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Outreach to public health professionals: lessons learned from a collaborative Iowa public health project*

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In 1995, the National Library of Medicine (NLM) and the Public Health Service (PHS) recommended that special attention be given to the information needs of unaffiliated public health professionals. In response, the National Network of Libraries of Medicine (NN/LM) Greater Midwest Region initiated a collaborative outreach program for public health professionals working in rural east and central Iowa. Five public health agencies were provided equipment, training, and support for accessing the Internet. Key factors in the success of this project were: (1) the role of collaborating agencies in the implementation and ongoing success of information access outreach projects; (2) knowledge of the socio-cultural factors that influence the information-seeking habits of project participants (public health professionals); and (3) management of changing or varying technological infrastructures. Working with their funding, personnel from federal, state, and local governments enhanced the information-seeking skills of public health professionals in rural eastern and central Iowa communities.

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INTRODUCTION

In 1989, the National Library of Medicine emphasized the need for health sciences librarians to identify and reach out to unaffiliated health care professionals and provide them with information access in its report, "Improving Health Professionals' Access to Information" [1]. By 1995, when information access for these individual health care professionals could be provided with National Information Infrastructure (NII) technologies, the Public Health Service sponsored a national conference to lay out a comprehensive strategy for utilizing these technologies and for removing other barriers to information access for public health agencies [2].

The National Network of Libraries of Medicine (NN/LM) Greater Midwest Region initiated a collaborative outreach program for public health professionals in Iowa to address three of the information access barriers identified by the Public Health Service. These barriers included: (1) insufficient awareness of the applicability of NII technologies in meeting the information needs of population-based public health; (2) public health workforce that lacks essential information technology skills; and (3) organizational and financing issues that make integrating information systems or bringing potential partners together difficult. The National Library of Medicine funded the program through an enhancement to the NN/LM Greater Midwest Region contract.

IOWA BIOMEDICAL INFORMATION ACCESS PROJECT

Goal and objectives

The primary goal of the project was to provide access to biomedical information for five county health departments resulting in better information-seeking skills for health care providers in rural areas of the state.

The five objectives for this project were to: (1) provide equipment that allowed five Iowa health departments to connect to the Internet via serial line interface protocol/point-to-point protocol (SLIP/PPP); (2) connect five Iowa health departments to the Internet; (3) train staff of five Iowa county health departments on computer applications such as the Internet and Grateful Med; (4) develop evaluation tools and collect baseline data for evaluation; and (5) coordinate Loansome Doc agreements with the University of Iowa Hardin Health Sciences Library for provision of full-text articles.

Participants

The Iowa Department of Public Health, the University of Iowa Hardin Health Sciences Library, the five public

health departments, and the National Library of Medicine (through funding) collaborated with the NN/LM Greater Midwest Region to make this project a success.

The Iowa Department of Public Health was instrumental in making this project a success from the beginning. The department contacted the five public health departments and explained the project before the NN/LM Greater Midwest Region staff called the departments. This promotion made recruitment of participants much easier to conduct because contacts asked questions about their role in the project during the initial discussion rather than questioning the project itself.

The Hardin Health Sciences Library agreed to serve as a Loansome Doc provider for the participants, and the library was reimbursed by the NN/LM Greater Midwest Region for the articles supplied to the public health agencies. Providing a local contact for the health agencies was essential for planning the continuation of the project once the NN/LM Greater Midwest Region completed the one-year project.

The county public health agencies participating in the project included Cerro Gordo, Johnson, Linn, Polk, and Scott. Polk County, the largest, serves a population of well over 300,000; the smallest county health department, Cerro Gordo in Mason City, serves under 50,000 county residents. In support of the mission of the NN/LM, the chosen departments serve a wide variety of populations. Though the health departments themselves were located in somewhat metropolitan areas, their constituency included rural sections of the county; therefore health professionals had a wide range of interests and public health concerns. Two individuals from each of the five county public health agencies participated in the project.

PROJECT ACTIVITIES

Administrative responsibilities

The five county health departments and the NN/LM Greater Midwest Region each signed a Memorandum of Understanding (Appendix A) stating their responsibilities to the project. The Memorandum of Understanding made it clear that the project would only be a success if both parties agreed to collaborate and work together on the project.

Based on the recommendation and outcome of previous outreach projects, to ensure communication, a contact person was designated at each site to be responsible for maintaining equipment, scheduling site visits and training classes, and troubleshooting [3]. Two participants from each agency were identified. They included nurses, environmental health specialists, computer system administrators, physicians, lab technicians, and administrators.

Equipment selection and purchase process

Each health department was also required to identify a computer/systems contact person at the beginning of the project. The NN/LM Greater Midwest Region staff conducted a computer equipment needs assessment so that the appropriate compatible equipment was ordered to provide a minimum of two Internet-capable workstations per institution. By the end of the first quarter of the project, equipment was installed at each institution. Working closely with contacts in the agencies provided better communication and more efficient management of the equipment.

Internet connections

The NN/LM Greater Midwest Region staff considered both direct and dial access connections to the Internet for the public health agencies. While much of Iowa was connected through fiber optics, clearly, it would be several years before state funding would be available to support county health departments as well as the costs for maintaining a direct connection, including \$11,000 for installation and \$5,000 annually for upkeep. Based on this information, staff determined that this annual cost would be a burden to the health departments once the project period ended. As a result, dial access was selected for the Internet connections.

Training and support

All sites received three training visits—Introductory Grateful Med, Advanced Grateful Med, and Introductory Internet. Other outreach projects showed that continuous contact with a librarian resulted in sustained information access use [4]. Therefore, participants were encouraged to seek support from their instructors either online or via the toll-free telephone number for the NN/LM (800/338-7657). The Hardin Health Sciences Library also agreed to serve as backup should participants need assistance with searching.

At the request of the participants, Grateful Med training concentrated on AIDSLINE, HSTAR, and TOXLINE. This choice of databases contrasted with the typical training session, which would focus on MEDLINE. Understanding the needs of the participants resulted in training that was targeted to the real needs of the user, not the anticipated needs. Practice searches were developed based on participant feedback.

Evaluation

Four forms of evaluation were used to measure the attainment of the stated objectives and provide an indication of the value of accessing information at time-of-need. (1) An evaluation tool was developed to measure the effectiveness of the training sessions. Classes were restructured as recommended by the evaluations.

(2) Initially, each site was required to submit a monthly report identifying how they used the information obtained on the Internet. These reports were intended to determine both the quantity and quality of information obtained. In reality, monthly reports were not submitted, due to time constraints of the participants. However, the NN/LM Greater Midwest Region staff determined anecdotally, at least the type of information obtained. These data were obtained through the distance learning lessons submitted, questions asked about search strategies, and technology being used. (3) A count was kept on the number of articles requested through Loansome Doc. Approximately fifty documents were ordered, indicating the value of providing full-text. (4) All participants were mailed final evaluations asking about the ease-of-use and the applicability of the Internet (Appendix B). As expected, most participants found e-mail and the Web more useful than gopher, telnet, or ftp.

The project accomplished its goal of introducing these public health professionals to the Internet and its various features. Using e-mail to train them in most Internet applications and Grateful Med databases also worked out quite well. The NN/LM Greater Midwest Region staff received many requests for assistance via e-mail and only an occasional telephone call.

PROJECT SUCCESS FACTORS

Identification of success factors

Besides benefiting the public health professionals in the five participating county health departments, the Iowa Biomedical Information Access Project enabled the NN/LM Greater Midwest Region staff to identify key factors that contributed to the success of outreach projects. These factors were: (1) the importance of collaborating with local agencies in the implementation and ongoing success of information access outreach projects; (2) knowledge of the socio-cultural factors that influence the information-seeking habits of project participants, in this case, public health professionals; and (3) flexibility with technology.

Role of collaborating agencies

The staff of the project determined that involving local agencies such as the Iowa Department of Public Health and the Hardin Health Sciences Library at the University of Iowa would benefit the project. This collaboration would provide needed data, participant buy-in, and ongoing support for the participants once the project was completed. The NN/LM Greater Midwest Region staff contacted the medical education section of the Iowa Department of Public Health to discuss the project and determine the value of connecting rural public health agencies to the Internet. The director of medical education agreed that the project was impor-

tant, canvassed the public health agencies, and determined that while many of the agencies had e-mail access, none were connected to the Internet. He identified several county health departments interested in participating in a pilot project that would connect them to the Internet. The significance of this contact was multitiered: (1) public health agencies that would be interactive members of a pilot project were identified, saving the staff time and money, because assessments and various other forms of identifying participants were eliminated; and (2) buy-in for the project was obtained early on, again, saving the staff time and money that typically would have been spent convincing agencies to participate in this project. For instance, when staff contacted the agencies about the project, the agencies were expecting the telephone call, resulting in a focused conversation that was specific to the project and what could be accomplished. This process was much more rewarding for both the staff and the agencies.

The University of Iowa Hardin Health Sciences Library also collaborated on this project. The library agreed to serve as Loansome Doc provider for the public health departments. This relationship met the mission of the library to provide services to health care professionals throughout the state of Iowa. By identifying a Loansome Doc provider within the state, the relationship was expected to continue and other public health agencies were expected to begin to use the Hardin Library as a resource. Already having this service in place and involving a major academic research center in the state provided even more credibility and stability for the project. The participants were familiar with the University of Iowa and appreciated the many resources that would now be made available to them.

Knowledge of the socio-cultural factors

As stated earlier, participants in this project included nurses, environmental health specialists, computer systems administrators, physicians, lab technicians, and administrators. Classes tailored to meet their needs were essential. A combination of onsite and distance learning projects seemed to work very well for these busy public health professionals (Appendix C). A major training challenge was creating classes to meet the needs of a variety of health care professionals with various technology skills.

As anticipated, participants responded favorably to distance learning with a very high participation rate. A recent survey conducted by the University of Illinois at Chicago Library of the Health Sciences reinforced the assumption that public health agency employees participated in distance learning opportunities on a regular basis and were comfortable learning using a variety of formats. The data indicated 60% of public health agencies used distance learning for continuing

education [5]. As indicated in the literature, a major advantage of using the Internet to teach the Internet allows busy "students" to learn at their own convenience and pace, as well as in their own environment [6].

Another issue important to the success of this project was to gauge the interests and experience of the participants. Project participants were surveyed to determine what topics they were interested in exploring throughout the project. They indicated interest in everything from AIDS, government resources, and health care reform to immunizations, youth violence, and truancy. The NN/LM Greater Midwest Region staff developed training materials based on the survey results. The challenge was to tailor the assignments to topics that all, or at least many, participants might find applicable to their work. Actual searches conducted included topics about Lyme disease, Hantavirus, teen pregnancy and abstinence, drug residues in milk, statistics for board of health meetings, Somalian refugees in Iowa, grant application writing, and health database systems.

Flexibility with technology

Technology is always changing as new companies, products, and services are identified. Below are some examples of challenges presented by technology to this project along with how these challenges have been met.

At the beginning of the project, staff decided that using one Internet provider for all five county health departments would provide uniformity in terms of software used for e-mail, telnet and ftp clients, and Web browser. Unfortunately, only a few months into the project, the Internet service provider originally chosen, Iowa Network Services (INS), notified two of the county health departments that they were no longer servicing their area and that their Internet services would be taken over by a provider called Internet Navigator (INAV). Staff at the agencies made the switch with few problems.

One requirement of this project was SLIP/PPP access. However, at the time of this project, SLIP accounts were not available in all areas, and some initial participants in the project were not able to participate. In addition, two-thirds of the way through the project, INS sent all users an update to their PPP accounts. The update was voluntary; users could have continued using SLIP accounts, but this continuation would have further destroyed any consistency among project participants, and they all agreed to install the update resulting in a more successful project.

Anticipating these technology and infrastructure changes and adapting the project to work with the changes resulted in a more successful outcome. All participants understood that there was little control

over the evolving Internet and demonstrated flexibility in their willingness to work with the technology, as it was available to them.

OUTCOMES

Project success

This project successfully demonstrated the effectiveness of collaboration, the importance of understanding the socio-cultural needs of participants, and the need for flexibility when working with technology. Working with their funding, personnel from federal, state, and local governments enhanced the information-seeking skills of public health professionals in rural eastern and central Iowa communities by providing technology, training, and support for information access.

The experience with the Iowa public health departments serves as a model for connecting a unique sector of the health care profession—namely, public health agencies—to the ever-changing Internet, enhancing their information-seeking skills and ultimately improving the health of America. Perhaps most important, when contacted a few months after the project's conclusion, all five health departments were continuing their Internet access, either with the provider used in the project or through other means.

Further NN/LM Greater Midwest Region public health involvement

Beginning in 1998, the NN/LM Greater Midwest Region staff became actively involved in Partners in Information Access for Public Health Professionals, whose goal is to provide public health professionals timely, convenient access to information resources to aid them in improving the health of the American public [7]. Partners in this project include: the Association of State and Territorial Health Officials, the Centers for Disease Control and Prevention, the National Association of County and City Health Officials, the National Information Center on Health Services Research and Health Care Technology, the National Library of Medicine, and the National Network of Libraries of Medicine. Working with the public agencies in Iowa provided the NN/LM with information on the ways in which public agencies work within a state system, the information needs of public health agencies, and the technological challenges facing rural public health agencies.

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APPENDIX A

Iowa Biomedical Information Access Project June 15, 1995–April 30, 1996 Memorandum of understanding Between (Institution) and the National Network of Libraries of Medicine Greater Midwest Region

1. Participating County Public Health Department officials agree to:
 - a. designate two officials from their county health department to serve as project participants and identify one person from their health department to serve as the computer/systems liaison for the project. The computer liaison may or may not be a project participant.
 - b. attend all Internet training sessions (3–4) and all Grateful Med (2) training sessions. Courses will be provided by the National Network of Libraries of Medicine, Greater Midwest Region (NN/LM GMR) and held at each participating health department in Iowa.
 - c. complete assignments and evaluations as assigned verbally, electronically, or in written form by the GMR and to submit all paperwork to GMR in a timely fashion.

- d. submit short monthly reports to the project coordinator via e-mail.
 - e. write a final summary report of the project.
2. The NN/LM Greater Midwest Region agrees to provide the following:
 - a. computer equipment (hardware and software) needed to establish at least two high-speed SLIP connections to the Internet.
 - b. funds for installation and communications charges for two SLIP connections to the Internet through Iowa Network Services, for the period of one year.
 - c. three or four Internet training sessions of two to four hours each, two Grateful Med sessions (Basic and Advanced) of two to four hours each.
 - d. assignments (usually given electronically) to familiarize participants with specific Internet and Grateful Med applications.
 - e. support from project coordinator, project trainer, University of Iowa, and Iowa Department of Public Health liaison via telephone, e-mail, and other convenient modes of communication.
 3. Both parties will designate representatives responsible for the administration of the agreement.
 4. Failure of the participating organization to adhere to the terms of this agreement can result in immediate termination of the project.

For _____ For _____
 (Signature and title) Linda Walton, Associate
 Director, NN/LM GMR

Date _____ Date _____

APPENDIX B

Iowa Biomedical Information Access Project Final Survey

Thanks for being part of the Iowa Biomedical Information Access Project. To help us evaluate how useful the Internet is to public health professionals, please answer the questions below.

Please rate the ease of use of the following Internet applications on a scale of 1 to 5, with 1 being difficult to use and 5 being easy to use.

E-mail	1	2	3	4	5
Gopher	1	2	3	4	5
Telnet	1	2	3	4	5
Ftp	1	2	3	4	5
Web	1	2	3	4	5

Please rate the usefulness to you as a public health professional, of the following Internet applications on a scale of 1 to 5, with 1 being the least useful and 5 being the most useful.

E-mail	1	2	3	4	5
Gopher	1	2	3	4	5
Telnet	1	2	3	4	5
Ftp	1	2	3	4	5
Web	1	2	3	4	5

Please list resources that were particularly valuable to you.

Give specific URLs, addresses, names, etc., if possible. Use the reverse side of this survey to make any additional comments you may have about the project.

APPENDIX C

Iowa Biomedical Information Access Project Internet training Tentative timetable

Participants will receive two onsite training sessions. An introduction to the Internet at the beginning of the project and an HTML training session midway through the project. Other lessons will be sent via e-mail approximately every two weeks, with assignments to be completed and submitted electronically to the project coordinator. The following is a tentative schedule for assignments.

Assignments

Lesson #1 e-mail, due October 6

Project participants will learn to send and receive e-mail by sending an e-mail to the project coordinator. Project participants in the county health department will send an e-mail message to the other participant in the same health department and copy the message to the project coordinator.

Lesson #2 e-mail, due October 20

Participants will experiment with creating files or notebooks and will create a "group" mailing list that contains all county health department participants to use for the duration of the project.

Lesson #3 e-mail, due November 3

Participants will subscribe to an e-mail discussion list of their choosing. Options will be provided by the project coordinator. Monitor the e-mail discussion list for two weeks and evaluate its usefulness. At the end of the two-week period, participants will unsubscribe. They may then resubscribe if they wish. *Bonus*: Read the e-mail discussion list or another e-mail discussion list through newsgroups.

Lesson #4 gopher, due November 17

Participants will select from a list of gopher sites provided by the project coordinator. They will go to these sites and evaluate them. They will then search for a new gopher of interest to public health and alert the group via e-mail.

Lesson #5 telnet/ftp, due December 1

Participants will learn to telnet to a specific site selected from a list provided by the project coordinator. Participants will ftp files of interest to them from a site selected from a list provided by the project coordinator.

Lesson #6 Web, due December 15

An introduction to the Web, textual and graphical browsers, hypertext links, what's really going on "behind the scenes." Participants will use various browsers to find information.

Lesson #7 Web, due December 29

National Library of Medicine Resources on the Web, Greater Midwest Region home page, other resources provided by the project coordinator. Participants will find answers to questions using these resources.

Lesson #8 Web, due January 12

Public health resources on the Web, provided by project coordinator. Participants will find answers to questions using these resources.

Lesson #9 Web, due January 26

Project participants will locate resources not identified by the GMR and share their findings with other health department participants via e-mail.

Lesson #10 home page creation, due February 9

Basic rules and etiquette of home pages. Introductory HTML. Where to find resources on these topics on the Internet. Participants will critique various home pages.

Lesson #11 home page creation, due February 23

More HTML. Participants will create their first document and put it on a server.

Lesson #12 home page creation, due March 8

Additional HTML features will be introduced. Participants will create more documents and add to their home page.

Lesson #13 home page creation, due March 22

HTML tips will be introduced. Participants will create documents and add them to their home page.

Lesson #14 wrap up due, April 5

Complete any assignments missed throughout the course of the session. Participants will ask the project coordinator questions and learn how to do more advanced features on the Internet applications that interest them most.

Lesson #15 wrap up, due April 19

Continue to add to home pages, send e-mail, find and evaluate useful Internet resources.