disciplinary services.

MMC is also a teaching hospital, with active programs in undergraduate, graduate, and post-graduate medical education. In 2001, MMC served as the learning site for 187 residents and fellows, 225 nursing students, 536 medical students, and 1,000 students in allied health professions. MMC provided 2,776 continuing education hours for physicians.

Research, with emphasis on application to patient care, is an integral part of MMC. Among MMC’s nationally recognized programs are:

- The largest open heart surgery program in New England.
- Maine’s only kidney transplantation program.
- The only Level III Neonatal Intensive Care Unit in southern, central, and western Maine.
- The first and most extensive bone marrow transplant program in Maine.
- The only children’s hospital in Maine, the Barbara Bush Children’s Hospital.
- The most comprehensive trauma center in Maine.
- A rehabilitation center, New England Rehabilitation Hospital.
- The largest hospital-based biomedical research institute in northern New England, the Maine Medical Center Research Institute. Among its programs are the Center for Molecular Medicine that has the primary research focus of cardiovascular disease, emphasizing vessel wall biology and angiogenesis. The Institute’s other areas of interest are the biology of cancer and bone disease. The Institute has become a catalyst for economic and academic growth in the region.

In 2001, Maine Medical Center served 30,562 inpatients and 218,732 outpatients. Maine Medical Center provides primary medical care and urgent medical care to all who seek it; 23% of all charity care in Maine is provided by MMC, and MMC serves a diverse population. Maine Medical Center’s International Clinic was created to fill a unique need as Portland increasingly becomes a destination for immigrants and refugees. MMC’s
Interpreter and Cross Cultural Services staff work with interpreters to ensure that patients who are not English speakers can communicate with their caregivers.

MMC has 5,600 clinical and support staff, including 1,038 physicians. The hospital, a non-profit organization, has 1 million square feet of facilities in Greater Portland. Some 700 volunteers provide 67,000 hours of service annually.

Maine Medical Center is currently managing more than $8 million in federal funds for clinical study contract agreements and research grants.

The **Library Department of Maine Medical Center** is the most comprehensive medical information resource in Maine. The Library has a staff of 8 FTEs and a collection of 5,500 books, 72 electronic texts, 564 journal subscriptions, 208 electronic journals, and 10 databases available to users. The Library answered 3,486 reference questions in the past year.

The MMC Library serves as the Resource Library for Maine in the National Network of Libraries of Medicine.

The **Health Science Libraries and Information Consortium (HSLIC)** is a 501(c)(3) organization with the purpose of coordinating cooperative, interlibrary lending efforts among health science libraries in Maine. HSLIC promotes health science libraries and librarianship, shares knowledge and experiences in library operations, fosters resource sharing within Maine, provides scholarships, and offers continuing education of health science librarians and support personnel. HSLIC’s roots date to 1973. HSLIC members are institutions or associations that have an interest in health science library resources. HSLIC is on the web at [www.hslic.org](http://www.hslic.org) where it posts general information about the organization, news for members, library links, and health information links for consumers. HSLIC also maintains an active, members-only e-mail discussion list.

HSLIC, as an organization, and its 45 individual library members are already connected to an array of state-wide, regional, national, and international professional associations of libraries and cooperative lending initiatives. As members of HSLIC, libraries agree to cataloguing and interlibrary loan policies among which is the free sharing of information. HSLIC’s Board of Directors meets at least quarterly, and the organization holds semi-annual meetings with workshops and other educational programming.

**Accomplishments to Date**

The assessment of library needs and the sharing of information on model systems are on-going HSLIC activities. HSLIC has long recognized the gaps in Maine’s interlibrary loan system and the need to better access electronic databases for biomedical and scientific information. Among those gaps are wide variations in technology capacity and in staff skill levels.

In November 2001, Maine Medical Center implemented Ariel® Software to provide online document retrieval and delivery. MMC was a test site for what was to become the Maine Electronic Document Delivery Project, an initiative of the Lamar Soutter Medical Library of the University of Massachusetts Medical School, the National Library of Medicine’s Regional Medical Library for New England. In December 2001, the five-
Ariel®. Eastern Maine Medical Center and Husson College in Bangor; the Jackson Laboratory in Bar Harbor; Central Maine Medical Center in Lewiston; Mercy Hospital in Portland; and Penobscot Bay Medical Center in Rockport—all HSLIC members—became Ariel users through the project. Maine Medical Center’s Library Services, as an experienced Ariel user, offered technical assistance to the other participants.

Maine Electronic Document Delivery Project was a major step forward in identifying a need and piloting a solution, clearly demonstrating major improvements in speed, efficiency, and document quality for interlibrary loans of journal articles.

The Maine Electronic Document Delivery Project showed these advantages to using Ariel:

Ariel enables a library to use a PC, a printer and a scanner for state-of-the-art document transmission (sending and receiving) on the Internet. Ariel works with commercially available hardware to scan articles, photos and other documents directly. Ariel enables a library to transmit the electronic images to another Ariel workstation anywhere in the world, using either FTP or e-mail, and to convert them to PDF files for easy delivery to a patron. Ariel can forward documents to a web server—eliminating the need for long-distance phone charges. Recipients can easily retrieve documents at their convenience with an appropriate viewer and e-mail and can receive and print on any PC or Mac platform. Patrons do not have to travel to a library to request or retrieve information.

Ariel is in use around the globe. Indiana University, NASA, the U.S. Department of Agriculture, and the California State University System are among Ariel users.

In early 2002, HSLIC conducted a survey of all its member libraries on their capacity to use an Ariel-based system. HSLIC found a patchwork system in place: many libraries, particularly in rural communities, had outmoded technology and staff with no Ariel training. The libraries that had participated in the Maine Electronic Document Delivery Project, which was limited to software acquisition, also needed to upgrade technology to maximize their use of Ariel. HSLIC determined that if more libraries had a standard configuration of technology (a Windows XP-compatible computer with Ariel software and dedicated Internet connectivity, a high-resolution scanner, and a high-quality printer), Maine would have the capacity for an effective state-wide system to request, locate and deliver information—quickly and with document clarity—when and where patrons need it.

HSLIC devised a plan for Maine to apply for an Information System Grant from the National Library of Medicine that would provide for technology, staff and volunteer training, and outreach to other libraries and users, including consumers. HSLIC recommended that health science libraries be provided with technology according to these guidelines:

- Each library is a HSLIC member in good standing.
- Each library is staffed a minimum of 15 hours per week by library personnel or volunteers.
• Each library agrees to dedicate its equipment to the interlibrary lending of biomedical, scientific and consumer-oriented health information.

• Each library agrees to provide high-speed Internet connectivity, e-mail services, and all other administrative and clerical support and supplies (telephone, paper, toner, postage) for the duration of the project and following the grant period.

• The library agrees that at least one of its staff will complete a HSLIC-sponsored, train-the-trainer Ariel educational program.

• Each library agrees to fully maintain and upgrade as necessary equipment and Ariel software following the grant period.

• Institutions that have two or more campuses, but one HSLIC membership, will be eligible for equipment and software at the campus with the higher volume of interlibrary loans.

• Distribution of equipment and software will be based on the size of a library’s collection of biomedical and scientific journal articles and its annual volume of interlibrary loans with those libraries with the largest collections and the highest number of items loaned having priority for project resources.

• Distribution of equipment may also be based on geographic location so that two or more installations can be completed within one region, thus reducing time and travel for the project’s Information Technology Consultant.

In September 2002, HSLIC agreed that Maine Medical Center, the largest institution in the state, a HSLIC member, a pilot site for the Electronic Document Delivery Project, and an experienced manager of federal, state and private foundation grants, should take the leadership role in applying for and directing the Maine Ariel Project in collaboration with the state’s health science libraries.

The Framework for the Information System

As members of the Health Science Libraries and Information Consortium (HSLIC), Maine’s medical, academic and research libraries participate in a number of organizations and cooperative agreements. These structures, that include interlibrary loan protocols for the free exchange of information, union listings, and continuing education programs, serve as the framework for the Maine Ariel Project.

Among those structures are:

MARINER, a service of the University of Maine, provides access to electronic information resources available through the University of Maine System’s libraries, the Maine State Library, Bates and Colby College libraries, public libraries in Portland and Bangor, and the Maine State Law and Legislative Reference Library. URSUS is the major shared catalog of these participating libraries.

The Maine Info Net Statewide Catalog, a project of the Maine State Library, combines library collections and will eventually include 10 million items in more than 300 Maine
libraries, providing a single, powerful, dynamically updated statewide library database. Currently only some of Maine’s health science libraries participate in Maine Info Net.

The Maine Library Association (MLA) links the Maine library community with the New England and national library communities as a chapter of the New England Library Association and the American Library Association. MLA offers continuing education workshops, information on intellectual freedom, minimum standards for Maine public libraries, and works to promote public awareness of Maine libraries and librarians.

The North Atlantic Health Sciences Libraries, Inc. (NAHSL) is an official Chapter of the Medical Library Association and serves professional librarians, individuals and institutions throughout New England. NAHSL provides information on health science library trends, technology and service.

The Basic Health Sciences Library (BHSL) consists of 455 health science libraries and college libraries throughout the Northeast. It promotes free, reciprocal interlibrary loans beyond state lines.

NELINET is a non-profit organization consisting of 700 academic, public and special libraries in New England. This consortium aims to facilitate the use of a full range of information resources by New England students and citizens.

Many Maine health science libraries use the Electronic Fund Transfer System (EFTS) developed and managed by the University of Connecticut Health Center. This is an efficient electronic billing system for interlibrary loan and document delivery, wherever fees are required. The system provides monthly transaction reports, eliminating the need for invoices and reimbursement checks for delivery between participants. Efforts are under way to enable libraries throughout the Eastern United States to utilize this system, and the National Library of Medicine has agreed to adopt EFTS, beginning in 2003.

The Regional Library Group, known as RLG is the non-profit international corporation of 160 universities, national libraries, archives, historical societies, and other organizations with research collections and is the producer of the Ariel® software program.

The Medical Library Association (MLA) is a professional organization for health science librarians that fosters the exchange of health science books, newsletters and magazines and offers programs for health information specialists, including an annual conference.

The National Network of Libraries of Medicine (NN/LM), administered by the National Library of Medicine, enables U.S. health professionals and the general public to access biomedical information. It consists of eight Regional Medical Libraries which coordinate services on a regional basis, along with more than 140 Resource Libraries, and 4,700 Primary Access Libraries.

The Online Computer Library Center (OCLC) is a non-profit organization of 41,000 libraries in 82 countries. This global consortium offers a full range of services including cataloging tools, reference databases and online searching services to its members. It also provides economical access to information through the WorldCat database, which is the most consulted database in higher education.
FreeShare is a DOCLINE Library Group whose members agree to fill document delivery requests free of charge on a reciprocal basis. Any DOCLINE library with holdings in SERHOLD can request to be added to FreeShare. FreeShare has more than 1,000 members in the United States and Canada.

MEDLINE® is the NLM’s database of more than 12 million citations and abstracts of biomedical and health journals published in the U.S. and around the world. The majority of publications are scholarly journals, although a few useful newspapers, magazines, and consumer newsletters are included. It can be searched by PubMed via the Internet.

MEDLINEPlus® is the NLM’s web site that references consumer health information. It provides medical encyclopedias and dictionaries, current health news, information on prescription drugs and health topics, and links to health-related organizations.

PubMed® is NLM’s search engine that provides access to MEDLINE’S bibliographic information. With its LinkOut feature, PubMed can direct users to a wide variety of relevant resources on the web, including full-text publications, biological databases, consumer health information, research tools, and more.

DOCLINE® is the NLM’s automated interlibrary loan request routing and referral system. It aims to provide improved document delivery service among the libraries in the National Network of Libraries of Medicine. DOCLINE’s Loansome Doc enables users to order documents found in MedLine.

NLM Gateway is a single interface that enables a user to search in multiple retrieval systems. Results include journal article citations, books, and serials.

Though these components are in place—biomedical and scientific information databases, search engines, and interlibrary loan agreements and protocols—Maine’s health science libraries lack an effective document delivery system to get this wealth of information into the hands of patrons quickly and in user-friendly format. The Maine Ariel Project will fill this gap.

D. Research Design and Methods

To realize its three Specific Aims, the Maine Ariel Project has the following three-year Research Plan. The project will be under the direction of the Library Department of Maine Medical Center, Portland, Maine. Janet L. Cowen, MLS, AHIP, Director of Library Services at MMC, will be Principal Investigator. Cowen will be assisted by the Library’s administrative staff. Staffing will total a .10 FTE. MMC’s Financial Services will be responsible for the management of grant funds.

An eight-member Steering Committee composed of HSLIC members, including the HSLIC Board Chair, will provide oversight for the project and will conduct several activities, including library staff and volunteer training, peer mentoring, and outreach to professionals, public libraries and secondary school libraries, and consumers. The Steering Committee will be the decision-making body on the disbursement of project funds for technology, help ensure that the project does not duplicate other efforts, and provide linkages to library networks within Maine and across the nation.
Activities of the Maine Ariel Project, according to Specific Aims, are as follows:

1. **To improve speed, convenience and document quality in the delivery of up-to-date biomedical and scientific journal articles to health care professionals, public health officials, allied health professionals, educators, and students.**

The Maine Ariel Project will provide technology to health science libraries and will train the staff and volunteers of health science libraries to enable them to more efficiently and effectively access biomedical and scientific information resources; serve patrons; participate in interlibrary loan systems as lenders and borrowers; understand project aims, and reach out to the medical, public health, and educational communities.

**Technology Distribution Plan:** Project funds will be used over the first two years for the purchase of technology that will enable 27 health science libraries to become Ariel users. In the third year, the project will enable 14 other libraries that currently use older versions of Ariel or outmoded technologies to bring their systems up to Ariel standards. This is expected to be an updated scanner or a newer version of Ariel, for a total value of no more than $1,500 per site.

The project will authorize the 27 library sites, according to project priorities, to purchase and be reimbursed for technology meeting specifications for the most up to date version of Ariel: a desktop computer, a laser printer and a high-resolution scanner. Libraries will receive the Ariel® software program. The project will also enable sites to acquire cables, surge protectors and other computer-related supplies needed to dedicate the systems to the interlibrary loan of journals and consumer-oriented health periodicals. Library sites will be responsible for Internet connectivity, toner, paper, and other supplies. The project expects at least four libraries to have installed Ariel systems by Month 5 of Year 1; another, nine by Month 12 of Year 1; another seven by Month 3 of Year 2, and another seven by Month 6 of Year 2.

These libraries, based on needs assessments, would receive the following technology:

**Year 1: Computer, Printer, Scanner and Ariel® Software:**

- Central Maine Medical Center, Lewiston
- Central Maine Technical College, Auburn
- Eastern Maine Technical College, Bangor
- Foundation for Blood Research, Scarborough
- Franklin Memorial Hospital, Farmington
- Kennebec Valley Technical College, Fairfield
- Mid Coast Hospital, Brunswick
- Northern Maine Technical College, Presque Isle
- St. Mary’s Regional Medical Center, Lewiston
- Southern Maine Medical Center, Biddeford
- Southern Maine Technical College, South Portland
- Stephens Memorial Hospital, Norway
- Togus Veterans Administration Medical Center, Augusta
Year 1: Ariel® Software only:
   Central Maine Medical Center, Lewiston

Year 1: Computer, Printer, and Scanner:
   Eastern Maine Medical Center, Bangor.

Year 2: Computer, Printer, Scanner, and Ariel® Software:
   Aroostook Medical Center, Presque Isle
   Bangor Mental Health Institute, Bangor
   Bridgton Hospital, Bridgton
   Cary Medical Center, Caribou
   Goodall Hospital, Sanford
   Houlton Regional Hospital, Houlton
   Maine Coast Memorial Hospital, Ellsworth
   Miles Memorial Hospital, Damariscotta
   Northern Maine Medical Center, Fort Kent
   Parkview Hospital, Brunswick
   Redington-Fairview General Hospital, Skowhegan
   Waldo County General Hospital, Belfast
   University of New England, Biddeford

Year 3: Hardware or software upgrades as necessary to meet the most up-of-date
version of Ariel® Software:
   Bates College, Lewiston
   Husson College, Bangor
   Jackson Laboratory, Bar Harbor
   Lewiston-Auburn College, Lewiston
   Maine General Medical Center, Augusta
   Maine General Medical Center, Waterville
   Maine Medical Center, Portland
   Mercy Hospital, Portland
   Penobscot Bay Medical Center, Rockport
   St. Joseph’s College, Standish
   University of Maine, Augusta, Augusta
   University of Maine, Fort Kent, Fort Kent
   University of Maine, Orono, Orono
   University of Southern Maine, Portland

Further details on these institutions, including the counties they serve and the size of
patron communities, are in the Appendix.

The final priorities for distribution of funds for equipment will be determined by Month 3
by the Principal Investigator and the Steering Committee. The project will use as its
guidelines the priorities developed by HSLIC, outlined earlier, and will require a
demonstrated assurance from each library of its commitment to the project and continued implementation of the Ariel-based system.

The project will work with vendors to seek a group price for hardware. However, it is expected that because individual libraries already have well-established relationships with vendors, libraries will purchase equipment and be reimbursed by the project. By Month 2, the Director of Financial Services at Maine Medical Center will set up a system to verify authorized purchases and reimburse library sites. The project will seek a consortial price for the purchase, licensing and any upgrading of Ariel®.

By Month 4, the project will contract with an Information Technology Consultant for the on-site installation of all hardware and software. The IT Consultant will be experienced in the configuration, installation, and programming of hardware that meets the project’s Ariel specifications. The IT Consultant will install each computer that will be linked to the Internet and dedicated to interlibrary loans of journal articles. The IT Consultant will cooperate with the information technology staff of library sites to prevent firewall and other security conflicts.

Because library sites are widely scattered across Maine, the project expects to install systems on a regional basis to reduce consultant travel. The project expects each site to require two days of consultant time; some sites will require two additional days of travel. The IT Consultant will also be available to each library for up to three hours of support, by phone or e-mail, for three months after installation. The project expects, however, that libraries will use their in-house information technology staff for hardware issues. Ariel® Software maintains toll-free and on-line user assistance support that library sites can access as needed.

Once a library’s hardware, software, and human resources are in place, the project expects that in 80% of the interlibrary loans involving an Ariel-to-Ariel transaction, the patron will receive the needed document within 24 hours of the lending library’s receipt of the loan request. As with current interlibrary loan protocols, participating libraries will be permitted to charge reasonable fees for some transactions and will give priority to requests for information needed in clinical emergencies.

**Training in Ariel® Software and Project Goals:** All project sites will be required to participate in training in the use of Ariel® Software and in project goals and activities.

By Month 4, the project will contract with a Training Consultant to design a full-day training program. The Training Consultant will be skilled in the use of Ariel; state, regional and national interlibrary loan resources; project aims, activities, and timelines; and methods of outreach.

The Maine Ariel Project will conduct the trainings (three in Year 1; three in Year 2; and two in Year 3) at scattered sites. The sessions will use the train-the-trainer model and include hands-on instruction in Ariel software. The Training Consultant will collaborate with Ariel to design and help conduct the training. Two HSLIC members who are experienced Ariel users and participants in the Maine Electronic Document Delivery Project will assist with each training session.
The training will also explain the responsibilities of the participating libraries in reaching out to the health professionals, faculty, students, and consumers in their institutions and communities. The training will provide model outreach materials. (Outreach is detailed below). The training will also cover the responsibilities of participating libraries for data collection for the project’s evaluation.

Libraries will be required to send at least one staff person to the training; two representatives will be welcome as project resources permit. The Maine Ariel Project recognizes that many hospitals rely on volunteers to fulfill interlibrary loan requests, and libraries may send a volunteer to the training along with a staff person. Each library’s staff person will, in turn, train his or her colleagues in using Ariel, project goals, and outreach. The Maine Ariel Project expects to train 12 individuals at each training session.

**Peer Mentoring:** Library staff and volunteers who need additional, one-to-one assistance, particularly in maximizing their use of Ariel software, will have access to the project’s peer mentoring services. These staff and volunteers will be welcome to visit or phone a HSLIC-member library that has experienced Ariel users. By Month 4, the Principal Investigator and the Steering Committee will designate libraries that can offer peer mentoring and will post information about using the service on the HSLIC web site.

**Outreach:** To maximize use of the Ariel system and to reach other Specific Aims, the Maine Ariel Project will conduct a range of outreach. This will encompass enabling library sites to reach out to potential users within their institutions and communities; general outreach to state-wide organizations in the health care, public health, education and library communities; and targeted outreach to Maine’s state-wide and regional consumer services organizations such as the American Cancer Society. The project will also distribute a general media release, with the award of funding, to Maine’s daily newspapers, selected weekly newspapers and public radio.

To design and help conduct outreach, the project will contract with a *Marketing Consultant* by Month 3 of the project. The Marketing Consultant will be experienced in media relations, public relations, and working with the health care and/or education communities. The Marketing Consultant will be responsible for developing electronic templates for the project’s outreach materials. This will include descriptive or “boilerplate” language about the Maine Ariel Project, its goal, aims, and proposed activities. The Marketing Consultant will also develop descriptive information on how patrons can use and benefit from the Ariel-based document delivery system and other project resources. In addition, the Marketing Consultant will develop information specifically aimed at consumers, including how consumers can find and use up-to-date, accurate information to make health care and lifestyle choices.

The electronic templates of outreach materials will include news alerts, flyers, posters, and informational letters. The templates will be designed to be easily and economically adapted by project library sites and by public libraries, secondary school libraries, and service organizations. For example, the Marketing Consultant will develop a brochure template in MS Word, for hospital clinicians. The template and instructions will be downloadable from the HSLIC web site. A health science library would simply add site-specific information, such as its logo and contact information, and print the template.
using a standard laser printer. The electronic templates will also include information for use in newsletters or for posting on web sites or intranets. Library sites will be able to use the descriptive information in materials used in staff trainings, faculty or student meetings.

The Maine Ariel Project will use a commercial printer for one brochure, a poster, and other informational materials for outreach presentations at events such as the annual meeting of the Maine Library Association. The Marketing Consultant will be responsible for developing these materials. The outreach electronic templates and other printed outreach materials will be available by the Month 6 and updated as necessary through the project.

Throughout the funding period, the Marketing Consultant will identify outreach targets and the most efficient way of reaching them. This will include mailing lists of organizations and web site links. In a general outreach effort, the Maine Ariel Project expects to target at least 25 organizations such as the Maine Hospital Association, Maine Medical Association, Maine Health Care Association, Maine Osteopathic Medical Association, Maine State Nurses Association, Maine Occupational Therapy Association, Maine Teachers Association, the Maine College Health Association, the Maine Center on Public Health, Maine Bureau of Health, Maine Telemedicine Services, and municipalities with public health divisions, including Portland and Bangor. The project will contact these organizations, and make them aware of information about the project and its aims that they can use in newsletters or web sites.

The Marketing Consultant will also assist with developing the project’s training to ensure that participating libraries can use the outreach materials.

2. To improve the awareness, knowledge and skills of staff and volunteers in Maine’s public libraries and secondary school libraries to access biomedical and scientific journal articles.

The Maine Ariel Project recognizes the vital role of public libraries in meeting community needs for health information and the importance of secondary school libraries in the education of Maine citizens. The experience of HSLIC members shows that consumers are more likely to go to their public library or school library, rather than to a hospital library, for biomedical information and consumer-oriented health books and periodicals. The project will work with Maine’s network of public and secondary school libraries to show them how to better meet the needs of consumers for articles from biomedical and scientific journal articles, including how to assist interested patrons in establishing accounts with a local health science library to become registered Loansome Doc users.

In the third year, the Maine Ariel Project will conduct informational forums for public libraries and secondary school libraries on the availability of and benefits of using up-to-date biomedical and scientific information. HSLIC will sponsor 10 two-hour regional forums for library staff and volunteers. The forums will be conducted in conjunction with the semi-annual meetings of the “cluster groups” of public and secondary school libraries that meet throughout the year across the state. At least three sessions will be at Maine’s larger public libraries such as the Bangor Public Library, Portland Public
Library, and Maine State Library. HSLIC will develop the agenda for the forums and will take primary responsibility for designing, scheduling and leading these events.

At the forums, HSLIC members will show libraries how they and their patrons can use resources such as the NLM Gateway and how public and secondary school libraries can collaborate with their community’s health science library to meet patron needs.

The forums will show libraries and secondary school libraries how they can access the project’s electronic templates for outreach materials, downloadable from the HSLIC web site, and use the templates for their own flyers, brochures, newsletter articles, media releases, or news alerts. The templates will have information explaining the importance of consumers using accurate and up-to-date information to make health care and lifestyle decisions, including protocols for verifying health information on the Internet.

The forums will also assist libraries in meeting the needs of non-English speakers for journal articles and other health information.

3 To raise the awareness, knowledge and skills of consumers to find and use the biomedical and scientific journal articles and consumer-oriented health publications they need to make health care and lifestyle decisions.

Large numbers of consumers who seek health information search on their own, using the Internet, without the assistance of libraries. In the third year, the Maine Ariel Project will conduct general outreach through a wide variety of community-based service organizations in an effort to raise consumers’ awareness, knowledge and skills about health information resources and recommended protocols to follow when searching for information.

The project will reach out to consumers through state-wide and regional organizations such as Maine Parent Federation, the Muscular Dystrophy Association, the Learning Disabilities Association of Maine, the Maine Alzheimer’s Association, Aroostook Agency on Aging, the Multiple Sclerosis Society/Maine Chapter, Penquis Community Action Program, Maine Center for the Blind, and the Eastern Maine AIDS Network.

With the help of the Marketing Consultant, the project will identify and contact at least 30 consumer service organizations in Year 3. The project will send a general cover letter or news alert about consumer information needs and will direct organizations to the HSLIC web site for downloadable information they can post on their web sites or publish in newsletters. These outreach materials will describe the methods consumers can use to access journals and consumer-oriented newsletters and magazines and how consumers can follow recommended protocols to verify the source, date, and content of Internet-based health information. The outreach materials will also inform consumers about the NLM Gateway and the Medical Library Association’s recommended consumer health and disease-specific web sites.

The Maine Ariel Project will conduct similar outreach to public agencies that have web sites and other information outlets targeted to consumers. Among those agencies are the Department of Behavioral and Developmental Services, the Bureau of Elder and Adult Services, the Long-term Care Ombudsman, the Coordinator of School Health
Programs at the Maine Department of Education, and NAMI Maine for consumers of mental health services, and the Center for Community Inclusion which is Maine’s University Affiliated Program. The project will also provide information to the Maine Bureau of Health which is coordinating Maine’s response to the federal Healthy People 2010 initiative.

The project will reach out directly to Maine’s Native American and other minority populations and to organizations and publications such as the Pleasant Point Tribal Governing Body, *The Sipayik Bulletin*, the Pleasant Point Health Center, The Penobscot Indian Health Service, the Refugee Resettlement Program, and the Portland & Lewiston Collaborative Refugee Services Program. The project will also collaborate with the staff within HSLIC member institutions that are responsible for services to consumers who are members of minority populations.

Throughout the funding period, HSLIC members will also make public speaking engagements at community-based organizations concerned with the health of Maine citizens, such as Rotary and Chambers of Commerce. HSLIC members will speak to at least five organizations a year describing the project and the role of biomedical and scientific information in health care and research and how consumers can find and use health care information.

**Management Plan**

The Maine Ariel Project will be under the direction of the Library Department of Maine Medical Center and staffed by Library personnel. Maine Medical Center’s Director of Library Services, Janet L. Cowen, MSLS, AHIP, will serve as Principal Investigator.

The **Principal Investigator** will be responsible for the day-to-day management of the Maine Ariel Project. The Principal Investigator will report to the Associate Vice President for Information Services at Maine Medical Center. Among the responsibilities of the Principal Investigator are:

- Training, supervising and coordinating project staff.
- Collaborating with the Steering Committee and HSLIC.
- Serving as the single point of contact for the project.
- Contracting with and overseeing the Information Technology Consultant, Training Consultant, and Marketing Consultant.
- Overseeing all record-keeping and logistics, such as space, printing, and mailings.
- Maintaining project mailing lists and e-mail alert lists.
- Serving as liaison to Financial Services and other departments at Maine Medical Center.
- Scheduling and overseeing training and peer mentoring and ensuring that library sites participate in the project’s training.
- Overseeing project outreach, including coordinating outreach activities by HSLIC.
- Overseeing the design and implementation of the evaluation plan.
- Disseminating project results.
- Preparing and submitting required reports to the funding agency.
Maine Medical Center’s **Financial Services** will be responsible for the project’s financial-related activities. Responsibilities will include:

- Meeting administrative requirements set by OMB Circular A110, revised.
- Direct and indirect cost charging.
- Reporting on all program finances.
- Submission of financial reports.
- Billing/cash management.
- Monthly financial statement reports to the Principal Investigator.
- Securing documentation for A-133.
- Time and effort reporting.

An **Administrative Assistant** will provide clerical assistance to the project, including correspondence, filing, mailing, meeting scheduling, and copying.

**The Maine Ariel Project Steering Committee** will provide project oversight. Responsibilities of the eight-member Steering Committee, all representatives of the Health Science Libraries and Information Consortium, will include:

- Ensuring that the project works towards its Goal and Specific Aims.
- Assisting with the design and implementation of project timelines and the evaluation and dissemination plans.
- Prioritizing sites for technology purchase and installation.
- Assisting with the selection of project consultants.
- Ensuring that the project is coordinated with the activities of HSLIC and member libraries, particularly the reporting and collecting of interlibrary loan data for use in the evaluation.
- Ensuring that on-going information about project activities is shared with HSLIC members at HSLIC meetings and is on the HSLIC web site, and in the HSLIC newsletter.
- Recruiting HSLIC members to serve as trainers, peer mentors, and leaders of the forums for public and secondary school libraries.
- Recruiting HSLIC members to disseminate project results at state, regional and national conferences of health science librarians.

**Project Meetings and Reporting**

The Principal Investigator and the Maine Ariel Project Steering Committee will meet at least monthly for the first four months and quarterly for the remainder of the funding period. The project will develop an e-mail list for project staff, consultants, and the Steering Committee to handle routine issues.

**Resources Available to the Project**

Maine Medical Center will make its wide array of human and technological resources available to the project: the staff and resources of the Library Department, experienced in Ariel® Software and interlibrary loan systems; the Financial Services department that with a staff of accountants and financial analysts experienced in federal grants and that has well-established relationships with auditing firms; and MMC’s computer systems, telephone and communications systems.
Evaluation Plan

The Maine Ariel Project will conduct a self-evaluation encompassing both process evaluation and outcome evaluation. By Month 3, the Principal Investigator and the Steering Committee will determine specific evaluation tools to be used and specific data to be collected, such as evaluation forms for participants in training sessions and the forums for public and secondary school libraries, statistics on interlibrary loan requests, travel records, training agendas, meeting minutes, participant rosters, logs of disseminated materials, media releases, marketing products, financial reports, and mailing lists. The project’s training curriculum will include instruction on data collection for the evaluation. HSLIC will also post guidelines for project data collection on its web site and in newsletters.

As members of HSLIC, libraries participating in the Maine Ariel Project already compile annual data on many aspects of their operations, including the types and numbers of interlibrary loan lending and borrowing activities and the method used to deliver documents to patrons (e-mailed or picked up at the library). The Maine Ariel Project will use that data for pre-project and post-project comparisons.

The scope of the evaluation will include an examination of process or the extent to which anticipated tasks have been completed as scheduled and milestones have been achieved as planned. The evaluation will include a chronology of action steps over the three years for comparison to the work plan established at the project’s outset. Questions the evaluation will address are:

- Did the project meet time lines?
- If variations from the anticipated results developed, how were they accounted for?
- Was the project work plan modified? Why? How?
- How many hours of in-kind services did HSLIC members provide?
- What kinds of services did HSLIC members perform?

Data will be collected by HSLIC members throughout the funding period to determine the extent that changes have occurred as a result of the project. Among the expected outcomes are improvements in the speed and document quality of interlibrary loans. The project expects that in 80% of the interlibrary loans involving an Ariel-to-Ariel transaction, the patron will receive the needed document within 24 hours of the lending library’s request of the loan request. To determine whether the libraries meet that goal, participating libraries will maintain data on the time required to fulfill DOCLINE requests.

To determine patron satisfaction with document delivery, the project will randomly select 100 requests for journal articles per year (300 total) from among participating library sites. These article requests will be filled electronically, as e-mail attachments. The library will ask patrons to e-mail back comments on their satisfaction with the timeliness of the service, the quality of the document received, and the location where the document was retrieved (on site at the institution, off site in the community, or at the patron’s home.) The project will collect and analyze the results.
The project will give satisfaction questionnaires to all participants in the forums for public and secondary school libraries, asking whether they were given new and useful information about resources or health science libraries.

The project will also contact a minimum of 20 organizations that were outreach targets, including public libraries, secondary school libraries, community-based organizations, and public agencies. These organizations will be asked to return a short questionnaire asking if, how and where they used outreach materials.

Among the questions the evaluation will address are:

- By what percentage did interlibrary loan requests for biomedical health and scientific information increase or decrease among participating libraries from Month 1 to Month 36 of the project?
- How many Ariel transactions occurred during the project period?
- What was the turnaround time from the receipt of a document request to delivery of the document?
- Were library staff and volunteers satisfied with the level of training they received?
- Were patrons satisfied with the timeliness and quality of the document delivery system?

The project will submit its evaluation as part of its final report to the Information System Grant program.

**Plan for Continuation After Funding**

A condition of the distribution of technology to libraries will be their agreement to fully maintain their technology after the funding period. By Month 8, Year 3, the Maine Ariel Project will collaborate with the Health Science Libraries and Information Consortium (HSLIC) on a plan to continue staff and volunteer training and mentoring and community outreach after the funding period.

**Dissemination Plan**

By Month 5, the Maine Ariel Project and the Steering Committee will develop a dissemination plan to share on-going and final results with the library, medical, public health, and educational communities.

The project will share its results with professional library, health care, public health, and educational organizations. Each year, the Principal Investigator and HSLIC members will disseminate information to at least five organizations at annual meetings and conferences on librarianship or health science libraries, such as the Maine Library Conference. Among other dissemination targets will be the Medical Library Association and the North Atlantic Health Sciences Libraries. The project will offer to do a formal presentation or to have an exhibit at these meetings. The presentations will include the
progress of the project, sample outreach materials, and discussion of barriers encountered and solutions found.

Each funding year, the Maine Ariel Project will submit written and electronic information on its progress to at least four newsletters or web sites serving the communities of health science librarians and other librarians, such as the MLA News; National Network; NLM Technical Bulletin; Maine Memo, the on-line newsletter of the Maine Library Association; newsletters of Maine’s library districts; and the New England Region’s newsletter, the NER’eastah.

The project will also develop a listserv for anyone who wants to participate. The listserv will provide quarterly status reports on the project’s barriers and successes, a calendar of upcoming events, and a suggestion box.

In addition, the project will share its results with the Maine State Library which is responsible for implementing the Maine Five-Year State Plan (2003–2007) that encourages library collaboration and expanded use of technology.

Letters of Community Support are in the Appendix.

I. Consultants/Letters of Agreement
Letters

Maine Medical Center

and

The Health Science Libraries and Information Consortium (HSLIC)

Confirming HSLIC’s in-kind commitment
Letters of Commitment

Maine Libraries

Central Maine Medical Center, Lewiston, Maine
Eastern Maine Medical Center/Eastern Maine HealthCare, Bangor, Maine
Foundation for Blood Research, Scarborough, Maine
Maine Technical College System
Franklin Memorial Hospital, Farmington, Maine
Kennebec Valley Technical College, Fairfield, Maine
Mid Coast Hospital/Mid Coast Health Services, Brunswick, Maine
St. Mary’s Regional Medical Center/Sisters of Charity Health System, Lewiston, Maine
Southern Maine Medical Center, Biddeford, Maine
Stephens Memorial Hospital, Norway, Maine
Cary Medical Center, Caribou, Maine
Maine Coast Memorial Hospital, Ellsworth, Maine
Waldo County General Hospital, Belfast, Maine
University of New England, Biddeford, Maine
Husson College, Bangor, Maine
Maine General Medical Center, Augusta and Waterville, Maine
Penobscot Bay Medical Center, Rockport, Maine
St. Joseph’s College, Standish, Maine
University of Maine, Fort Kent, Fort Kent, , Maine
University of Maine, Orono, Maine
University of Southern Maine, Portland, Maine
Husson College, Bangor, Maine