# *Measuring the Difference*

## Guide to Planning and Evaluating Health Information Outreach

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September 2000

National Library of Medicine Cataloging in Publication

Burroughs, Catherine M. (Catherine Mary)
Measuring the difference: guide to planning and evaluating health information outreach/Catherine M. Burroughs, principal author; Fred B. Wood, project officer. — Seattle, Wash.: National Network of Libraries of Medicine, Pacific Northwest Region; Bethesda, MD.: National Library of Medicine, [2000].
"September 2000."
Includes bibliographical references.

1. Information Services—standards. 2. Community-Institutional Relations. 3. Planning Techniques. 4. Program Evaluation—methods. I. Wood, Fred B. II. National Network of Libraries of Medicine (U.S.). Pacific Northwest Region. III. National Library of Medicine (U.S.). IV. Title.

02NLM: Z675.M4 B972m 2000

Additional copies can be obtained from:

National Network of Libraries of Medicine,
Pacific Northwest Region (NN/LM, PNR)
Box 357155
University of Washington
Seattle, Washington, 98195-7155.
nnlm@u.washington.edu
www.nnlm.nlm.nih.gov/pnr

Development of this publication was a collaborative effort between NN/LM, PNR and:

Office of Health Information Programs Development
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Bethesda, Maryland, 20894
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The National Library of Medicine (NLM) maintains an enduring interest in and places great value on evaluation as a tool to enable important management decisions and to assess the quality and impact of its programs and services. Some noteworthy examples:

- In the early 1980's, NLM closed the card catalog, and management was faced with the decision to install one of two very early online systems. A comparative evaluation was undertaken in the reading room as a controlled field experiment; one system was found preferable and it provided exceptional service to our users and staff for many years.[1]
- In the late 1980's, NLM helped usher in the era of CD-ROM technology with nationwide field tests in library and clinical settings. Countless new end-users had their first introduction to easy MEDLINE searching.[2]
- At about the same time, NLM adapted a novel methodology, the Critical Incident Technique, once used to evaluate the performance of World War II bomber pilots. In the present instance, the intent was to document and assess the impact of using MEDLINE-derived information on professional activities, especially on clinical decisions and patient outcomes. We found that MEDLINE does, indeed, make a difference.[3]
- NLM has sponsored the development of evaluation frameworks for telemedicine and for health information privacy,[4] and has asked its contractors to apply these frameworks where appropriate.[5]

During this past decade, outreach to underserved populations, including those in minority or rural communities, became one of NLM's highest priorities. Yet, effectively evaluating outreach has also been one of our toughest challenges. A five-year review carried out in the mid-1990s of literally hundreds of outreach projects had among its recommendations that "NLM and the Regional Medical Libraries (RMLs) should work together to develop further expertise in evaluation methodology… [and that]… evaluation components should be an integral part of all NLM-sponsored outreach.[6]

With this objective in mind, NLM and the Pacific Northwest Regional Medical Library, along with a stellar group of advisors, undertook to develop an evaluation guide for the health sciences library community. The underlying theme is that planning and evaluating an outreach initiative is one and the same process, and that asking the right questions at the beginning is essential for getting useful results at the end. Moreover, the guide would be practical in purpose, theory-based, and offer a range of methodological possibilities and strategies that can be adapted to the most simple or complex of outreach projects. Not an easy task.

To what extent we have succeeded remains to be evaluated. We hope that the guide will be used in the field—a true "field manual"—by the RML and other librarians, health information professionals, and, in general, persons from the varied organizations that conduct outreach to users of health information. The "field" that we have in mind ranges from rural to urban to inner city, and spans a diversity of racial, ethnic, and cultural community settings. We very much need and welcome your feedback on use of the guide.

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1. Siegel, E.R., Kameen, K., Sinn, S.K., and Weise, F.O.: A comparative evaluation of the technical performance and user acceptance of two prototype online catalog systems. Information Technology and Libraries. March 1984, 3(1), 35-46.

2. Rapp, B.A., Siegel, E.R., Woodsmall, R.M. and Lyon-Hartmann, B.: Evaluating Medline on CD-ROM: An overview of field tests in library and clinical settings. Online Review, June 1990, 14(3), 172-186.

3. Lindberg, D.A.B., Siegel, E.R., Rapp, B.A., Wallingford, K.T., and Wilson, S.R.: Use of Medline by physicians for clinical problem solving. Journal of the American Medical Association, June 23/30 1993, 269(4), 3124-3129.

4. Marilyn J. Field, Editor, and Committee on Evaluating Clinical Applications of Telemedicine, Institute of Medicine, Telemedicine: A Guide to Assessing Telecommunications in Health Care (Washington, DC: National Academy Press, 1996); Committee on Maintaining Privacy and Security in Health Care Applications of the National Information Infrastructure, Computer Science and Telecommunications Board, National Research Council, For the Record: Protecting Health Information (Washington, DC: National Academy Press, 1997).

5. See NLM National Telemedicine Initiative, http://www.nlm.nih.gov/research/telemedinit.html.

6. Wallingford, K.T., Ruffin, A.B., Ginter, K., Spann, M.L., Johnson, F.E., Dutcher, G.A., Mehnert, R., Nash, D.L., Bridgers, J.W., Lyon, B.J., Roderer, N.K., and Siegel, E.R.: Outreach activities of the National Library of Medicine: A five-year review. Bulletin of the Medical Library Association, April 1996 (Supplement), 84(2), 1-60.

Health science librarians strive to ensure that health professionals and those who use health care services are knowledgeable about health information resources, and that anyone who needs access to library services can get it. This endeavor often requires reaching out to groups who are not our typical users. However, after conducting an outreach program we are often left wondering what, if any, impact we have had. In the absence of a comprehensive guide to outreach planning and evaluation each of us is left to develop our own strategies. The result is published studies whose outcomes cannot be compared. National Network of Libraries of Medicine staff, with outreach as a core mission, have been especially concerned about this lack for a number of years.

Recognizing this need, in 1997 the National Library of Medicine began a collaborative project with the Pacific Northwest Regional Medical Library to conduct a multidisciplinary study about outreach planning and evaluation. Elliot Siegel, National Library of Medicine's Associate Director for Health Information Programs Development, provided the impetus for this work. He and Fred Wood, project officer, provided leadership in the conceptualization and realization of the study and the development of this guide.

A multidisciplinary expert advisory committee provided content as well as assisted with the development process. All Pacific Northwest Regional Medical Library staff contributed to the refinement and testing of the guide.

Catherine Burroughs, librarian with the Pacific Northwest Regional Medical Library and principal author of the guide, directed the project. She took a vision of what we wanted to achieve and shaped it into reality. Demonstrating a special interest in this area, Catherine is now training and consulting about planning and evaluating outreach programs.

We hope that this guide will prove helpful to librarians and others engaged in health information outreach activities and we look forward to hearing about your experiences using it.

We thank all who contributed to this work.

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The National Library of Medicine (NLM) conceived, funded, and oversaw the study conducted by the National Network of Libraries of Medicine, Pacific Northwest Region (NN/LM, PNR) upon which this manual is based. An integral part of the NLM's vision was to convene a group of 18 national experts to advise on its development and content. Among the advisory group, seven contributed white papers that review best practices and research in their field most relevant to the mission and goals of health information outreach among minority communities. For full text versions of each paper, see http://www.nnlm.nlm.nih.gov/pnr/eval/reviews.html. Much of this manual is based on these white papers as well as on feedback from the entire advisory panel, invited reviewers and NLM and NN/LM, PNR staff. This work was partially supported by funding from the National Institutes of Health Evaluation Set-Aside Program.

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