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# Executive summary

This report documents a study conducted on behalf of the Saint Luke's Health System Library to 1) identify current and potential library users and their information needs of library users; and, 2) support the creation of a plan to provide exemplary information services that will surpass competing information sources.

Recommendations related to the identity and information needs of current and potential library users include the following:

Recommendation 1. Develop multiple service patterns to address the diversity of current and potential library users.

Recommendation 2. Identify and provide access to additional Web resources in areas of expressed need.

Recommendations related to creating a plan for the provision of exemplary information services include the following:

Recommendation 3. Develop a network of library stakeholders that includes representatives from each of the health system facilities. Draw from that network to create an advisory board and work with board members to articulate the library's mission statement, vision, goals, and objectives.

Recommendation 4. Develop three primary access points to the librarians and library services: a main library, a "virtual branch," and a "traveling" branch.

Recommendation 5. Increase opportunities for instruction in library use, utilizing both face to face and online environments.

Recommendation 6. Use branding and other marketing tools to bolster awareness among both users and non-users about the vital services you offer.

# Introduction

**Purpose of the investigation**

The purpose of this information needs assessment is to provide evidence to support the creation of a plan for the Saint Luke's Health Sciences Library—a plan that would ensure the delivery of exemplary information services to the physicians, researchers, nurses, nurse educators, nursing students, and other clinical personnel in the health system. A commitment to exemplary services would also ensure alignment of the Library's activities with the Saint Luke's Health System's mission, that of commitment to "the highest levels of excellence in providing health care and health related services in a caring environment."

**Background**

Saint Luke's Hospital, the "flagship" of Saint Luke's Health System, has delivered healthcare services in Kansas City since 1882. A Malcolm Baldrige National Quality Award winner, the hospital is known for its excellence and history of innovation in providing healthcare services. Saint Luke's Health System has grown to include 11 hospitals and related health services in Kansas City and the surrounding region. Those facilities are all served by one health sciences library, which is located at Saint Luke's Hospital in mid-town Kansas City.

As the health system has expanded in recent years, Library Director Karen Wiederaenders attempted to reach out to potential library users at the newly-added facilities. She acknowledges, however, that those efforts have met with varying degrees of success. What factors might account for those disconnects between library outreach efforts and potential users?

One contributing factor may have to do with the diversity of current and potential library users, ranging from those with very sophisticated information seeking skills (many of whom work at the mid-town location) to a growing number of potential users who, lacking previous access to a health sciences library, may not have developed the habit of using a library or the requisite skills to do so. Another contributing factor may be the ubiquity of search systems such as Google, which seem to promise quick and easy access to a world of information. Another, very likely contributing factor may be lack of awareness. Do potential users even know that they have library privileges? Physical proximity might well have something to do with that possible lack of awareness. As indicated on the map in Appendix A, Saint Luke's Health System facilities are spread over a considerable geographic area. But even if they worked at the mid-town Saint Luke's Hospital, potential users might not be aware of the Health Sciences Library, which is located two blocks from the hospital and almost five miles from the College of Nursing, which is also off-campus.

To identify possible disconnects and identify evidence that could be used to address these issues, Library Director Karen Wiederaenders applied for and

received a Continuity of Health Information Award for Hospital Library Advocacy from the National Network of Libraries of Medicine MidContinental Region/University of Utah. Cathy M. Perley, PhD, was engaged as project consultant. Emporia State University School of Library and Information Management doctoral students Kathy J. Fatkin RN, MLS, AHIP, and Lori L. Franklin, MLS/NBCT, were engaged by the consultant to assist with the project. The study began in January, 2010, and was completed in February, 2011. The final report was submitted March 2, 2011. See Appendix B for a detailed timeline.

# Methods

This study utilized both quantitative and qualitative methods to collect data from a pool of approximately 3,200 respondents. Three types of data collection instruments were used, including preliminary individual and group interviews; four versions of a Web-based self-reporting survey; and focus groups. Quantitative survey data were displayed and analyzed using Excel spreadsheets and SPSS version 16. Qualitative data from the preliminary interviews, narrative survey responses, and focus group were coded and analyzed to identify key themes.

**Data collection**

**Preliminary interviews.** The consultant met with the principal investigator to identify key areas of interest. Following these discussions, the principal investigator arranged for interviews with representatives from stakeholder groups. Twenty-one informants agreed to participate.

Members of the research team interviewed nine individual informants and four groups of two to four informants each. Interview respondents represented eight of the 11 Saint Luke's Health System facilities and services. Ten of the 21 respondents were clinical educators; other positions represented included a training and development manager, an administrative assistant who functioned as an information gatekeeper for a cardiology research team, three pharmacists, and a professor in the Saint Luke's College of Health Sciences.

Findings from the preliminary interviews were analyzed to develop an initial coding scheme. Themes that emerged from initial coding were combined with key areas of interest supplied by the principal investigator to indicate topics that should be represented in the self-reporting surveys. Interview data were also used to enrich interpretations of the survey and focus group findings.

**Self-reporting surveys and informed consent forms.** Conversations with the principal investigator indicated four primary stakeholder groups: 1) physicians, residents and interns, physician assistants, and research fellows; 2) nursing; 3) faculty and students in the Saint Luke's College of Health Sciences; and 4) general (i.e. other potential user groups, including therapists and technicians, chaplains, and pharmacists).

In the same period of time, the research team worked with the principal investigator to create an informed consent document. The principal investigator submitted the study design and informed consent document for IRB approval. Approval was granted and the informed consent content was placed at the beginning of the Web-based survey.

To encourage responses from both users and non-users, potential respondents were informed that upon survey completion they could enter their names into a drawing for a $100 gift certificate. They were asked to

complete the survey and then follow directions to email a code word to the library, together with their contact information. Each of the four versions of the survey specified a different code name. This process ensured that survey responses were separated from the identities of respondents. A copy of the informed consent form and the invitation to enter the drawing appears in Appendix C.

Four customized versions of a Web-based self-reported survey were created using Survey Monkey, tested with representative respondents, and revised. Each of the four surveys began with a request for the respondent's profession or position. Three of the surveys continued with a request for the respondent's location; physicians were not asked this question, since many have privileges in multiple locations. The questions that followed asked respondents to identify the types of information they needed to provide health care or health-related services, to indicate the resources they turned to when they had information needs, to identify the criteria they apply to assess information they find, to estimate the time they would spend to find answers to straight-forward and complex information needs, to detail the consequences of not finding answers to information needs within the time allowed, and to rate their perceived level of confidence in searching for information.

At that point, branching was used to separate those who indicated that they had used the library within the past six months from those who indicated that they had not. Those who indicated that they had used the library were asked how they had found out about the library and its services, the means by which they preferred to utilize library services, the types of library services they valued, and what resources and services they considered most essential to their work. Those who indicated that they had not used the library in the past six months were asked why they had not done so. All respondents were asked to provide a narrative description of how library services could be more useful to them.

The principal investigator worked with stakeholder group leaders across the health system to disseminate the four surveys to targeted groups. Each survey was "open" for approximately three weeks. In all, 1,095 individuals from a pool of 3,132 possible respondents completed surveys, for a 35% overall response rate. Survey informant detail is shown in Appendix D.

**Focus group interviews.** The research team conducted three focus groups as a form of member check. The first focus group included five students and five faculty members from the Saint Luke's College of Health Sciences; the second focus group included six nurses and one clinical dietician; and the third focus group included a psychologist, a staff educator, a staff development manager, and two nurse administrators.

During each focus group session, the research team explained the purpose of the information needs assessment and summarized findings related to four themes that emerged from the survey responses: Time (Survey questions 5, 6, 8a, 14a); Quality (Survey questions 4, 8); Ease of use (Survey question 8); and Access (Survey questions 4, 8, 11). Participants were asked

to respond to these themes. Research team members followed up these responses with open-ended questions to encourage additional input.

**Data analysis**

**Quantitative data**. Although the four self-reporting surveys were each customized to a particular target group, they were all based on one central framework. This allowed the research team to consider the aggregated data as well as to compare and contrast data received from each survey. Quantitative data from the four Web-based self-reporting surveys were collected online in Survey Monkey and downloaded as Excel files. The data were coded numerically by question. The nursing survey had significantly different questions from the other surveys to identify specific nursing information uses. The questions that were in common on all surveys were combined. Most of these questions included nursing staff with the exception of the section on ranking resources and services from "essential" to "never used". This series of questions did not appear on the nursing survey. Each type of survey and the combined data were imported into SPSS version 16 for descriptive statistical analysis. Further sorting of responses by library users and non-users, facility location and type of facility was completed and analyzed. The results are displayed as tables with frequencies, percentages or means with standard deviations depending on the type of questions and data collected.

**Qualitative data.** Data from the preliminary interviews, narrative responses in the Web-based self-reporting survey, and focus groups were also analyzed. The initial coding scheme developed during analysis of the preliminary interviews was subjected to ongoing review and revision throughout analysis of the remaining narrative data. Each resulting iteration of the coding scheme served to display the data in meaningful patterns. When the research team achieved consensus on the final coding scheme, data from the interviews, quantitative and narrative survey responses, and focus group responses were aggregated into a central analytic document to ensure consistent grouping.

Following data analysis and discussion, the research team collaborated to arrive at a set of formal recommendations and write the final report. The recommendations were designed to support the development of a plan for the Saint Luke's Health Sciences Library to provide exemplary information services, both now and in the future. The principal investigator and the research team met to review the report on March 2, 2011.

**Limitations of the study**

Several factors limit the interpretations that can be drawn from this information needs assessment.

First, informants for this study constitute a convenience sample rather than random sample, since they either volunteered to participate or were specifically recruited by the principal investigator. Furthermore, although there was no link between an informant responses to the survey and having that person's name entered in a drawing for a $100 gift certificate, there is

no doubt that the opportunity to win a prize motivated many individuals to complete surveys. Many, particularly non-users, might have otherwise been unlikely to do so.

Second, as detailed in Appendix D, respondents tended to be from the larger facilities; relatively few surveys were returned from facilities outside the immediate Kansas City area or specialty facilities. For example, of 757 nursing survey responses, 677 (89%) were returned from Saint Luke's Kansas City, Saint Luke's East-Lee's Summit, Saint Luke's Northland Hospital Barry Road, Saint Luke's Northland Hospital Smithville, and Saint Luke's South. Only 80 (11%) were returned from "outlying" facilities. This is somewhat explained by the difference in staffing numbers at those facilities, but it would have been helpful to have more input from the outlying and specialty facilities.

Third, many of the informants from the preliminary interviews were already known to the Saint Luke's librarians, which could indicate bias.

Fourth, although the overall response rate was 35%, the response rate for the physician survey was the lowest of all the surveys, 21%, and no physicians consented to be interviewed or to participate in a focus group.

Finally, a number of respondents reported that they hadn't known about the library and its services until they were involved in one of the three data collection activities. Conducting the needs assessment, particularly since data collection took place over a period of almost seven months, resulted in greater awareness among potential users. Since no attempt was made to identify and query a control group, there is no way to measure the extent of that shift in awareness.

# Summary of results

This section of the report summarizes key findings from the preliminary interviews, the Web-based self-reporting survey, and the focus groups.

**Preliminary interviews**

Many of the informants interviewed were already acquainted with Saint Luke's Health Sciences Library services and the librarians. That being acknowledged, research team members were struck by two consistent findings: informant agreement that the librarians delivered exceptional information services quickly and efficiently and a consensus that others in the health system would benefit from greater awareness of library services.

"The librarians are fabulous, accommodating, timely, and pretty good teachers."

Informants discussed a perceived lack of awareness about library services in different contexts. One questioned the omission of information about library services during orientation sessions for new employees. Two nursing supervisors stated that they needed to increase their own awareness of the library's information services so that they could either advise nurses in their areas or serve as information conduits between the library and the nurses. One informant expressed concern that bedside nurses do not know how the library can support unit-based research. Although she was knew that the librarians could conduct searches on users' behalf, she asserted that nurses need to know that conducting the search process themselves can actually lead to new lines of inquiry. Awareness of both available services—librarian as search intermediary and informed user as searcher—was considered important.

A third finding closely linked to the perceived need for greater awareness of library services was an expressed need for consistent, ongoing instruction in how to make effective use of library services and resources. This was deemed particularly important, given the need for best practices and evidence-based information. A number of informants referred positively to library classes in searching for and evaluating information, although several noted that classes were not being offered as often as they had been and those that were did not seem to be well-attended. A College faculty member pointed out that her students needed "just-in-time" instruction in how to do information searching.

"Databases [can be] overwhelming. Sometimes it's easier to Google the information you need."

Ease of use was a fourth significant finding from the preliminary interviews. Several informants asserted that perceived ease of use was a significant factor in determining utilization of the library's resources. One stated that nurses seem to perceive that retrieving articles is a lot of work, adding that, "We need to make it clear and easy, especially in terms of sorting for quality." An informant from an outlying hospital said that staff at her facility struggled with a computer upgrade and that they were unlikely to take on new challenges until they felt more comfortable with the system. Whatever the situation, she said, ease of use was essential. She indicated that staff members who are in a hurry can be frustrated by the challenges of accessing materials via a system like the Health Sciences Library. She would

like to see a more user-friendly, "Google-like" interface for searchers. "Any time when they stop and have to stare and read and think and it is not intuitive," she said, "they'll get out and go somewhere else. Even if they end up doing more clicks on Google visiting hyperlinks, they are at least visiting something instead of staring at a screen they don't understand."

A fifth finding had to do with the considerable diversity in technology use and skill levels across the Saint Luke's Health System. One group of informants in the "flagship hospital" pointed out that they had a "new toy," a laptop with a wireless connection and CITRIX access, loaded with databases, patient care data, UpToDate, and online journals. They take it on rounds and can use it to access their own personal files. The leader in that group said the laptop is "a real game changer."This level of expertise stood in strong contrast to informants who noted that people in their facilities had either limited access to computers or limited computer skills.

Other frequently-expressed comments from the preliminary interviews included the critical factor of time available from information need to information use, the need for additional training, user preferences for doing their own searching rather than requesting searches from the librarians, and access to the library facility and to library resources. These findings were echoed in the self-reporting survey and focus group data and will be discussed in those sections.

**Web-based self-reporting survey**

As previously noted, a common framework provided the foundation for four customized self-reporting surveys. Working within this framework allowed the research team to analyze the aggregated data as well as to compare and contrast data received from each target group. In general, results from the physician, nursing, and general surveys were quite consistent.

Main groupings of survey respondents are displayed in Table 1.

Table 1. Survey respondents by self-reported profession or position.

| Profession or position | N=1,095 |
| --- | --- |
| Nursing | 740 |
| Physicians, residents, interns, physicians assistants, or research fellows | 161 |
| College of Health Sciences students | 66 |
| Occupational, physical, or rehabilitation therapists | 41 |
| Pharmacists | 27 |
| College of Health Sciences faculty | 15 |
| Chaplains | 8 |
| Dietitians or nutritionists | 5 |
| Other clinical or non-clinical positions (e.g., unit secretaries, technicians, administrators, administrative assistants) | 32 |

See Appendix D for informant detail, organized by survey, profession or position, and location.

**Information needs.** Aggregated responses to the question, "What type of information do you need to provide health care or health-related services?" are displayed in Figure 1. (In the College survey, this question was worded "What types of information do you need for your work?")

Figure 1. What types of information do you need to provide health care or health related services? Please check all that apply. N=999
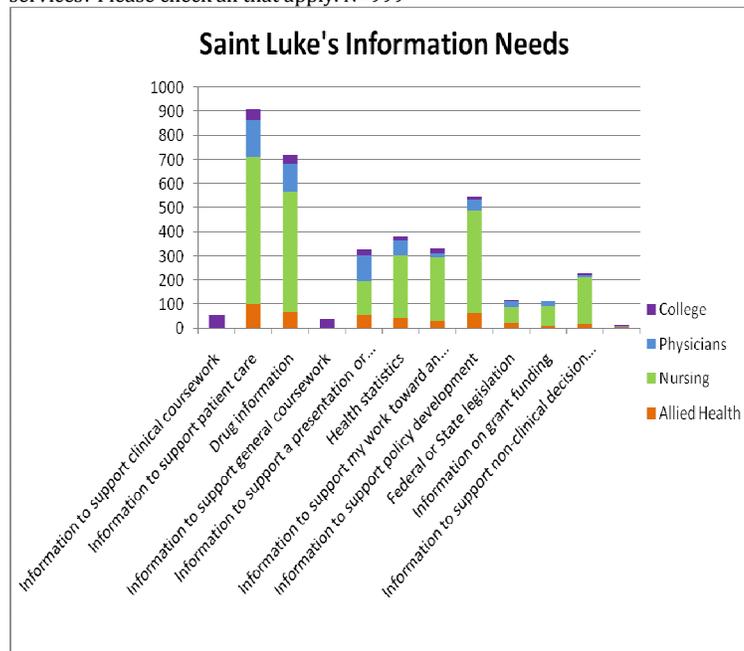


Informants were given the opportunity to specify "Other types of information needed" in response to this question. An additional set of relevant data were identified by coding narrative responses to the request "Please take just a minute more to let us know how Saint Luke's Health System Library services could be more useful to you." The two data sets were combined and organized by survey group. See Appendix E for those responses.

**Informant information seeking, evaluation, and use.** In response to the question, "When you have questions or need information to support your delivery of health care or health-related services, what do you do?" (In the College survey, this was worded, "When you have questions or need information to support your work, what do you do?"), informants were asked to indicate their level of agreement with a number of statements, as shown in Table 2.

Table 2. Informant responses to "When you have questions or need information to support your delivery of health care or health-related services, what do you do?" ,Level of agreement ranges from "Agree Strongly" (v=4) to "Disagree Strongly" (v=1). N=996

| Statement | Level of agreement |
| --- | --- |
| I do not have the resources to answer questions at work. | 1.86 |
| When I have a question, I generally ask someone who I think will know the answer. | 3.04 |
| When I need information, I generally ask someone else (e.g., a colleague, supervisor, or an assistant) to search for it on my behalf. | 2.25 |
| I generally find the information I need in print materials (e.g., books, journals, manuals) available in my work area. | 2.52 |
| I generally find the information I need by searching online resources available from the Saint Luke's Health System Intranet (e.g., UpToDate,) OR WebPortals | 2.53 |
| I generally find the information I need by contacting the librarians at the Saint Luke's Health Sciences Library. | 2.27 |
| I generally find the information I need by searching online resources available from the Saint Luke's Health Sciences Library website (e.g, PubMed/MEDLINE, CINAHL) | 2.54 |
| I generally find the information I need by searching general Internet resources (e.g., Google). | 2.97 |
| I find quality-filtered information using clinical resources available on the web (e.g., WebMD, MedlinePlus). | 2.9 |

Figure 2 displays another perspective using data extracted from the same data set but broken out by survey group and preferred sources.

Figure 2. Preferred sources of information by survey group. Level of agreement ranges from "Disagree Strongly" (v=1) to "Agree Strongly" (v=4). N=996
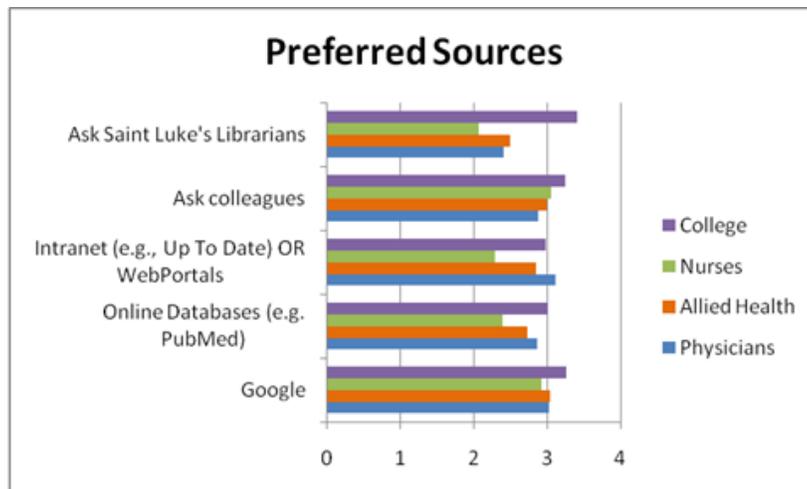


Coding used to organize narrative responses to the request, "Please take just a minute more to let us know how Saint Luke's Health System Library services could be more useful to you," identified 20 comments having to do

with the preferences of information seekers. Of these, three had to do with the time it takes to access library services and receive information. For example, a nurse stated that "I think if there was more online instant access to what the library had to offer, or if the literature pulling didn't take so long then I would use the library more often" and a physician stated that "I have used SLH services and they have been very helpful and provided very helpful timely services in most of the times but sometimes it takes [a]few days to send fulltext articles. I am very pleased with the services but wish they [had] more staff to provide same day service if possible."

Within the same dataset of 20 narrative responses having to do with preferences of information seekers, 12 had to do with individual preferences in how to search. A College student reported that "I really like knowing I don't *have* to go online. I can go to the library itself and get great help. Maybe I am old school—but I like people and I like having face time." On the other hand, a nurse reported the following:

> First off, I prefer to do my own lit searches. With that being said, I have a difficult time navigating the databases and finding appropriate articles or information to support my search. Sometimes I am just looking for information on a specific diagnosis and can't find anything. It is frustrating when you find an abstract that might be a good article but the article isn't available and you have to wait to get it. It would be nice to be able to use the databases on the website from home, not just at work. Many times I don't have the time to look something up at work so I do it from home and then have [to] filter through all of the info on Google.

How confident were survey informants in terms of the tasks of information seeking, evaluation, and use? See Table 3 for the level of confidence expressed for varied tasks.

Table 3. Informant responses to the request, "For each of the statements below describe your level of confidence in your ability to perform the task using the scale provided." Level of confidence ranges from "Completely Confident" (v=4) to "No Confidence" (v=0). N=926

| Statement | Level of agreement |
|---|---|
| I can read and utilize evidence-based resources for my work. | 2.26 |
| I can find quality-filtered information using clinical resources available on the Web (e.g., WebMD, MedlinePlus). | 2.2 |
| I can find quality-filtered information using general Internet search engines (e.g., Google). | 2.12 |
| I can search online clinical databases (e.g., PubMed/MEDLINE, CINAHL, UpToDate) for information. | 2.1 |
| I can utilize services provided by the Saint Luke's Health Sciences librarians to locate information I need. | 2.07 |
| I can locate evidence-based resources for my work in a timely and efficient manner. | 1.93 |
| I can synthesize current research for use in updating or creating facility-wide policies and procedures. | 1.69 |
| I can conduct on-site research (individually or as a member of a research team. | 1.51 |
| I can publish research findings outside the facility (e.g., in professional journals or in conference proceedings). | 0.9 |

Respondents in all four surveys were asked to indicate their level of agreement with a list of evaluative criteria for the information they use to

support their work. The list of criteria for the physician, College, and general survey were identical. A more detailed list of criteria was developed for the nursing survey.

Data collected from the physician, College, and general surveys were consistent. Of the 314 informants who answered the question, 200 agreed strongly with the statement that "The information should be based on systematic empirical research." In response to the statement, "The information should be quality-filtered," 168 informants strongly agreed; in response to "The information should be based on best practice," 169 strongly agreed. This emphasis on quality-filtered, evidence based information was noticeably consistent across all locations as well.

In response to the statement, "The information should be readily available from my work site," 174 of the 314 informants responding to this item strongly agreed. In response to the statement, "The information should be 'just enough,' with key information identified and combined into one, synthesized report," the most frequent rating assigned by informants in all three surveys was "Agree." Of all the possible criteria listed, however, this statement included the greatest proportion of disagreement, with 77 of the 314 informants indicating Disagree or Disagree Strongly.

The nursing survey listed a more detailed set of evaluative criteria. Responses are displayed in Table 4.

Table 4. Nursing survey responses to the question, "When you need information to support your delivery of nursing care of health-related services, what criteria do you apply?" Informants were asked to respond to each statement. N=656

| Statement | Agree Strongly | Agree | Disagree | Disagree Strongly |
|---|---|---|---|---|
| The information should be identified as evidence-based and in a summary form with nursing levels of evidence described. | 42% | 55% | 3% | 0.3% |
| The information should provide statement of best nursing practice. | 41% | 56% | 2% | 0.2% |
| The information should be a nursing guideline or protocol. | 24% | 63% | 13% | 0.5% |
| The information should be from a nursing professional organization. | 24% | 60% | 16% | 0.5% |
| The information should be comprehensive and include older background materials as well as current research. | 21% | 66% | 12% | 0.8% |
| The information should be a current nursing journal review or meta-analysis. | 20% | 61% | 19% | 0.5% |
| The information should be from all types of current journals that have research. | 19% | 64% | 17% | 0.8% |
| The information should be a listing of current nursing research articles. | 18% | 60% | 22% | 0.5% |

Survey informants were asked to identify the time they would spend on answering two levels of questions, a fairly straightforward question involving basic information and a more complex question. When faced with a fairly straightforward question 19% of informants reported that they will spend more than 10 minutes, 29% reported that they will spend 6-10

minutes, and 37% reported that they will spend 1-5 minutes, whereas 3% of informants reported that they have no time at work to search for information. When dealing with a complex question, 34% of informants reported that they will spend more than 20 minutes, 25% reported that they will spend 11-20 minutes, 16% reported that they will spend 6-10 minutes, and 5% reported that they will spend 1-5 minutes, while another 8% said that they do not have time to search for complex information at work.

Responses to those questions, broken down by survey group, are displayed in Figures 3 and 4. (College informants were asked, "When you have a fairly straightforward question or need basic information to support your work, how much time will you take to search for an answer?" and "When you have a complex question or need detailed information to support your work, how much time will you take to search for an answer?")

Figure 3. "When you have a fairly straightforward question or need basic information to support your delivery of health care or health-related services, how much time will you take to search for an answer? N=962
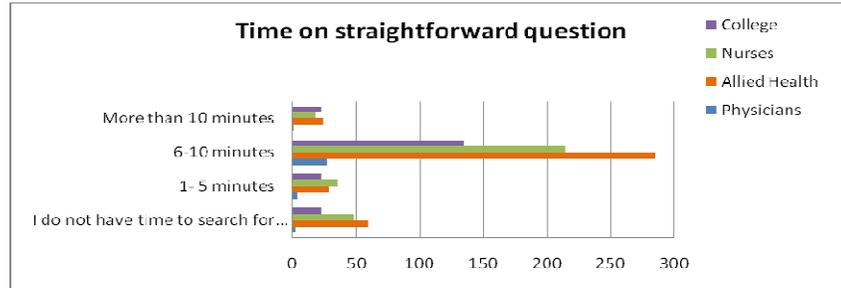


Figure 4. "When you have a complex question or need detailed information to support your delivery of health care or health-related services, how much time will you take to search for an answer? N=959
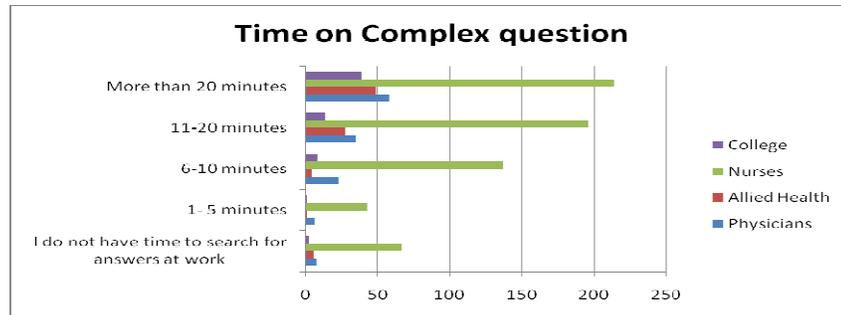


When asked about the consequences of not being able to find needed information for their work, informants reported the results shown in Tables 5 and 6.

Table 5. Physician, nursing, and general survey informant responses to the request, "If you are unable to find information needed to support your delivery of health care or health-related services in the time available, what are the consequences? Please check all that apply" N=869

| Reported consequence | Informant agreement |
|---|---|
| A direct impact on the quality of patient care | 58% |
| An indirect impact on the quality of patient care | 52% |
| Loss of time spent in the search for information | 76% |
| Loss of possible revenue | 25% |
| Other impact | 2% |
| No impact | 3% |

Table 6. College survey informant responses to the request, "If you are unable to find information needed to support your work in the time available, what are the consequences? Please check all that apply" N=82

| Reported consequence | Informant agreement |
|---|---|
| Loss of time spent in the search for information | 72% |
| A direct impact on the quality of your teaching or learning (College survey only) | 68% |
| An indirect impact on the quality of your teaching or learning | 34% |
| A direct impact on the quality of patient care | 31% |
| Loss of possible revenue | 7% |
| Other impact | 1% |
| No impact | 1% |

**Library users and non-users.** When asked if they had used information resources available from the Saint Luke's Health Sciences Library, either from the library itself or from the library website, within the past six months, 65.1% of general survey informants reported that they had used the library or its resources within that time period; 34.9% reported that they had not. Of the nursing informants who responded to this question, 40.3% reported that they had used the library; 53.8% reported that they had not; and 5.9% reported that they did not recall. Of the physicians responding to this question, 57.9% reported that they had used library resources within the past six months; 37.3% reported that they had not; and 4.8% reported that they did not recall. Of all the groups, College informants reported the greatest percentage of users versus non-users, with 97.5% reporting that they had used the library and only 2.5% reporting that they had not.

At this point in the survey, non-users were branched to a question that asked them why they answered No or Do Not Recall to the question about using the library within the past six months. Their responses are displayed in Table 7.

Table 7. Informant responses to the request, "You answered no or do not recall using the information resources from the Saint Luke's Health Sciences Library within the past six months. Select all of the responses that apply. N= 438

| Reason | Informant agreement |
|---|---|
| I did not know there was a library website. | 51% |
| I need more information about how to use the library or the library website before I can know if either would help me. | 51% |
| I did not know there was a health sciences library I could use. | 36% |
| I was not aware that most of these services are provided at no cost to me or my department. | 31% |
| I do not have enough time to do so. | 29% |
| Not needed, I find what I need on Internet (e.g. Google). | 27% |
| Not needed, my colleagues have the information I need. | 16% |
| Library resources are not relevant to my needs. | 9% |
| Not needed, I use other libraries or resources available elsewhere. | 9% |
| Other reasons (please specify). | 9% |

"Other reasons" specified included the following:

From a general survey informant: "I often use the ASHA website (American Speech-Language-Hearing Association) to access research journals for evidence-based research that is related to my profession. I pay for that service as part of my annual certification dues that I must pay. However, I am aware that you have access to other medical journals because I have used your services in the past when I belonged to a journal group (for CEU)."

From four nursing survey informants: "I generally do not use the library primarily because of past experiences when I found the library personnel judgmental and not very helpful. Now, I have other resources at my fingertips;" "It seems like it wouldn't be convenient since the library is at the Plaza and I work at East;" "I work nights and do not live close to hospital so it is highly inconvenient for me to attempt to use the library and its resources. I have only been there one time and it took me 20 minutes driving in circles to find it because it is poorly identified, also found the staff to be less than friendly;" and, "I have used the library resources in the past and the staff is always very helpful and knowledgeable. Need more info on how to do searches and find articles on my own. I know I have been told before but haven't used it so it didn't stick."

From two physician survey informants: "I find most of my needs met through UpToDate or similar services;" and, "Knew of this service long ago, but just do not remember the 'process' and the services that we can utilize through the library. Not well advertised within the system."

Quantitative and narrative data were used to create a representative "snapshot" of the non-user, the user, and a category of user identified as the independent user. See Figure 5.

Figure 5. A "snapshot" of the non-user, the user, and the independent user.

**The Non-User**
- Likes Google searching; not necessarily a preference
- Uses other libraries (university access)
- Isn't aware of what the HSL offers
- Looks for more than "just enough" information on their own
- Prefers to do their own searching
- Not confident using HLS online resources
- May be intimidated by search process
- May be intimidated by the idea of "library"
- Does not have time to contact the HSL
- Says it takes too long to go through CITRIX
- Does not have adequate computer access on site
- Prefers to keep interactions with librarians impersonal
- Only likes to use user-friendly interfaces
- Password changes are a barrier/hassle
- May use intermediaries or gatekeepers

*"If you don't have it in five minutes, I'm gone."*

*The data statements on this chart come from one-on-one interviews, focus group interviews, and surveys administered to staff. Some statements are direct comments; others are aggregated from data sources that reflect expressed general beliefs or findings.*

**The Independent User**
- Savvy searcher; technologically competent
- May function as gatekeeper/intermediary for dept.
- Performs environmental scanning
- Demands high quality results
- Needs evidence-based, quality-filtered results
- Does not necessarily require synthesizing
- Will always search first on their own
- Contacts HSL as last resort
- Comfortable using sources outside of HSL offerings
- Comfortable using variety of technologies for access
- Time pressures dictate quick results
- Uses specific free web sites
- May view self as expert in the field
- PDF delivery is important

*"I use reliable online sources and can find answers generally in a few minutes or less."*

**The User**
- Likes using HSL
- Understands what HSL can do for them
- Uses a variety of methods to contact HSL
- May use frequently or infrequently
- Attended a class (or two) given by Karen
- Demands quality-filtered information at their fingertips
- Willing to let HSL search, filter, synthesize, and deliver
- May not necessarily visit HSL in person
- Has issues with password barriers, but uses system
- May agree with non-users that CITRIX is slow
- Time pressures dictate quick results
- PDF delivery is important

*"I love the library. The ladies are 100 percent professional."*

**How users first learned about the library**. Informants who reported that they had used library resources within the past six months were asked how they had first learned about the library. Among the 429 self-identified users who answered that question, the two most cited sources of information about the library were an orientation session and a colleague or supervisor, followed by a training session or presentation from a librarian. Other sources in order of responses included the health system website, a health system or hospital newsletter such as e-Rounds, eLink, nursing school, and CITRIX.

> "Is there a quick link on our eLink webpage that we could access that would also have the name of a librarian to contact for further questions?"

**How users prefer to access library services.** Informants who self-identified as library users were asked to identify their preferred means for accessing library services. In every survey group, user responses were the same: a strong preference for searching the library's website, followed closely by emailing the librarians. Visiting the library and telephoning the library were ranked next in order of preference, followed by Instant Messaging or Chat services (if they were available) and requesting that others access library services on their behalf.

**How users perceive the library and library services.** Informants who identified themselves as library users were asked to respond to statements related to their current use. In response to the statement, "This is the main library I use for my information needs, 64% informants who responded to this statement indicated "Agree Strongly" or "Agree." Similarly, 61% of informants indicated "Agree Strongly" or "Agree" to the statement, "I depend on library staff to help me locate needed resources." In response to the statement, "Library staff provide quick and complete service" 76% of informants indicated "Agree Strongly" or "Agree." Finally, in response to the statement, "I locate my own resources and ask the librarians to deliver articles that I cannot retrieve on my own," 62% of informants indicated "Agree Strongly" or "Agree."

**Essential library resources and services.** Informants from the physician, general, and College surveys were asked to asked to indicate the level of importance they placed on various library resources and services. The top five library resources and services for each group are displayed in Table 8.

Table 8. Informant response to the request, "Saint Luke's Health Sciences Library provides access to a full range of resources and services. Which do you consider most essential to your work? Please indicate the level of importance you place on the resources and services listed below." Top five responses from each survey group are displayed in order of perceived importance. N=263

| Survey Group | Top five responses, in order of perceived importance |
|---|---|
| Physician | UpToDate |
| | Online journals |
| | PDF copies of journal articles |
| | PubMed/MEDLINE |
| | Drug Information Portal |
| | |
| General | Online journals |
| | PDF copies of journal articles |
| | PubMed/MEDLINE |
| | UpToDate |
| | Literature searches by librarian |

College                    PDF copies of journal articles
                                     PubMed/MEDLINE
                                     EBSCO research databases
                                     Online journals
                                     CINAHL (followed closely by MedlinePlus)

**Themes that appeared in narrative survey responses.** All survey informants were asked to "Please take just a minute more to let us know how Saint Luke's Health System Library services could be more useful to you." Those narrative responses were coded to identify key themes. Responses related to resources and services and information seeker preferences were discussed earlier in this report. Other key themes included 1) issues related to access to library resources and services, including physical access, ease of use, and the need for instruction in how to use the library and its services; 2) the appreciative responses of those who use library services; and 3) the need for greater awareness of what the library has to offer. Responses coded to those themes, organized by survey group, are displayed in Appendix F.

**Focus groups**

Informants in each of the three focus groups were asked to review and comment on survey findings related to the themes of time, quality of information, ease of use, accessibility, and resources needed.

"When I need it I need it immediately—full text"

With regard to time, informants verified that they often needed information for use at the bedside almost immediately. A trainer said that, although his time for searching for information varied, he never had more than 15 minutes to search. His search would be interrupted and he would have to move on. Some informants indicated that, because of the immediate information need, they preferred to search themselves, rather than take the time to call the library. For example, a College of Health Sciences faculty member pointed out that students were often required to locate "best practice," quality filtered information to support their clinical work the next day. Given the situation, they generally conducted those searches in the evening, after class. A nursing student confirmed the need to retrieve information quickly, saying to the principal investigator that, "If you can't get it [for me] in five minutes, I'm moving on." A number of students indicated that they could get information faster on Google than from the library. On the other hand, when the information need was not immediate, several informants said they were willing to wait for information to come from the library. A director of patient care services said that the principal investigator Karen was a "huge timesaver," adding "Hallelujah!" to indicate her appreciation for that service.

With regard to quality of information, a clinical staff person said that she did not need or want "peer-reviewed" information at the bedside. When asked to clarify, she indicated that what she did want was reliable, quality-filtered, highly-synthesized information that she could put to immediate use, such as that available from UpToDate. Other informants described quality information as that which fits the topic, is comprehensive enough to meet the information need, is based on sound research, and is published in a peer-reviewed source. Nursing students and faculty reiterated the notion

that quality has, in part, to do with information that is relevant to the purpose for which it was sought. Students emphasized that information had to be written in an understandable way. One faculty member indicated that quality information for her students would be "written by nursing" or produced by a collaboration of nursing with another discipline.

Of the focus group informants, the most vocal in terms of the need for ease of use were nursing students and faculty. One faculty member said that students needed readily-accessible, level one evidence, such as that provided in UpToDate, which was easy to use. The only problem was that it was not available off campus, which made it difficult for students to use for their overnight assignments. Students emphasized the need for easy, quick access to full-text resources from the library's website. One student voiced the opinion that the Saint Luke's library was not created with students in mind, saying he had better luck searching a local community college's website. That website is easy to use, he said. There is one search page with a dialog box. He can select the databases he wants, filter for peer-reviewed resources, and enter one search statement. The results, many of which are full-text, are visible in one list. Other comments related to ease of use involved changing passwords, having to use a separate password to access library services off-campus, and having to click more than three times to get to the information needed.

Focus group informants confirmed that accessibility was a serious issue in terms of library use. Individuals in one focus group pointed out that there were no computers on their units. To search the library website, they would need to leave the patient care floor. As a result, they could only search over their meal breaks. Most people in that facility did not have email accounts, so that presented an additional challenge. Individuals in another focus group said that many people in their facility were not comfortable with computer use. Since both of these facilities were located at some distance from the Health Sciences Library, their access to its services was limited.

When asked to review findings about resources needed, informants in two focus groups confirmed that they need both clinical and nonclinical information to do their jobs. On the clinical side, they indicated that they needed information on nursing quality of care websites, environmental issues, patient care materials in multiple formats and languages, and psychology and social work. On the nonclinical side, they expressed a need for information on Six Sigma, process improvement, staff education and development, leadership, HIPPA issues, research methodologies, and healthy lifestyle issues for employee health. This confirmed survey findings indicating that clinical personnel require both clinical and nonclinical information to fulfill their responsibilities.

# Discussion

Conversations preliminary interview informants and focus group participants confirmed survey findings about the rather exceptional degree of satisfaction among those who were familiar with the library and the librarians and utilized their services. Research team members were struck by the number of informants who spoke of contacting the librarians—with the emphasis on speaking with the professional staff. In the world of public and academic libraries, it is far more common for people to speak of "going to the library," with the emphasis on the building or the collection of materials housed there. This, combined with both quantitative and qualitative data from satisfied users, indicated that when the librarians have an opportunity to interact with their customers they do an outstanding job.

The study did identify consistent themes that suggested possible improvements. The first set of themes involve issues related to access. Those issues include the location of the library facility; access to online resources, including resources like UpToDate; support for independent searchers; ease of use; and the need for additional instructional opportunities in both face-to-face and online formats.

I would just say that I have had excellent experience when e-mailing the librarians. They are incredibly helpful and get back to me so fast!! It is because of them that I am able to do nursing research and still take care of my patient at the bedside. Thanks so much for all you do!!! I think that many are not aware of how wonderful it is!!

Although library users expressed high praise for the level of service they received from the librarians, they expressed frustration with their access to library resources and services. Some of that involved the library's current location. For example, a physician wrote the following in response to a narrative survey question:

> They need to move the library back on the campus--it's obscene to have it two blocks away. Physicians need a place to congregate [that] focuses on education and knowledge, not just in the lounge to have a donut. The loss of the Spencer Library and its meeting spaces was a huge blow to the intellectual life of this institution and represents just another way in which we are sliding towards being just another urban community hospital.

Other informants pointed out that having the library so far from their hospital or the College made it unlikely that they would be able to go there, particularly for those who work in facilities as much as 100 miles away. "Out of sight, out of mind" seemed to be at work. The relationship between distance from the library and level of involvement might partially explain why only 66 of the 1,095 survey responses came from Anderson County Hospital, Hedrick Medical Center, and Wright Memorial Hospital, the more distant of the Saint Luke's Health System facilities. Informants also reported that lack of exterior signage make the library difficult to find, and lack of parking made it inconvenient. Others cited the lack of meeting and study space once they got there.

Only a few respondents indicated that the physical library was a "destination" site. There seemed to be little motivation to visit in person,

particularly since so many voiced a preference for contacting the librarians via e-mail or telephone. A surprising number indicated that they would also use instant messaging or chat reference services if they were available.

Access to online resources was considered essential by a significant number of informants. Informants in each of the four survey groups strongly preferred accessing library resources and services through the library's website, followed closely by contacting the librarians by email. In response to the question, "When you need information to support your delivery of health-related services (or, in the case of the College survey, "support your work"), more than half of the physician, general, and College respondents strongly agreed with the criterion that the information should be readily available from their worksite. Since there are no plans to install branches in each location, that access must be online.

Although many informants voiced satisfaction with being able to request a literature search or PDF copies of article from the librarians and then to wait for a response (most generally a very timely response) a number of informants pointed out that some information needs required immediate answers for bedside care. In those situations, it was unlikely that a literature search and delivery of relevant articles, no matter how timely or authoritative, would satisfy the information need. LIS research on information seeking and use confirms that individuals who require information for the purposes of immediate decision making will satisfice—go with the best information available within the time allowed.

Although satisficing is not ideal, it does reflect the pressures of providing health care services in a fast-paced environment. The need to retrieve "actionable" information quickly may help explain why physician and general survey respondents identified UpToDate as one of their most essential information resources. Clinical decision support systems like UpToDate and Nursing Reference Center (which was not available at Saint Luke's at the time of the study) provide current, comprehensive, peer-reviewed evidence to support patient care decision making. Complicating the use of UpToDate at Saint Luke's Health System, however, were the perceived barriers of multiple, frequently changing passwords and the lack of off-site access due to licensing and cost issues. College faculty and students, for example, cited the need for students to prepare in the evening for their next day's clinical work. Although access to a quality clinical decision support system such as UpToDate would meet a good share of the information needs related to preparation for clinicals, students cannot access it from home.

When it came to searching independently, informants expressed confidence in several tasks related to seeking and evaluating information. For example, when asked to identify their level of confidence in regard to identified tasks, the highest level of confidence had to do with the ability to "read and utilize evidence-based resources for my work." Since most of the informants were clinicians—experts in their field—this degree of confidence is not surprising. Next in statements reflecting level of confidence were "I can find quality-filtered information using clinical resources available on the Web (e.g., WebMD, MedlinePlus)," "I can find quality-filtered information using

general Internet search engines (e.g., Google)," and "I can search online clinical databases (e.g., PubMed/MEDLINE, CINAHL, UpToDate)." Is that confidence justified? Could the librarians conduct a better search? Possibly, although as one informant pointed out, the process of searching educates the searcher—it's not just the end product that matters. Here again, we're dealing with the perceptions of experts in their own subject areas, working within the context of a high-pressured work environment.

Despite informant confidence that they could find the information they needed, they were less confident that they could "locate evidence-based resources for my work in a timely and efficient manner." The most efficient use of time, in fact, was a significant finding in this study. As indicated in Figures 3 and 4, the greatest number of informants in all four survey groups will spend 6 to 10 minutes looking for the answer to a basic, fairly straightforward question. When looking for the answer to a complex question, nursing respondents, in particular, indicated that they would spend more than 20 minutes. Given the value of their time and the need to optimize professional staff, there is a significant opportunity cost associated with doing so.

Informant frustrations about access to library resources and services also had to do with ease of use issues. Although some users indicated that they had no difficulty accessing information from the library's website, a much greater number indicated a need for improvement. A College user requested, "Easier accessibility from the Saint Luke's Home Page. The times that I have tried to use it, I have found it difficult to navigate through and find what I am looking for." An example of the type of problems users experience is represented by the website instructions, Medical Knowledge Base (Medical Library). External Access to Databases and Library Holdings (http://intranet.saintlukeshealthsystem.org/slhs/Services/Common/Saint_Lukes_Medical_Library/External_Access.htm). Although these instructions might seem clear to those familiar with the system, to a novice or a busy clinician looking for information to meet an immediate need they must seem confusing. Given the importance placed on online access, the current library website appears to present a barrier rather than a useful interface to library resources.

Ease of use was closely tied to an expressed need for additional instructional opportunities on how to use library resources and services. A number of informants noted how useful in-service instruction with the librarians had been, but often accompanied that with "but those classes don't seem to be offered as much anymore." Others pointed out that it was difficult to attend face to face classes and that online, "just-in-time" library tutorials would be ideal. Several nursing informants said that HealthStream could be used to deliver those tutorials. A physician survey informant suggested that, "It would be helpful to have an in-service presentation on how to access this information--perhaps a personal visit from I.T. or library staff at one of our monthly physician meetings would be helpful. What is available at South? How do I get on line? How do I access UpToDate?"

Other themes that emerged from the data and suggested possible improvements include an expressed need for additional clinical and non-

From a physician: "I think there needs to be a unified search mechanism across the subject sources (search aggregator). The data sources are too divided and the data contained between ebsco/ovid etc is too hard to use successfully."

clinical information resources, including those in e-book format, and a call for greater awareness of library resources and services.

Informants seemed generally pleased with clinical resources available from the library, although a number of informants expressed a need for psychology resources and resources available as e-books. However, informants in the physician, general, and nursing surveys indicated that they needed resources in non-clinical areas as well. Areas of interest included federal and state legislation, sources of grant funding, staff development, and human resource issues.

Finally, narrative survey responses and the data from the preliminary interviews and focus groups indicated that both users and non-users believed there was a significant need for greater awareness of library resources and services. Informants who reported that they had not used the library in the past six months said they didn't know that there was a library or a library website and that they needed more information about how to use them before they could know if either would help them.

Informants in the physician, general, and nursing survey groups offered a number of suggestions, including email notices on library resources, a guide to library services, more information on the website, library tours, reminders about library services published in the monthly e-newsletter, disseminated lists of resources, and presentations at events like morning report or noon conferences. In short, both users and non-users wanted to hear more about what the library had to offer. A nursing survey informant suggested, "Continue to promote yourself more. Get the Library name out there. The Library promoted itself a lot when I was at Saint Luke's College of Nursing and now I hardly hear about it."

From a nursing survey informant: "Make the library more known to hospital staff and how to access it. It is easy to forget we have an online library or access to it when we are busy and need information quickly or use the resources very few times."

# Recommendations

This report documents a study conducted on behalf of the Saint Luke's Health System Library to 1) identify current and potential library users and their information needs of library users; and, 2) support the creation of a plan to provide exemplary information services that will surpass competing information sources.

Given their expertise and professionalism, the Saint Luke's librarians are in a good position to redesign library services to address the current and future information needs of their colleagues across the health system. The recommendations that follow have been made to assist in that task.

**Recommendations related to the identity and information needs of current and potential library users include the following:**

Recommendation 1. Develop multiple service patterns to address the diversity of current and potential library users.

The Saint Luke's library serves a diverse group of users, including those from Saint Luke's Hospital, which is approaching a quaternary care level; tertiary and primary care hospitals; and specialty facilities. A winner of the Malcolm Baldrige Quality Award, Saint Luke's Hospital is a large hospital with 578 active physicians. The hospital has achieved magnet status twice and is working toward a third designation. Other facilities are much smaller and relatively new to the health system. Seven of the facilities are located in the Kansas City metro area; three are located in small towns some distance from Kansas City. Because of these and other factors, organizational culture differs considerably across the system. In some facilities, the library is quite visible, with an active core of library users; in other facilities, it is much less visible.

The term "service pattern" is used here to describe a set of activities designed to address a particular customer need. For example, the Saint Luke's librarians excel at the service pattern of responding to an expressed information need with a comprehensive, quality-filtered search and the delivery of relevant articles. Demand for that service pattern will continue and probably increase as the library increases its visibility within the health system. Conversations with the principal investigator and preliminary interview informants indicated that the Table of Contents and Selective Dissemination of Information (SDI) service patterns might also be well-received once they are better publicized.

Evidence gained from this study suggests that additional service patterns are warranted. Some users will continue to seek out the librarians, either in person or via email or telephone. But a significant number—called "independent searchers" by the research team—indicate that they want to be able to conduct their own searches. In some situations the context of the

information need requires an immediate answer; in other situations the searcher gains valuable insights by conducting the search independently. Some individuals—particularly those who have grown up using computers-- simply prefer to search on their own. Whatever the reason, this information seeking behavior is not likely to change. Viewing it as an anomaly or an error in judgment that can be remedied by increased library training is not a productive response. Certainly, instruction can and should inform information seekers of cases where the librarians should be called in. (Library instruction will be addressed in more detail in Recommendation 5.) But a growing number of users will expect a service pattern that supports their efforts as independent searchers.

It would be a mistake, however, to provide only technology-bound service patterns. For example, conducting the focus group at Crittenton Children's Center resulted in the discovery that computer access in that facility was limited to just a few staff members. To use a computer, nurses needed to leave the floor. Only a few computers were available for their use during break times. Service patterns limited to electronic communication channels will be invisible in this and similar environments. In these cases, stakeholders within those facilities could advise library staff on the best way to share information about library resources and services. Resident stakeholders could also serve as conduits for that information.

Recommendation 2. Identify and provide access to additional Web resources in areas of expressed need.

The presence of quality-filtered information available from credible sources via the Internet makes it unnecessary for the library to purchase and maintain all of the resources it makes available from its website. The current library webpage includes links to the Drug Information Portal and JoCoHealth.net. Links to additional, authoritative sites such Thomas, legislative information from the Library of Congress, and Grants.gov, information on federal grants provided by the U.S. Department of Health and Human Services, could be used to address expressed needs for resources in these and other areas identified by study informants.

Given the degree of interest in online access and the distance of the library from outlying sites, it would also be useful to identify and acquire e-book formats of frequently requested texts. As with the resource links described above, these should be readily available from the library website.

**Recommendations related to creating a plan for the provision of exemplary information services include the following:**

Recommendation 3. Develop a network of library stakeholders that includes representatives from each of the health system facilities. Draw from that network to create an advisory board and work with members of that board to articulate the library's mission, vision, goals, and objectives.

Conducting this study raised awareness of the library and its services. We recommend that the librarians take advantage of this heightened awareness to expand their network of stakeholders—interested representatives from

each of the facilities in the Saint Luke's Health System. Once developed, the stakeholder network should be mined to identify those persons willing to meet with library staff to discuss and articulate the library's mission, vision, goals, and objectives. "Identifying and Communicating the Contributions of Library and Information Services in Hospitals and Academic Health Sciences Centers," authored by Abels, Cogdill, and Zach and published in the *Journal of the Medical Library Association,* January, 2004, could serve as a useful springboard for productive advisory board discussion. See in particular Appendix A.

The library's mission statement should be aligned with that of Saint Luke's Health System: "Saint Luke's Health System is a faith-based, not-for-profit aligned health system committed to the highest levels of excellence in providing health care and health related services in a caring environment. We are dedicated to enhancing the physical, mental and spiritual health of the communities we serve." It should be constructed for internal use-- defining the library's purpose, identifying how it stands out from competing information sources, and establishing the means by which success should be measured.

The library's vision statement should also be aligned with that of Saint Luke's Health System: "The best place to get care. The best place to give care." The purpose of the library's vision statement should be to energize current and potential library users—to motivate them to take advantage of the library's services. For example, what do library stakeholders and customers value? What unique contributions can the library make to their work in the organization?

Once drafted and approved, the mission and vision statements should drive the creation of goals and objectives. Goals should identify general intentions—intangibles; objectives should identify precise, concrete activities that can be measured. For example, a goal might be to assist colleagues across the health system to optimize their time on task. An objective might be to document the opportunity costs when users with complex information take time away from their clinical and administrative work to search themselves rather than contacting the librarians to assist them—either by conducting the search or advising them on "just in time" search strategy if they prefer to search independently.

Recommendation 4. Develop three primary access points to the librarians and library services: a main library, a "virtual branch," and a "traveling branch."

The Saint Luke's Library is located in a beautiful, historic building. It offers a quiet atmosphere conducive to study and research as well as wireless access, a small computer lab, and convenient access to books and journals. Close by are the Westport and Plaza areas of Kansas City. Despite these attractive features, the library facility is not used by many people. This situation could be remedied by increasing its visibility. Photographs of the library exterior and interior could be included on the website and in print and electronic publications. More prominent exterior signage could make the library easier to find.

Given the diversity of current and potential library customers and the pressures of the health care workplace, it is unlikely that the library—at least in its current location—will become a frequent "destination" site for those outside the metro area. This situation can be addressed by the "construction" of two other "branches"—a virtual library and a traveling branch—a circuit librarian.

For most of the library's customers, the website IS the library—a virtual library. The existing website is a beginning, but much more could be done to create an attractive, easy to find, easy to use information portal. Working in collaboration with the Saint Luke's information technology team, the library could accomplish this goal.

LibGuides offers a viable option for constructing a more substantial virtual library. A number of libraries use LibGuides as the foundation for their library webpages, giving library staff more control over content, features, and web design. The learning curve for this product is relatively short when compared to HTML or Java editing software used to create Web pages. It is easily updated from any online location, yet also offers a secure way to provide vital information for users in a pleasing and familiar web environment. The LibGuide product is also unique in that it is a shared resource—users may "borrow" successful electronic instructional elements for use in their own library web LibGuides.

These guides also are prevalent in colleges and universities throughout the United States, including the University of Kansas, Kansas State University, Emporia State University, University of Missouri – Kansas City, Missouri State University, Fort Hays State University, Johnson County Community College, Pittsburgh State University, Washburn University, Missouri State Western University, St. Louis University, and Washington University.

A number of medical libraries also use this product. Some examples of current health sciences library LibGuides include:

- Duke University Medical Center Library
  http://guides.mclibrary.duke.edu/
- Harvard Medical School – Countway Library of Medicine
  http://hms.harvard.libguides.com/
- George Washington University Medical Center – Himmelfarb
  Health Sciences Library
  http://libguides.gwumc.edu/browse.php?o=s
- Bernard Becker Medical Library http://beckerguides.wustl.edu/
- Florida International Medical University Library
  http://libguides.medlib.fiu.edu/
- Norris Medical Library http://norris.usc.libguides.com/

As these sites demonstrate, LibGuides can be developed to share frequently requested information and customize portals for particular user groups. For example, informants in the preliminary interviews, surveys, and focus groups expressed a need for graphics to support their professional presentations. Moody Medical Library at the University of Texas offers

instruction online for accessing clip art and graphics that are copyright-free at http://guides.utmb.edu/images. Collaboration with colleagues in areas like clinical education could also be undertaken to create customized search portals, which would both save time and provide links to pre-filtered, authoritative resources.

Whatever the approach to constructing a more substantial website, the virtual library should be easier to find. The lack of a direct link from the main Saint Luke's Hospital System page presents a major stumbling block to use of the current library website. Conversations with information technology staff would be helpful to establish a more visible link from this and other electronic venues. Another way to accomplish more convenient access to the library website would be to create a shortened URL—an alias—such as hsl.org instead of the current address, http://intranet.saintlukeshealthsystem.org/slhs/services/common/saint_lukes_medical_library/medical_knowledge_base.htm. Although it is necessary to require a username and password for advanced entry into the commercial databases, having a simpler alias should not cause conflicts with database subscription licensing agreements.

Collaboration with the information technology team could also be helpful in creating RSS feeds, which can "push" webpage news items about resources added to the collection, helpful hints on how to search specific databases or locate information on timely topics, and instructional opportunities.

Basic usability tests should be conducted with representative target groups to ensure that the renovated virtual library is organized in a manner that makes sense to users. Like most professional groups, librarians and information technology specialists use word choices and organizational patterns that make sense to them, but may not be clearly understood by those in other fields. For that reason, it is essential to put the website to the test before it is fully implemented. One possible test involves categorization. Representative users are given cards, each of which represents one concept or item. Users are then asked to organize the cards into categories and to label the categories. Are there common elements to the users' categories and category labels? Do they reflect the way the website is organized? If not, might the users' input be used to make changes?

Students participating in the College focus group suggested yet another option for increasing library outreach efforts: a Facebook presence. Using this social networking tool, librarians could provide an interactive environment to share contact information, call attention to library resources, and publicize upcoming classes and events. Because it is free and has a pervasive presence in contemporary culture, a Facebook presence would be cost-effective investment in increasing library awareness among users working from their home computers.

The third suggested library "branch" is actually a variation on circuit librarianship. Given existing staffing levels, it should be possible for one of the librarians to develop a circuit of facilities to visit in person and at regularly-scheduled times. Conversations within the library's stakeholder network and advisory board should be used to identify events such as

regularly scheduled meetings, optimum timeframes, and relevant topics at each of the health system's facilities. The purpose of these visits would not only be to raise awareness of library resources and services, but also to create a relationship by offering "on the spot" library consultation.

Recommendation 5. Increase opportunities for instruction in library use, utilizing both face to face and online environments.

Informants expressed a significant need for instruction in how to optimize their use of library resources and services. Existing library classes can be used to address these needs. Members of the advisory board should be consulted for their advice on how to schedule them for greater attendance. In addition, online tutorials should be developed and readily available from the library website. More formal instructional packages should also be created, utilizing existing educational channels like HealthStream.

Recommendation 6. Market the library and its services.

The Health Sciences Library's current base of loyal users is a testament to the services provided by the librarians and staff. Improvements in marketing should be considered as a way to raise awareness of what the library and the librarians have to offer.

To begin, the mission, vision, goals, and objectives discussed in Recommendation 3 should drive the creation of the library's brand—a consistent name, slogan, and design scheme. For example, is the name of the library the Saint Luke's Health Sciences Library or the Medical Knowledge Base, which appears on the library's webpage? Is there a slogan or tagline that keeps the library in its customers' minds? (One possibility: magnets or pads of paper with the slogan, "If it's going to take more than 10 minutes, call a librarian!" and the library's telephone number and email address). Is there a consistent design scheme to all print and online information about the library and its services? Does every literature search and emailed message from the library communicate its brand? These and other measures can be both powerful and cost-effective marketing tools.

Marketing also includes pushing information out to existing and potential library users. For example, the heightened awareness brought about by conducting this study provides a window of opportunity for librarians to identify and publicize their resources and services. See Table 9 for an example of how this might be displayed.

Table 9. Display of available library resources and services.

| Information Resources | Access | Instruction |
|---|---|---|
| **Electronic**<br><br>◆ Subscription databases<br>◆ RSS Feeds<br>◆ General Links<br>◆ eBooks<br>◆ Clip art library | **Electronic**<br><br>◆ Health Sciences Library web site<br>◆ Direct access through URLs<br>◆ Username/password access<br>◆ Computers - on site at HSL<br>◆ E-mail requests/delivery | **In Person**<br><br>◆ Scheduled<br>◆ Orientation to HSL<br>◆ Database searching<br>◆ Advanced database searching<br>◆ Presentations "how to"<br>◆ New Hires |
| **Print**<br><br>◆ Journals/ periodicals<br>◆ Books<br>◆ Textbooks<br>◆ Current awareness service (photocopied table of contents, etc.) | **Print**<br><br>◆ Check out procedures<br>◆ Books/journals/periodicals<br>◆ ILL | **Online**<br><br>◆ Self help<br>◆ Specified and short<br>◆ As-needed/just in time<br>◆ Same topics as for "in person" category above |

This information should be published in as many communication venues as possible and as often as possible. Additional ideas for effective promotions, advertising, direct marketing, and public relations efforts are available in Doucett's *Creating Your Library Brand: Communicating Your Relevance and Value to Your Patrons*, 2008.