



INFORMATION NEEDS IN PUBLIC HEALTH AND HEALTH POLICY: RESULTS OF RECENT STUDIES

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INTRODUCTION

It has long been recognized that medical practice and biomedical research both generate and require access to enormously complex and specialized types of information. As a result, intense efforts have been made over many years to ensure effective access to an ever-growing biomedical literature. For example, the National Library of Medicine (NLM) has been at the forefront of efforts to use computers and communications technologies to provide timely and comprehensive access to this literature. The advent of inexpensive personal computers, along with modem-mediated communications, made it possible for clinicians and researchers to search the biomedical literature directly via the MEDLINE database and client software such as Grateful Med.¹ More recently, the explosive growth of the Internet has provided new, easier, free access to MEDLINE via the World Wide Web.

In contrast, there has been much less organized effort to provide public health practitioners and health services policymakers with access to the kinds of information they need for their work. Certainly, public health professionals frequently do need access to the biomedical literature, but much more often, they need

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information not generally found in this literature, such as county-specific health assessment data (e.g., risk-factor prevalence data), mortality and birth statistics, air-quality information, population-focused prevention guidelines, labor and industry regulations, or health education materials.² Similarly, health policymakers need access to information that is sometimes ephemeral, often time sensitive, and infrequently available on line or even in libraries; for example, the status of bills before a state legislature or descriptions of health services or hospital governance policies used in other states.

In this paper, we review two recent studies that sought to assess formally information needs and information acquisition practices. The first study focused on public health practitioners at the local (county) health department level. The second study focused on persons engaged in health services policymaking or policy analysis.

METHODS

FOCUS: PUBLIC HEALTH

Recognizing that modern information technology is essential to the effective practice of public health, the US Centers for Disease Control and Prevention (CDC) has worked with health departments in 14 states to build computerized information networks. This group of projects comprises INPHO: the Information Network for Public Health Officials.³

In the fall of 1996, the Woodruff Foundation provided funds to the CDC Foundation to support a second stage of development of INPHO in Washington State. Specifically, this phase of Washington INPHO (dubbed WA INPHO II) was designed to ensure that truly mission-critical public health information would be made available via these networks and to provide training to the current and future public health workforce in the use and management of this information technology. Washington INPHO II began in January 1997, when the CDC Foundation provided this money to the Northwest Center for Public Health Practice (NWCPHP) at the University of Washington School of Public Health and Community Medicine, where the project is based. Washington INPHO II is a joint project of the University of Washington School of Public Health and Community Medicine, the Washington State Department of Health, and CDC.

This project has two goals, both designed to help local public health practitioners make good use of the information technology INPHO has provided: (1) to identify as precisely as possible the kinds of information various subgroups of the public health workforce use on a daily basis, and (2) to develop case study-based training materials/programs in informatics that can be used by

these (and other) public health practitioners. The information needs assessment is meant to guide WA INPHO II project staff in their efforts to ensure that the identified information resources are made available on line, and that training in the use of those on-line resources is developed.

Given the diversity of the public health workforce (see Discussion), we decided that focus group meetings with various subgroups of this workforce would be the most effective way to get this information. Focus groups (actually, facilitated discussions) seemed the most likely means of identifying information needs with sufficient specificity to direct new training and information resource development. We identified the following workforce subgroups through a series of informal meetings and presentations with state and local public health colleagues: health officers, health department administrators, nursing directors and public health nurses, environmental health directors, community health assessment coordinators, epidemiologists and disease outbreak investigators, social workers and other outreach workers, health educators, and nutritionists.

With the concurrence of the leadership of Washington's 34 local health jurisdictions (LHJs), we began to hold the focus group meetings in the summer of 1997. The leadership of Washington's two Area Health Education Centers served as discussion facilitators at these meetings. In the initial focus groups, we piloted various questions intended to elicit discussion about information use and information-seeking behaviors. Questions that generated relatively rich discussions were used again in future focus groups. Data from each focus group were recorded by several members of the team, and a summary report was prepared and circulated to the team by the Area Health Education Centers for comments and corrections following each focus group meeting. To date, we have had sessions with four LHJ leadership groups (health officers and administrators, environmental health directors, and public health nursing directors) and with LHJ assessment coordinators. Although these sessions have been very useful, we expect to glean more-specific data about information resource and training needs as we interview line-level staff. These interviews began in April 1998.

FOCUS: HEALTH POLICYMAKERS AND POLICY ANALYSTS

During December 1997 and January 1998, staff of NLM's National Information Center on Health Services Research and Health Care Technology conducted a series of informal telephone discussions as part of a pilot project to gather data on the information needs and information-seeking behaviors of professionals engaged in health services and public health policymaking or policy analysis at the federal, state, community, county, and city levels. Using an adaptation of

the critical incident technique, used by NLM previously to study the use of MEDLINE by physicians for clinical problem solving,¹ respondents were asked to focus on two particular episodes. The first was a particular time when they needed information for policy analysis or policymaking and were successful in obtaining the information needed. The second was a particular time when they were unsuccessful in obtaining the information needed. Results of this pilot provide anecdotal data that were summarized and reported at the New York Academy of Medicine forum, *Accessing Useful Information: Challenges in Health Policy and Public Health*, as reported in this issue of the *Journal of Urban Health*.

Twenty-three persons currently or formerly engaged in health policymaking or analysis were invited to participate; 16 (70%) agreed to do so. They came from the following organizations: Brandeis University, Brown University, the Congressional Research Service, Georgetown University, the Iowa Department of Public Health, the Lewin Group, the Milbank Memorial Fund, the New York Academy of Medicine, Northwestern University, the RAND Corporation, the University of California at San Francisco, the University of North Carolina at Chapel Hill, the University of Pennsylvania, and Yale University. They represent a mix of information specialists ($n = 3$), physicians ($n = 4$), and other doctoral-level ($n = 7$) or masters-level ($n = 2$) researchers. Nine reported usually or always searching for information themselves; 7 usually relied on others to search for them. Of the respondents, 12 indicated that they typically focused on health services policy, 2 on public health policy, and 2 either split their time evenly between these areas or felt unable to make a distinction.

FINDINGS

FOCUS: PUBLIC HEALTH

We identified several information resource needs that were common across groups, but we also noted substantial differences among groups in the types of on-line applications that would help them do their work and also in the styles of information seeking used within these groups. We also learned how to streamline the process for these focus groups, so that they require only about 3 hours (excluding optional Internet training) as opposed to the 6 hours we originally estimated.

Information resource needs in common

1. A portion of each management group's functions are the same—management tasks such as planning, budgeting, and supervising—and the information needs of these tasks tend to be the same.

2. All participants requested better tools and resources for contacting people: lists of persons by area of expertise, with their telephone numbers, e-mail addresses, and so on.
3. Many expressed a general need for better calendar information and scheduling tools*
4. Each group expressed reservations about using the Internet as an information resource for their work. Members of all groups expressed an interest in further training in: how to search for information effectively; how to evaluate the quality and authority of the information retrieved; knowing what kinds of data and information to seek and where to search for them; how to make use of consensus expert opinion and "best practice" information; and how to use the Web and e-mail to disseminate information to and communicate with the public, health care providers, and the media.

Cross-group differences in information resource needs and information use patterns

1. As expected, the need for certain types of information resources differed from group to group.† For example, specific environmental health resources were more useful to environmental health specialists than to public health nurses. Some groups (e.g., assessment coordinators) regularly needed access to detailed statistical data, whereas management-oriented groups tended to need quick access to well-summarized, authoritative guidelines. Geographic Information Systems resources are used more widely in environmental health than in other public health disciplines, but Geographic Information Systems applications also were noted as potentially valuable for community assessment and home health planning.
2. Some subgroups of the public health workforce are more used to incorporating external information resources in their work than others, and some are more comfortable using information technologies than others. The informatics training materials to be developed for these various subgroups will need to reflect differences in style, experience, and approach to on-line information acquisition.

FOCUS: HEALTH POLICYMAKERS/POLICY ANALYSTS

Three categories of information needs and information-seeking behavior were discernible among respondents to this pilot study. Respondents reported seeking

*This resource need, identified early, led to the development of the NWCPHP On-line Calendar; see <http://healthlinks.washington.edu/nwcpHP/cal/>.

†A full list of subgroup-specific information resource needs is available from the NWCPHP.

(1) answers to clear, discrete research questions; (2) specific statistical information; and (3) information about current practices and policies around the country. The success rate and reported satisfaction with available information and search tools varied with the category of the information sought.

Respondents in the first group reported seeking information relating to such research questions as: Why do students choose particular medical education programs in the US? What is the role of employees in health care? What are the patterns for prescribing antidepressants for children? Are there demonstrated clinical applications of total quality management? How do health maintenance organizations (HMOs) relate to their communities? In general, traditional literature searches were reported to be very satisfactory for this group. When such searches were unsatisfactory, it was because the desired information had not yet been published in traditional peer-reviewed literature. In such cases, appeals to colleagues in the field often proved useful in discovering needed, but unpublished, information. The most consistent request from this group of respondents was for better indexing for health services research and access to full-text retrieval for journal articles.

Examples of specific statistical information sought by members of the second group included trends in the number of uninsured children in the US, statistics on physician specialization, the number of people in HMOs, the number of for-profit/not-for-profit HMOs, length of stay data for newborns and mothers, and cesarean section rates by state. This group was either satisfied or partly satisfied with the results of their on-line searches. However, there were consistent requests for more state-level data, for more timely data, and for better on-line guidance as to where to look for needed statistics.

Among those seeking information about current practices and policies in health care or public health, there were inquiries about the impact of recent legislative change on various states' practices, information on governance of not-for-profit hospitals, corporate practices of large health care firms, and state practices in the context of changes in Medicaid and managed care. In general, searches for such information proved unsatisfactory or only partly satisfactory. Information on current practices and policies is frequently unavailable on line, and when it is available, it is very difficult to find using current Internet-based search tools. Respondents in this group consistently indicated that more on-line information is needed about corporate and business practices, and that better indexing for such health services information is necessary.

For all three subgroups of respondents, the quality of information was largely assessed by whether the information was published in peer-reviewed or well-

known journals, whether it came from experts known to the individual, and whether it "fit" with the body of information already well known by the individual.

DISCUSSION

ACCESSING INFORMATION: PUBLIC HEALTH

Diversity is the main reason that developing on-line information resources ultimately may be more challenging for public health than for biomedicine. First, there is tremendous diversity in terms of the subject matter addressed by public health, with a corresponding diversity in the nature of information needed by public health practitioners: air quality, violence prevention, day-care center and boarding home oversight, hospital regulation, water quality, jail health, smoking cessation, migrant health, food safety, certification of certain classes of workers, epidemic investigation and response, health promotion, injury prevention . . . the list seems endless. For each of these areas, there is an associated body of knowledge and best practices, only a small portion of which can be found in the biomedical literature.

Second, there is tremendous diversity in the sorts of people to whom public health professionals communicate information: legislators, hospital directors, news reporters, health policymakers, industry representatives, community groups, individual patients, doctors, nurses, researchers, program managers, and the general public. One style or method of communication (e.g., a scientific style as communicated through peer-reviewed literature) clearly is inadequate for such widely disparate audiences.

Finally, there is great diversity in educational background and professional cultures among persons who are all rightly denominated as public health professionals. There are nurses, physicians, and researchers, certainly; but there are also health educators, environmental health specialists, epidemiologists, health inspectors/investigators, community health assessment coordinators, administrators and program managers, laboratory workers, nutritionists, and social workers. Within a given subgroup of the public health workforce, there is also typically a great diversity of educational background, ranging from a college degree (with no requirement for a health-related major) to advanced doctoral training. Finally, there are large, sophisticated public health departments with individual specialists assigned to each of these roles and smaller health departments in which single individuals necessarily play many roles.

Just as there is no such thing as "the typical physician" when it comes to information needs, there is likewise no such thing as the typical public health

worker. The development of on-line resources for this workforce will need to reflect the diversity of training, backgrounds, missions, and audiences of the various components of the public health community. It may be tempting to listen to self-appointed spokespersons of this workforce, who claim to speak for all public health practitioners when they say, "_____ is what we *really* need on line." Unfortunately, the priorities they identify for on-line resource development are not the same as those identified by people working in other avenues of public health or even by people in similarly situated jobs.

The information needs assessment in Washington is almost complete. Interviews with line-level staff—which may paint a picture very different than that of the local health jurisdiction leadership—should be completed shortly, with final results available by late 1998.

ACCESSING INFORMATION: HEALTH POLICYMAKERS/HEALTH POLICY ANALYSTS

Just as with the public health workforce, the health policy community is also diverse in terms of its needs for information and the perspectives it brings to analyzing and interpreting that information for forming and studying policy. Policy analysis and policymaking take place at multiple and sometimes competing levels—federal, state, community, county, and city goals and needs may be quite different.

Health policy is not a discrete discipline, but rather a broad field encompassing biostatistics, epidemiology, law, sociology, operations research, psychology, medicine, nursing, administration, and planning, to name just a few areas. The types of information needed are both immediate and longitudinal, making the need for information both urgent and dependent on the passage of time. Answers to specific research questions about established practices are usually somewhat easier to find in the published literature, but information on emerging practices and specific statistics at the various levels of interest are harder to uncover. Good policy should be based on good data, but too often the demand for policymakers to act before such data are available dictates the types of information on which policy is made—sometimes anecdotal; occasionally ephemeral; often limited in scope, sample size, and applicability; and frequently hard to judge in terms of quality.

CONCLUSION

Clearly, much work needs to be done to address the diverse and sometimes unique on-line information needs of public health professionals and health policy analysts. In some cases, there are needs for complex new knowledge bases created

via linkages among multiple databases (e.g., public health-relevant geographic information systems).

However, in many other cases, what is needed is a more systematic way of capturing the so-called grey literature: policy documents, government reports, legislative summaries, industry group publications, descriptions of best practices, and so on. In general, very little of this grey literature is formally peer reviewed, most is not available on-line, and almost none of it is accessible through such trusted databases as MEDLINE. Yet, it is frequently this practice-oriented literature that is of most importance to public health professionals and health policy analysts. New systems are needed to make this large and growing body of information accessible electronically in a well-indexed, timely, reasonably comprehensive, yet meaningfully filtered, manner. The development of such systems presents new and difficult challenges to those interested in ensuring on-line access to such information for health policy analysts and public health professionals.

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