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ABSTRACT
        The AccessMichigan Electronic Community Health Information
Initiative (AMECHII) is a response to a recommendation of the Michigan
Information Technology Commission Report recommending improved access to
high-quality health care information for all Michigan stakeholders. This
project is multi-type, including public, general academic, academic health
science, hospital, and special libraries. Objectives include extending the
current network infrastructure to serve all libraries and to negotiate
statewide licenses for core and extended electronic collections, including
reference materials and serials, recognizing the economic realities in
American hospitals and libraries and the need for economic viability of
publishers. This pilot project, if successful, will be used as a model for
other statewide information projects. The planning process, which will begin
with a comprehensive needs assessment, gap analysis, and economic model, will
result in the design of a statewide health information architecture/system
design and will include economic sustainability and new paradigms for library
collaboration and federation in the acquisition and distribution of
electronic resources over a wide area. AMECHII will also seek international
partnerships with developing countries to cooperatively develop an electronic
health information infrastructure in those nations and to seek external
funding to do so. (Author/MES)

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Creating a state-wide virtual health library: the Michigan experience

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Abstract

*The AccessMichigan Electronic Community Health Information Initiative
(AMECHII) [http://www.mphi.org/AMECHII/] is a response to a
recommendation of the Michigan Information Technology Commission Report,
"we recommend improved access to high-quality health care information for all
Michigan stakeholders." The desired outcome is ubiquitous and universal
access to high-quality, timely, reliable and valid health information for health
consumers and practitioners regardless of geographic location in the state,
many of whom are currently unserved or under served. This project is truly
multi-type-including public, general academic, academic health science,
hospital, and special libraries. The objectives include extending the current
network infrastructure to serve all libraries and to negotiate state-wide licenses
for core and extended electronic collections, including reference materials and
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countries to cooperatively develop an electronic health information
infrastructure in those nations, and to seek external funding to do so.*

Paper

The seeds for AMECHII were planted with the release of the Michigan Information Technology Commission (MITC) Final Report in September 1998. The leaders of the Michigan Public Health Institute and the Michigan Library Consortium met to prepare a systematic exploration phase. The progress of AccessMichigan serves as a key foundational element for serving the health information (1.) http://www.cyber-state.org. See MITC Final Report and health care agenda. needs of Michigan's residents and stakeholders. In early 1999, the leadership of Cyberstate.Org, the successor to MITC, began participating in the collaboration. In May 1999 a focus group was held with invited experts from hospital and health sciences libraries, administrators of health care organizations, the Michigan Library Consortium and the Library of Michigan. The focus group produced an enthusiastic consensus for beginning the design of an innovative state-of-the-art health information system for Michigan. The initial direction and goals were enhanced by the diversity of representation on the steering committee appointed to spearhead the drive for the AccessMichigan Electronic Community Health Information Initiative (AMECHII). The steering committee met for three all-day meetings and continued its communication electronic electronically.

The exploration phase crystallized the vision and long-term goals for AMECHII. The steering committee assessed trends in the new information environment, the effects of the changes in healthcare, the revitalized importance of life science research to Michigan's future and the array of technological opportunities. Michigan's strong foundational elements were identified systematically through the Michigan Public Health Institute's concerted effort to bring together librarians and information experts from the entire state, representing organizations serving multiple and diverse constituencies. The steering committee established a consensus and made energetic commitments to build an electronic health information system within Michigan of national and global stature.

Vision and Goals

AMECHII's vision is to improve the health and well being of all Michigan residents by building the capacity to organize and deliver high-quality, reliable and valid health and life science information in ways that are cost-effective and without geographic or economic barriers.

AMECHII's goals, drafted in the exploration phase, are to use technology to improve the health and well-being of all Michigan residents by:

- nding and enhancing the AccessMichigan/Michigan Electronic Library by licensing, organizing and delivering comprehensive health and life science information resources;
- Increasing the quality of access to health and life science information resources;
- Increasing Michigan residents' usage of health and life science information resources by providing a gateway to health information;
- Increasing the cost-effectiveness of the delivery of health and life science information throughout Michigan;
- Demonstrating the effectiveness of new collaborative approaches to planning, funding and implementing statewide delivery of health and life science information.

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Who Will Benefit?

A Benton Foundation report states that A growing number of policymakers, healthcare providers, and consumers believes information resources hold the key to improving the health care system. These advocates say that judiciously collected and effectively communicated information can help professionals provide better care, turn patients into enlightened consumers of (2.) Benton Foundation. 1999. Networking for Better Health Care: Health Care in the Information Age. http://www.benton.org/Library/health/intro.htm health services, and ultimately enable individuals and communities to address some of the root causes of illness before professional intervention is required.

AMECHII's primary beneficiaries will be Michigan residents - students, clinicians, seniors, scientists, government officials, and all health consumers - regardless of geographic location or socioeconomic status, and all institutions and organizations that serve their health-related needs.

How Will AMECHII Work?

A proposed one-year strategic planning process will delineate the information, health, user and technological needs and challenges, ultimately producing a health information architecture consistent with Michigan's emerging information infrastructure emanating from the achievements of Cyberstate.Org, Michigan Virtual University and other key initiatives. The proposed AMECHII strategic planning process is designed to maximize collaboration and consultation among stakeholders, and includes evaluation protocols to assure that its outcomes support Michigan residents as well as the major existing institutional programs. It will produce a precise information architecture and associated deliverables that will lead to full-scale AMECHII implementation. Members of the exploration phase steering committee reached an initial consensus on the main components likely to form the basis of AMECHII.

AMECHII will consist of four major components:
- ss to major, complete sources of high-quality health information: commercially-produced bibliographic indexes, full-text databases and reference materials, and electronic journals. This category of resources critical to the AMECHII vision, for these are the resources currently accessible to the fewest number of Michigan residents. Today, only the largest academic institutions and corporate environments have electronic access to varying subsets of this category. These resources have experienced explosive growth in both volume and cost. Many publishers/producers offer statewide licensing options that have the potential of widening access appreciably, possibly lowering direct costs, and certainly lowering indirect costs. Using the AccessMichigan model AMECHII will aggressively pursue licensing strategies to obtain terms consistent with its vision and goals.
- Access to online health information, data and expertise. AMECHII will be the entry point, or gateway, to electronic health information resources for a healthier Michigan. AMECHII will build on existing resources to offer all Michigan residents the health information they need, when they need it. This gateway will have links to Internet resources and will have them well-arranged for easy browsing with options for different categories of users and user needs (e.g., age groups, literacy levels, cultural preferences, etc.). The gateway will facilitate a variety of online community activities such as discussion groups and conferencing areas. As technology

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continues to develop, AMECHII will explore emerging technologies including video-on-demand, and audio and video capabilities to link consumers with healthcare providers, educators and other sources of knowledge and assistance.

- Access to Educational Programming and Tools: Sustaining communities of users is key to AMECHII's long-term viability and impact. Learning tools and aids to assist users in effectively using AMECHII's resources will be developed as both integral components of the system and possibly as separate tools that can be used independently or in the classroom, integrated with health-related curricula.
- Access to Michigan Health Information: Identifying Michigan health information and data about Michigan health services, expertise, programs and products and making such information easily available is important to both Michigan residents and Michigan's global visibility.

Problem Statement

Most Michigan residents--health professionals and consumers--do not have quick, affordable and easy access to high-quality health information, nor is there an information infrastructure in place that will deliver this information.

Health Challenges and Opportunities

Michigan's health indicators, reported annually by the Michigan Department of Community Health, show marked improvement in health status in some of the key indicators, no change in others, and a movement in the 'wrong' direction for obesity and smoking. With a population of 9.7 million, one in every three Michigan families will face a major illness this year. One of every eight Michigan women will contract breast cancer and Michigan remains among the top five states in cardiac and hypertensive illnesses and obesity. There are many health issues of particular importance to Michigan residents for which substantive, high-quality information is currently difficult to obtain for the individual, the healthcare provider, policymakers, researchers or educators. These include resources applicable to minority health,

toxicological and environmental health issues and public health information pertinent to specific Michigan locations and populations. The breadth of Michigan's health issues and ambitions for life sciences research which can be improved and/or affected positively by AMECHII must be identified, selected and prioritized through extensive collaboration and consultation with a wide range of stakeholders.

Managed care has created the largest change in the U.S. health system in this generation. New economic forces of cost-reduction and competition are causing many systemic changes, including influencing the ways health information is delivered to clinicians and consumers. In some unfortunate instances, hospital libraries have been eliminated entirely or their size and personnel reduced resulting in diminished service. Ironically, the recent attention drawn to the Institute of Medicine report on the number of errors occurring in U.S. hospitals serves to underscore the misfortune inherent in the reduction of library services in the clinical environment. Ready access to data, information and knowledge is assuredly one of several obvious solutions for reducing errors and improving the quality of care.

Information Challenges and Opportunities

The new information environment offers the opportunity to create a system for equitable and unimpeded access for all Michigan residents to health information resources where and when they are needed. This vision recognizes that the system must accurately reflect Michigan residents' needs, expectations, demographics, and geographic and economic obstacles. All potential AMECHII users, including minorities, women and persons of limited resources, should have full access to all programs and services. The costs of access to information, including factors such as the monumentally increased costs of access to the highest quality life sciences information, the gap between the technological (3.) Michigan Department of Community Health. Critical Health Indicators 1998. http://www.mdch.state.mi.us/dch/hlpd/trend.htm
(4.) Kohn L, Corrigan J, Donaldson M., eds. 1999. To Err is Human: Providing a Safer Health System. Washington, D.C: National Academy Press, Institute of Medicine, Committee on Quality of Care in America. http://www.nap.edu/books/0309068371/html/ 'haves' and 'have-nots' relative to technology ownership and technology literacy alike, are beginning to be better understood.

Michigan's libraries face significant economic challenges, including rapid price escalation of commercially-produced and distributed health and life science information and knowledge, threats to the funding of public libraries, and continuing economic pressures on hospital, academic and corporate libraries to reduce costs. At the same time, there is increased emphasis on, and need for life-long learning, distance education, and demands by library users of all types for more and better information delivered 'to the desktop.'

With the explosive growth of scientific, technical and medical information available in digital formats (as well, with increasing amounts available solely in electronic form), a major paradigm shift is occurring in information delivery methods. Libraries and other institutions are now able to license these electronic products and deliver to user communities distributed over large geographic areas rather than being limited to those within driving distance of the "warehouse of physical objects" - the print library. In order to maximize and equalize the access Michigan residents have to health care information, it is imperative that Michigan move ahead in developing new strategies to take advantage of these shifts. Michigan librarians are poised to do this, and have already begun the process through the development of AccessMichigan, the Michigan Electronic Library, and the other progressive building blocks forming Michigan's existing capabilities.

Technological Challenges and Opportunities

Assessing the technological capabilities and potential of Michigan's vast infrastructure is another exciting challenge for AMECHII. To meet and support AMECHII's goals and vision, collaboration and cooperation among experts in Michigan's private and public sectors must ensue. Assessments of the installed base of devices capable of accessing and utilizing AMECHII, selecting optimal, cost-effective routes for connecting to AMECHII, designing the technology and personnel support structure needed, and understanding the technological literacy levels of Michigan residents are critical factors.

User Access Challenges

The format and presentation modes of information resources present barriers in a number of ways. Information created for the scientist and scholar may also, for one example, be of great importance to individuals, teachers, policymakers

or the range of health workers. Language levels, 'readability,' culturally sensitive and meaningful presentation are all challenges that will be analyzed and integrated into the design of AMECHII.

AMECHII Project Background

The confluence of unprecedented changes in the information and healthcare environments and the rising tide of Michigan residents' expectations for information access have led to this pivotal moment to commence with the AMECHII strategic plan.

A concerted effort will be required to ensure that the information revolution truly produces a health information system that is more effective, equitable and capable of responding to the following expectations and needs:

- Consistently reliable, scientifically sound and unbiased information sources.
- Trusted gateways to quality information, unaffected by commercial pressures.
- Mechanisms to promote user education and increased information literacy in the service of enabling informed choice.
- Capabilities to deliver information, in effective formats, to the point of decision-making need for both consumers and healthcare providers.
- Enhancement of the consumer-provider relationship to increase shared decision-making.
- Equity in access including reaching disadvantaged persons.
- Community-focused resources that bring together the knowledge and expertise of the medical model and public health practices and needs.

Rising Expectations of Michigan Residents

Michigan is well on the way to being a leading "information" state. Substantial improvements in the individual's capacity to access information through the state's technological infrastructure have been made. In the most recent survey, reported in December 1999 , 61% of the adults surveyed had used the Internet (with 74% using it at least weekly); this represented a 9% increase from 1998. Sixty-four percent owned at least one computer. Remarkably, only 8% of the respondents had no computer available to them. Michigan ranks 9th among the 50 states in the use of online information technologies by state government, a measure of the fact that Michigan's government is embracing the shift to an information-based economy dependent on digital technologies .

The increases in Internet access in Michigan are appreciable. The proposed AMECHII strategic planning process is needed to project the capabilities of the current access infrastructure and to match them with projections of the needs expressed by stakeholders and residents. Such needs extend to reading full-text publications, viewing images or video, or using telemedicine applications such as those supporting home-based health care.

Stakeholder Identification and Analysis

AMECHII systematically and inclusively identifies key stakeholders in Michigan. This process will provide AMECHII planners with a map of stakeholders, their constituencies (potential user populations), interests and needs so that stakeholders can be represented and throughout the strategic planning process. AMECHII will serve multiple constituencies.

AMECHII will design a system that eliminates administrative, technological, and network redundancies with stakeholders appropriately and vigorously engaged. The objective of stakeholder analysis will be to identify the diversity of stakeholders that can be engaged in and served by AMECHII. This will include strengthening relationships with underserved and low-income populations as well as initiating relationships with Michigan's business and industrial communities. The following are general categories of stakeholders:

- Business and industry in the life, pharmaceutical and health sciences
- Business and industry having a stake in the health of their employees and communities
- Health care providers
- Higher education
- Libraries of all types
- Health care consumers
- State government
- Public and private technology sectors

AMECHII Strategic Planning Phase

The strategic planning process will consist of the following elements:

- Stakeholder Identification and Analysis
- Planning Process Project Administration
- Planning Process Workplan/Timeline
  (5.) Information Technology in Michigan: Adult and Teen Survey Report, sponsored by Cyberstate.Org,
  http://www.cyber-state.org/adult_teen_survey.pdf
  (6.) Progressive Policy Institute, Technology Project,
  http://207.158.225.143/states/michigan.html
- Planning Process Budget and Methods
- The AMECHII Communications and Dissemination Process
- Development of the AMECHII Project Plan

AMECHII will utilize a strategic planning model that includes a steering committee with subordinate planning teams and a stakeholder advisory committee. The steering committee will be responsible for oversight, coordination of the strategic planning process, and the communications process. Planning teams will be responsible for each deliverable. The steering committee will draft the deliverables for review by the advisory committee.

Development of the AMECHII Project Plan: Five Deliverables

The strategic planning process will produce the blueprints for implementing governance and collaborative structures capable of assuring its successful development. The exploration phase has produced initial assessments and identification of technological and societal trends. When AMECHII moves into the implementation phase, these assessments and trends will be validated or modified. Each deliverable of the strategic planning process will include:

- A new statewide health information architecture and services, including content and delivery
- Formation of a funding partners coalition, with matching components with specific funder goals and objectives, and development of new economic models for ongoing financial support of the stated information architecture

- Outcome-related goals and objectives
- Outcome measures associated with these objectives
- Priorities for implementation with accountability measures including costs, outputs, results and benefits.

AMECHII Strategic Business Plan

The strategic business plan will recommend an AMECHII governance structure optimized according to AMECHII's concern for collaboration, inclusiveness and strategic partnerships; the plan will define the requirements for AMECHII management, support personnel and processes (e.g, training and education) which will assure evolutionary growth and the ability to sustain the AMECHII community of users. The business plan will be designed so that it will be attractive to potential funding sources in the public and private sectors alike. Creation of a recommended funding plan with a number of alternative strategies will be an essential component of the business plan. Exploration of sponsorship and a variety of different partnership models will be thoroughly explored.

The plan will define measures of success during the implementation phase; it will also delineate the methods for track progress and reporting results. Successful models of governance, management and funding will be reviewed and adapted.

AMECHII Strategic Technology Plan

Due to the rapidly changing nature of all technological capabilities, the AMECHII technology plan will be strategic rather than operational.

The technology plan will include:

- Leveraging Michigan's "high tech" infrastructure and technical personnel;
- Selecting technical platforms and tools that can be readily obtained, trained and maintained;
- Increasing the accessibility of health information for diverse populations.

The plan will include baseline and ongoing assessments, of Michigan's installed base of information networks and computers, and their adequacy to support the AMECHII vision; and assessment of the technical support services needed by Michigan residents. The environment external to Michigan will continue to be scanned during the development of the strategic technology plan.

Biography:

Harvey Brenneise, MSLS, MA, is library director at the Michigan Public Health Institute in Okemos, Michigan, where he is developing the Michigan Community Health Electronic Library for the Michigan Department of Community Health. Prior to that he was systems librarian at Andrews University.

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