Information needs of rural health care practitioners in Hawaii*

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Rural health care workers need a wide range of specialized information but have difficulties locating and accessing information resources. The information needs of Hawaii's rural health care practitioners and their methods of accessing information were studied through interviews and mailed questionnaires. The following barriers to information access were identified: lack of funds, inadequate hardware, infrastructure problems, and insufficient knowledge about information sources and how to use them. Although many (85%) reported having computers, only a minority (30%) have modems, and even fewer use online resources or the free electronic databases at public and university libraries. Most reported that journal articles were the information source that best met their needs and that personal files or a colleague's collection were the most common places for accessing needed materials. Recommendations for solving some of the information problems include development of a State of Hawaii rural health information clearinghouse; better identification, training, and use of available services; and, most importantly, the establishment of rural health care information agents (modeled on agriculture extension agents) on each major island.

INTRODUCTION

In every state, efforts to improve health care in rural areas are hampered by a lack of trained personnel who have access to adequate and appropriate information resources. Rural areas face critical health care problems that are exacerbated by isolation, poverty, a scarcity of specialist personnel, inadequate transportation, and limited access to information. The problems of providing adequate health services and information access in rural areas are well documented [1-7].

In Hawaii, the situation is complicated further by the location of rural areas on separate islands. Of the six major islands that constitute the Hawaiian Islands, Kauai, Lanai, Maui, Molokai, and Hawaii are all federally designated as rural. (Only Oahu is considered nonrural.) A 1989 Hawaii State Department of Health Survey, part of a House resolution of the Hawaii state legislature, identified specific health problems for rural areas in Hawaii and commented that rural areas on all islands do not "receive the same quality of

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health and social services provided in urban areas” [8].

The survey identified outreach services and adequate rural health programs as important unmet needs. Health care providers from the rural population who are trained in the special requirements of such populations are needed to help address this serious problem. Access to information that is appropriate and targeted to rural health is an important part of the solution.

In preparing the House resolution, the Hawaii state legislature discovered that there is no database or central repository for information pertinent to rural health care. A variety of inefficient and unsatisfactory data-gathering techniques are utilized whenever information on rural health issues is desired, and many people probably do without information that could improve the health and well-being of rural populations. No single organization or individual has responsibility to ensure that appropriate information is available, accessible, and understandable.

If information services in rural areas are to be improved, then several steps must be taken. It is first important to understand what types of information resources are needed by all categories of health care workers in rural areas, to learn how they now get information, and to discover what barriers they perceive to improved information access. In addition, national and international sources of information on rural health must be identified.

This article describes interviews, surveys, and resource identification efforts funded as part of a three-year rural health training grant from the U.S. Department of Health and Human Services to the University of Hawaii School of Social Work. The insights gained and the information gathered will be of use to all those hoping to improve access to rural health information and to improve information services to rural health workers.

METHODOLOGY

Interviews with practitioners

Rural health coordinators on each island were asked to submit the names of a representative sample of their community's health care providers, who were then contacted by telephone to schedule interviews. Individuals who agreed to participate were interviewed. Between January and April of 1992, team members from the School of Library and Information Studies (SLIS) visited the rural-designated islands of Kauai, Hawaii, Maui, Molokai, and Lanai to interview more than forty health care workers, including physicians, nurses, hospital directors, librarians, educators, public health workers, social workers, and pharmacists. Interviews were conducted individually or in groups.

To encourage free discussion and to avoid limiting responses, the semistructured interview technique was used. All practitioners were asked to address the following questions: What are the major information needs of rural health care workers? How are these information needs now being met? What are the barriers to information retrieval? How could things be changed to improve access to and use of health information?

Survey questionnaire

The second part in the needs assessment was a written survey of all types of health care workers in Hawaii's rural areas, to find out more about their information needs, current information use, and problems in locating and retrieving information. Members of the School of Social Work's Rural Health Project on each island submitted names of individuals involved in local rural health work. Although 100 names per island was recommended, no limit was placed on the actual number submitted. These workers, as well as practitioners who had been interviewed previously, each were sent a questionnaire.

During the spring of 1992, a double-sided, one-page survey (Appendix) was mailed to 572 health care practitioners. The response rate was more than 63% (363 usable questionnaires were returned). The good response rate may be attributed in part to a cover letter informing the recipients that they had been recommended for the survey by their local Rural Health Project coordinator—a name with which they were familiar. Because the questionnaires were returned anonymously, it was not possible to follow up with nonrespondents.

The majority of questions on the survey offered multiple-choice answers, and respondents could select as many choices as they desired. Each question included an “other (specify)” answer to accommodate a variety of responses. Typical questions inquired about occupation, place of employment, type of employer, and computers and hardware used. Given a list of state and national electronic sources (including the National Library of Medicine's [NLM] MEDLARS system, other online databases, CD-ROMs), health care workers were asked to indicate their frequency of use of these information sources. There were also questions about the use of document delivery services and perceived barriers to information use.

Participants also were asked to rank their responses to the following questions: the kinds of information needed for their work, the kinds of information sources that best met their needs, and where they access these materials. They were instructed to use a scale to order their choices, with “1” as most important. A final, open-ended question asked respondents to name three things they would like to see changed or introduced to improve health information access and use.
FINDINGS

Interviews

All interviewees expressed the need for improved access to health-related information, although the specific needs varied. The needs and deficiencies generally fell into seven distinct categories: inadequate information technology or infrastructure, including lack of dedicated phone lines, modems, and micro computers, and unreliable phone service; increasing demands on local resources without corresponding added support (for example, such demands are placed on the community colleges by several health and medical outreach programs of the main campus of the University of Hawaii); high costs associated with online searching and document delivery (even though some charges are low and may not even cover the actual costs incurred by the providers, these charges were seen by many rural health workers as a barrier to use because their budgets could not accommodate any additional costs); slow turnaround time for document delivery (one to three weeks); the need for networking or consultation with colleagues throughout the state and beyond; the need for statistical data (including health status indicators, demographic data broken down for local areas by ethnicity, age, sex, etc.) for grant application preparation and program planning; and the need for directory and referral information about grants, funding opportunities, services, and information sources.

Many of the other expressed needs were not fundamentally information related but were of great concern to health care providers: the inadequate supply of qualified personnel, including physicians, nurses, dentists, respite care and prenatal care givers, social workers, and librarians; poor telephone services; inadequate funding; the need for primary care clinics, integrated health services (buildings and support); the need for improved transportation services; and the lack of affordable housing. Even these noninformational needs could be addressed in part through improved information access and services. Accurate and timely information is required to locate funding sources for grants, provide data to support grant applications, and complete reports of projects and studies that help in program planning.

Information needs were of two general kinds: those generated by a specific case or individual (diagnostic, referral, pharmaceutical needs, etc.) and those of a general nature (research reports, grant information, statistical data, policies, directives, etc.). Physicians and pharmacists tended to have more needs of the first kind; social workers, public health nurses, and managers tended to have more needs of the second kind. The first type of need seems to be better met with current systems than is the second type, which is more nebulous and less well defined; the information that best responds to the latter kinds of needs tends to be more scattered.

Rural health workers are meeting some proportion of their information needs now, using a variety of means and sources. Among those mentioned are personal files, telephone contacts with colleagues and agencies, local hospital libraries, a community college library, Hawaii Medical Library (a membership library), University of Hawaii main campus libraries, online services, and CD-ROM databases.

In the course of the interviews, health care workers suggested several new or improved methods of meeting information needs. These included development of a directory database to point to existing services and sources; development of a database with selected articles and reports on rural health programs, projects, policies, etc.; development of a statistical database on health status indicators, broken down to the census tract level; T-1 lines with adequate capacity dedicated to health applications; focusing services on the specified populations at risk; choices in access mode (online, CD-ROM, telephone, fax, newsletters, and print); design of an overall system that is user friendly, electronically accessible, full text, broad in coverage, inclusive of regional differences and uniqueness; avoidance of dependency on telephone or online; provision of personal help or contact with a knowledgeable person; and additional funding.

Questionnaire

As Figure 1 shows, nurses represented the largest group (20%) of respondents, followed by administrators (18.2%), physicians (17.1%), and social workers (12.7%). The "other" category included chiropractors, librarians, physician assistants, and many respondents whose jobs were not identified. Most (43.8%)
were employed by the state, followed by private employers (26.6%), and other, mostly nonprofit, organizations.

When asked what kinds of information they need to do their work, respondents as a group ranked information on clinical trials and current practice as the most important. Other types of information used by more than 50% of the respondents included medical research, public health research, information on policy issues, and health status indicators. Information about nursing, social work and psychology research, funding sources, and grant demographics also were ranked most important, but by fewer than 50% of respondents. The wide variety of information needed is noteworthy—every source was required to some degree, so no one type of information source is likely to meet all of the needs expressed.

A breakdown of information needs by profession is shown in Table 1. Physicians, nurses, and allied health workers reported the greatest need of all practitioners for clinical trials and current practice information. Not surprisingly, physicians rely more than other groups on medical research materials, followed by allied health workers. Nursing research was needed by nurses, administrators, and teachers. The need for public health and social work research was reported by nurses and social workers. Allied health workers and nurses indicated the greatest need of any group for psychology research. Administrators, on the other hand, reported a unique blend of information needs: policy issues, health status indicators, grant demographics, and funding issues. Allied health workers were the only professional group reporting information needs in all categories on the questionnaire.

For all groups of personnel, journal articles were overwhelmingly the source that best met information needs, indicating the importance of access to journal indexes and collections or article delivery services. After journal articles, the most important source is informal discussion with colleagues. This informal information channel ranked ahead of newsletters, reports, and books, in that order. It is again interesting to note that each source was ranked as most important by some respondents.

Not surprisingly, the various professions reported using different information sources (Table 2). Journal articles were the most popular choice of physicians, nurses, and administrators. Books were the key information source for allied health. Administrators reported using reports more than other sources. Product literature was the least utilized source, but nurses used it more than other groups. Newsletters were most popular among physicians. Social workers and nurses reported the greatest use of videos. Allied health, social workers, and administrators reported comparable usage of resource directories. Discussion among colleagues was used most among nurses, physicians, and social workers, in that order. Three professional groups—nurses, allied health, and teachers—reported utilizing, to some degree, all of the information sources.

Personal files or a colleague’s collection were ranked by respondents as the most common places for obtaining documents (Table 3). Physicians, allied health workers, and administrators rely more than other groups on their personal files, whereas allied health workers, nurses, and administrators depend more than other groups on a colleague’s collection. Libraries in organizations are used most by nurses, administrators, and social workers. As expected, physicians utilize hospital libraries more than other groups, followed by allied health and nurses.

Although the survey found that Hawaii Medical Library (affiliated with NLM) on Oahu has the largest holdings of rural health literature in the state, only
either an IBM-compatible (71.8%) or a Macintosh
computers are somewhat limited, however, as only 16% of respondents make little use of formal document delivery services, probably relying instead on personal or colleague’s

Table 2
Information sources used

<table>
<thead>
<tr>
<th>Information sources</th>
<th>Physicians (%)</th>
<th>Nurses (%)</th>
<th>Allied health (%)</th>
<th>Social workers (%)</th>
<th>Administrators (%)</th>
<th>Teachers (%)</th>
<th>Others (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journal articles</td>
<td>31 (51)</td>
<td>25 (36.8)</td>
<td>14 (27.5)</td>
<td>12 (26.7)</td>
<td>22 (36.1)</td>
<td>7 (33.3)</td>
<td>6 (15.8)</td>
</tr>
<tr>
<td>Books</td>
<td>4 (6.6)</td>
<td>2 (2.9)</td>
<td>9 (17.6)</td>
<td>3 (6.7)</td>
<td>0</td>
<td>2 (9.5)</td>
<td>2 (5.3)</td>
</tr>
<tr>
<td>Reports</td>
<td>0</td>
<td>5 (7.4)</td>
<td>1 (2)</td>
<td>5 (11.1)</td>
<td>15 (24.6)</td>
<td>4 (18)</td>
<td>5 (13.1)</td>
</tr>
<tr>
<td>Product literature</td>
<td>0</td>
<td>3 (4.4)</td>
<td>1 (2)</td>
<td>0</td>
<td>1 (1.6)</td>
<td>1 (4.8)</td>
<td>0</td>
</tr>
<tr>
<td>Newsletters</td>
<td>9 (14.6)</td>
<td>6 (8.8)</td>
<td>6 (11.7)</td>
<td>3 (6.7)</td>
<td>5 (8.2)</td>
<td>1 (4.8)</td>
<td>6 (15.8)</td>
</tr>
<tr>
<td>Videos</td>
<td>1 (1.6)</td>
<td>4 (5.9)</td>
<td>2 (3.9)</td>
<td>5 (11.1)</td>
<td>2 (3.3)</td>
<td>1 (4.8)</td>
<td>2 (5.3)</td>
</tr>
<tr>
<td>Resource directory</td>
<td>0</td>
<td>3 (4.4)</td>
<td>5 (9.8)</td>
<td>5 (11.1)</td>
<td>5 (8.2)</td>
<td>2 (9.5)</td>
<td>2 (5.3)</td>
</tr>
<tr>
<td>Discussion with colleagues</td>
<td>13 (21.3)</td>
<td>14 (20.8)</td>
<td>10 (19.6)</td>
<td>11 (24.4)</td>
<td>8 (15.4)</td>
<td>2 (9.5)</td>
<td>10 (20.3)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (4.9)</td>
<td>6 (8.8)</td>
<td>3 (5.9)</td>
<td>1 (2.2)</td>
<td>3 (4.9)</td>
<td>1 (4.8)</td>
<td>5 (13.1)</td>
</tr>
<tr>
<td>Total</td>
<td>61 (100)</td>
<td>68 (100)</td>
<td>51 (100)</td>
<td>45 (100)</td>
<td>61 (100)</td>
<td>21 (100)</td>
<td>38 (100)</td>
</tr>
</tbody>
</table>

2% of respondents indicated using it. None of the rural health physicians reported accessing this library; administrators use it most. Usage of other libraries, including those of community colleges, the University of Hawaii, other colleges, and the public system, is also surprisingly low. Interestingly, only one group of professionals—nurses—utilizes, to varying degrees, all of the various libraries to meet information needs. Nurses are also the heaviest users of online information services, followed by social workers.

More than 70% of the health care respondents have fax machines. Approximately 85% have a computer, either an IBM-compatible (71.8%) or a Macintosh (14%). The choices for information access with these computers are somewhat limited, however, as only approximately 30% have modems and only 5.5% have a CD-ROM player.

Few health care workers use the many state and national online information systems that are available to anyone with a microcomputer and modem or through library terminals. Only 16% of respondents search MEDLINE online using GRATEFUL MED, 13.7% search NLM’s MEDLARS directly, 13.1% search MEDLINE on other systems, and 15.4% search other online databases. These figures largely reflect the same individuals searching more than one way. On the average, respondents who search online look at two or more systems.

Nearly 87% of the rural health respondents never use the University of Hawaii Libraries CARL system, 79.2% never use the state library system, and more than 90% never use the state FYI gateway (a state-funded system that provides online access to government and other information sources). All of these systems are available free to anyone who has a modem or through all public library branches, community college libraries, and many hospital libraries. CD-ROM databases are available at many libraries, but they, too, are seldom used by the respondents. Although the majority of respondents indicated they needed information, most are not using automated systems to locate or retrieve it.

To acquire copies of documents, respondents again make little use of formal document delivery services, probably relying instead on personal or colleague’s

Table 3
Document sources

<table>
<thead>
<tr>
<th>Sources of documents</th>
<th>Physicians (%)</th>
<th>Nurses (%)</th>
<th>Allied health (%)</th>
<th>Social workers (%)</th>
<th>Administrators (%)</th>
<th>Teachers (%)</th>
<th>Others (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal files</td>
<td>37 (61.7)</td>
<td>21 (29.6)</td>
<td>28 (53.8)</td>
<td>15 (32.6)</td>
<td>22 (36.7)</td>
<td>11 (52.4)</td>
<td>9 (25)</td>
</tr>
<tr>
<td>Colleague’s collection</td>
<td>1 (1.7)</td>
<td>8 (11.3)</td>
<td>9 (17.3)</td>
<td>3 (6.5)</td>
<td>6 (10)</td>
<td>1 (4.8)</td>
<td>3 (8.3)</td>
</tr>
<tr>
<td>Organization library</td>
<td>0</td>
<td>14 (19.7)</td>
<td>3 (5.8)</td>
<td>9 (19.6)</td>
<td>10 (18.6)</td>
<td>0</td>
<td>5 (14)</td>
</tr>
<tr>
<td>Local hospital library</td>
<td>10 (16.6)</td>
<td>2 (2.8)</td>
<td>3 (5.8)</td>
<td>0</td>
<td>2 (3.3)</td>
<td>1 (4.8)</td>
<td>3 (8.3)</td>
</tr>
<tr>
<td>Hawaii Medical Library</td>
<td>0</td>
<td>1 (1.4)</td>
<td>2 (3.9)</td>
<td>0</td>
<td>3 (5)</td>
<td>1 (4.8)</td>
<td>0</td>
</tr>
<tr>
<td>Community college library</td>
<td>0</td>
<td>2 (2.8)</td>
<td>1 (2.2)</td>
<td>0</td>
<td>1 (1.7)</td>
<td>3 (14.2)</td>
<td>1 (2.8)</td>
</tr>
<tr>
<td>University of Hawaii library</td>
<td>1 (1.7)</td>
<td>2 (2.8)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other college libraries</td>
<td>0</td>
<td>1 (1.4)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Public library</td>
<td>0</td>
<td>2 (2.8)</td>
<td>1 (1.9)</td>
<td>4 (8.7)</td>
<td>3 (5)</td>
<td>0</td>
<td>3 (8.3)</td>
</tr>
<tr>
<td>Online</td>
<td>0</td>
<td>1 (1.4)</td>
<td>1 (1.9)</td>
<td>3 (6.5)</td>
<td>1 (1.7)</td>
<td>0</td>
<td>4 (11.1)</td>
</tr>
<tr>
<td>Other</td>
<td>11 (18.3)</td>
<td>14 (19.7)</td>
<td>5 (9.6)</td>
<td>10 (21.8)</td>
<td>12 (20)</td>
<td>4 (19)</td>
<td>8 (22.2)</td>
</tr>
<tr>
<td>Total</td>
<td>60 (100)</td>
<td>71 (100)</td>
<td>52 (100)</td>
<td>46 (100)</td>
<td>60 (100)</td>
<td>21 (100)</td>
<td>36 (100)</td>
</tr>
</tbody>
</table>
collections. While the majority use none of the document delivery options, those used include Hawaii Medical Library (by 18% of all respondents), public library interlibrary loan (16%), and University of Hawaii interlibrary loan (13%).

Respondents named a variety of barriers to information use. Most often mentioned was geographic isolation (52.8%), cost (49%), and inadequate technology (26.3%). Other reported barriers included document delivery delays and inadequate staffing. Interestingly, rural health respondents with computers viewed geographical isolation to be slightly more of a barrier (53.9% replied yes) than did those without computers (48.5% replied yes).

The open-ended question asking for suggestions to improve health information access and use drew the following responses most frequently: provide methods for finding out what is available or how to access it; provide more funds to support purchase of computer-related equipment; and improve statistics or demographics for local use. Other suggestions often mentioned included improved access to libraries and online databases, development of resource directories, and improved networking.

Rural health care organizations and resources

Although Hawaii's rural health professionals seldom consult outside organizations for information, rural health information is available from a variety of government departments or agencies. In fact, identification and retrieval of rural health resources is confusing in part because of the large number and dispersed nature of these organizations.

The Medical and Health Information Directory lists eleven organizations, agencies, and institutions concerned with rural health, as well as fifteen rural health services [9]. Many of these organizations provide information to the public, to health care providers, or to other agencies. A search of the online version of the Encyclopedia of Associations retrieves fourteen organizations worldwide that are concerned with rural health. The Rural Health Resources Directory 1991 contains listings of many additional national and regional sources of information and is an important resource [10].

Major national providers of rural health care information resources include the U.S. Department of Agriculture, U.S. Department of Health and Human Services (HHS), NLM, and the National Rural Health Association (NRHA). The most important federal source of information on these issues is the Rural Information Center Health Service (RICHS), which is part of the Rural Information Center at the National Agricultural Library (NAL). RICHS was jointly created by NAL and the HHS Office of Rural Health Policy as a rural health information service. Its purpose is to collect and disseminate information on rural health issues and research findings related to rural health and to provide innovative approaches to the delivery of rural health care services.

RICHS provides the following services: assistance in locating a variety of information sources to meet individual needs, referrals to organizations or experts in the field with additional information, and brief literature searches of computerized databases on requested topics free of charge or exhaustive searches on a cost-recovery basis. The many services of RICHS are available to rural health care providers, either directly or through a library. There is a charge for some services, such as document delivery.

The NRHA is an important source of publications, such as the Rural Health Resources Directory and research information. It also publishes the Journal of Rural Health. According to the directory, "The NRHA is a multidisciplinary organization addressing all aspects of the delivery of health care in rural areas. . . . NRHA members include administrators, educators, government workers, physicians, and other health professionals from private practice, hospitals, community and migrant health centers, and educational institutions. The NRHA's purpose is to improve rural health and health care through advocacy, education, research and communications" [11].

DISCUSSION

This study was an attempt to ascertain the information resources and information needs of a variety of rural health care practitioners in Hawaii. Our interviewees cited many common problems, including shortages of equipment (computers, modems, phone service), resources (funds, directories, statistics), staff (trained health care workers), and time (for seeking information). Another common frustration was not knowing what information is available or how to access it.

A practical example of a current information problem was provided by a public health nurse. Native Hawaiians, who live predominantly in rural areas, have a high risk of developing diabetes mellitus. If practitioners could find out about early detection and treatment and education programs conducted among native Americans, who also have high rates of diabetes, and, if practitioners modified this information for local conditions, the nurse felt the health care of Hawaiians could be improved significantly.

While a vast number of questionnaire respondents indicated a need for more information, the majority of rural health care providers stated they were obtaining information through local, informal channels, such as their own collections or those of a colleague. More than 56% reported they do not use electronic information sources. Because many of the
external database systems cost money, require a modem and passwords, and are best used after training and practice, perhaps it should not be surprising that there are relatively few rural online users. A more disturbing finding is that many health care workers in rural areas appear to do without information. They cannot take the time out of a busy schedule to track down information that is not readily available or to learn new information systems.

The relatively high ownership of fax machines and computers among rural health care workers is a positive sign. Document delivery by fax thus seems feasible, with just a small investment in additional fax machines. Distribution of a rural database on floppy disks rather than dial-up access via modem also seems to be a feasible option for reaching the greatest possible number of users.

One disturbing finding of this study—the extremely low usage of all types of libraries by rural health professionals—should be of great concern to every librarian. While it is true that not every island has a medical library with an extensive collection, each island does have public libraries or a community college library. Because this study did not examine the attitudes of respondents, it cannot be determined whether the low usage of libraries is due to actual or perceived shortcomings in library resources, a lack of awareness of the many free electronic resources available in libraries, or a lack of time to search for information. Education outreach programs by libraries could help to bridge this apparent information gap.

CONCLUSION

There are many and varied information resources relevant to rural health. The health care providers in Hawaii's rural areas can access many of these resources through community college libraries, telephones, or personal computers equipped with modems. But, the time and money required to access, identify, locate, and use this overwhelming variety of resources are prohibitive. Health care providers have pressing priorities, and, even when trained to search a system such as GRATEFUL MED®, they find it difficult to be information specialists as well as health care specialists.

Recommendations for helping these health care providers are: providing the personalized services of a health information specialist working from a centralized rural health clearinghouse or library, to relieve the burden on already overextended health care specialists; subsidizing the costs of information identification and delivery so needed information will be available on an equitable basis to all who need it when they need it; and avoiding, as much as possible, duplication of resources already available while maximizing access to them. Duplication is necessary only for heavily used resources; information that is so timely or in such demand that delays are unacceptable, or locally generated information. Access can be maximized through increased use of fax, online searching, and use of the local library online resources.

The personal touch—providing a rural health information specialist who operates according to agriculture extension agent models—is a key to all aspects of improving rural health care information access and services.

REFERENCES

11. Ibid., 2.

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APPENDIX

Questionnaire for Rural Health Database Project

1. What is your occupation/role:
   - Physician
   - Pharmacist
   - Clinical Nurse
   - Public Health Nurse
   - Psychologist
   - Speech pathologist
   - Dentist
   - Teacher
   - Social Worker
2. Where do you do your health-related work?

- Oahu
  - Honolulu
  - Waianae/Makah/Makaha/Nanakuli
  - Waimanalo
  - Kahuku/Laie/Hauula/Kaaawa
  - Haleiwa/Waialua
  - Wahiawa
  - Kahuku/Laie/Hauula/Kaaawa
  - Other

- Hawaii
  - Hilo
  - Kona
  - Kohala/Hamakua
  - Kona
  - Other

- Kauai
  - Lihue
  - Kawaihau
  - Hanalei
  - Waimana
  - Waimea
  - Koloa
  - Other

- Maui
  - Wailuku
  - Hana
  - Makawao
  - Lahaina
  - Other

- Molokai
  - Lanai
  - Other

3. Type of employer:

- Private practice
- State of Hawaii
- County
- Federal
- Other (specify)

4. What kinds of information do you need to support your work?
Number those that apply in order of importance to you (1 = highest importance; use each number only once)

- Clinical trials/current practice
- Medical research
- Nursing research
- Public health research
- Social work research
- Psychology research
- Policy issues
- Funding sources
- Grant demographics
- Health status indicators
- Other (specify)

5. What kinds of sources best meet these needs?
Number those that apply in order of importance to you (1 = highest importance; use each number only once)

- Journal articles
- Books
- Reports
- Product literature
- Newsletter
- Videos
- Resource directory
- Informal discussions with colleagues
- Other (specify)

6. Where do you access this material?
Number those that apply in order of frequency of use (1 = used most; use each number only once)

- Personal files
- Colleagues' collection(s)
- Library within your organization
- Local hospital library
- Hawaii Medical Library
- Community college library
- UH Manoa library
- Other college library
- Public library
- Online document ordering
- Other (specify)

7. Do you have

- Fax machine
- Modem
- IBM-compatible computer
- CD-ROM drive
- Macintosh computer
- Other microcomputer (specify)

8. Which (if any) of the following do you use?

9. Which (if any) of the following do you use to acquire copies of documents?
10. What barriers to information use do you see as being a problem?
   — Cost
   — Geographic isolation
   — Document delivery delays
   — Inadequate technology
   — Inadequate staffing
   — Other

11. Would you like a visit/discussion with the State DOH personnel about your needs/access to health status indicators/data?
   — Yes
   — No

If Yes, please write your name and phone number:

12. What three things would you like to see changed/introduced to improve your health information access and use?
   1. __________________________________________
   2. __________________________________________
   3. __________________________________________

Comments: