integrated into the circulating collection. They may be checked out for one week, with a renewal option for two additional weeks. Because nonuniversity patrons may not check out library materials, a $300.00 fund for photocopying was established. The nurse coordinator of patient education or a reference librarian can photocopy any materials a patient requests. Bookplates were placed on the inside front cover of each acquisition, indicating that the book was purchased by the Volunteer Auxiliary of Shands Hospital. Although initially there were only about one hundred volumes, they filled a gap in the general collection and provided valuable new resources for patients. Efforts will be made to supplement the collection in the future on a continuing basis.

A supplementary component of the project includes a cataloging task for both libraries. By identifying holdings in the categories of "popular works," "popular medicine," and "general works for laypersons" at the Health Science Center Library and those in "consumer health" at the public library, librarians can compile a bibliography of existing materials immediately available for patients and their families. This bibliography is currently under development. Efforts so far indicate that the two libraries' combined holdings comprise a surprisingly diverse range of materials.

No funds from the Health Science Center Library budget were expended to purchase any of the basic materials for this new collection. For six months, five to six hours per week were devoted to the project by the medical reference librarian, beginning with the first contact with the State Library of Florida Division of Library and Information Services. Integration of the patient education books into the general collection and distribution of the brochures closed this first phase of the project.

CONCLUSION

As described in this paper, several networking and cooperative strategies improved the delivery of patient education and consumer health information at a major medical center. With help from a state library, this cooperative project of a public and an academic health science center library benefited hospital patients and their families. The core collection for this population will continue to expand.

These are just some of the strategies used to share resources and to target specific needs that increase and broaden the collection of the Health Science Center Library at the University of Florida. Many of these ideas could be used at other sites.

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Continuous quality improvement in the hospital library

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The continuous quality improvement (CQI) program at the Richard D. Haines Medical Library of Scott & White Memorial Hospital includes evaluation of user satisfaction. Staff physicians, house staff, residents, and medical students are the most frequent users of the library. Recently, the library's CQI coordinator conducted a survey targeting hospital department directors. Library use by hospital administrators had not been evaluated prior to this study.

Although the primary purpose of a medical library is to provide services to those involved in direct patient care, department directors and their respective staffs represent a sizeable user population. A review of the literature showed no prior research on use of hospital libraries by department managers or administrators. In her 1968 study of the role of the hospital

Table 1
Awareness and use of library services by hospital administrators

Service	Awareness of service		Use of service	
	Positive responses (%)	Respondents*	Positive responses (%)	Respondents*
Photocopy service	41 (74.5)	55	17 (30.9)	55
Interlibrary loan	47 (82.5)	57	28 (49.1)	57
Computer searches	53 (85.5)	62	38 (64.4)	59
Check-out of books or journals	59 (95.2)	62	47 (77.0)	61
Answers to reference questions	47 (87.0)	54	31 (55.4)	56
Selected dissemination of information (SDIs)	28 (47.5)	59	7 (12.5)	56
Average % positive responses (all services)	(78.7)		(48.2)	

* All items were not checked by all respondents.

library within the hospital system, Lorenzi interviewed four hospital administrators and found that they seldom used their facility's library [1]. However, that study was broad in scope and did not focus on the information needs of any one user group.

SURVEY INSTRUMENT

A five-item survey was developed to examine frequency of library use, information needs, awareness and use of current library services, and desire for additional services. The original instrument was developed to survey nursing staff. It was adapted from several surveys in the Medical Library Association's *Evaluation Instruments for Health Sciences Libraries* [2]. Members of the nursing education and research department reviewed the survey instrument and suggested revisions, which were implemented. The instrument later was modified to target management rather than nursing issues.

RESULTS

Ninety-eight surveys were distributed to hospital administrators, including nonphysician departments and nurses. Sixty-four (65.3%) surveys were returned. (The director of the library excluded herself from the survey.) This is the highest rate of return for any user group previously surveyed by the library.

Respondents were questioned about how often they used the library. Seven (10.9%) directors had not used the library in the previous twelve months. Fifteen (23.4%) had used it once or twice. Twenty-seven (42.2%) had used the library less than once a month. Fourteen (21.9%) respondents used the library once a month or more. Only two (3.1%) respondents used the library weekly. Administrators of nursing services and medical research and education were the most frequent users of the library.

Administrators also were asked to rank their current information needs on a scale of 1 to 10, with 1 being the most important current need. Needs ranked 1, 2, or 3 were tallied. Continuing education and research had the highest number of responses (thirty-two). Legal issues/ethics had the second highest number of responses (twenty-six), followed closely by patient concerns (twenty-four).

Administrators also were asked about their awareness and use of current library services. The majority were aware of the library's current services with the exception of the Selected Dissemination of Information (SDI) program. However, administrators indicated they did not actually use the services to an extent matching their awareness. On the average, 78.7% of managers were aware of the current library's services, while an average of only 48.2% actually used the services (Table 1).

Respondents then were asked to rank by importance a number of proposed services for the library. They selected instructional seminars as most important, followed closely by table of contents services. Ranked third was the capability to do their own computer searches. Responses to the final question—Does the library meet your current information needs?—were overwhelmingly positive: 56 (87.5%) said yes; 4 (6.25%) said no; and 4 (6.25%) had no response.

CONCLUSIONS

Although 76.6% of responding department directors had used the library less than monthly in the previous twelve months, 87.5% indicated the library met their current information needs. Awareness of current services was quite high, although use of these services was much lower. Comments on the surveys indicated that many directors felt their staffs were not aware of the library and its services. These findings pointed to a need for more promotion of the library and its

services—a campaign targeting departments that may not be involved in direct patient care.

A number of suggestions and comments on the surveys concerned the need for a section in the library containing management materials. The library staff felt this indicated a lack of awareness of current library holdings. The staff compiled a bibliography of all management materials currently held in the library collection; 330 book titles and 107 journal titles concerned administration or management, approximately 5% of the book collection and 10% of the journal collection. A selective bibliography was distributed to the department managers.

As a direct result of the suggestions made on the survey, all safety videos for the institution have been moved to the library for circulation. Management videos from the allied health and employee education department have also been added to the library collection. A table of contents service, already in place for nursing, has been expanded to include other departments. The library staff also plans to produce a quarterly newsletter, which will include book reviews and information on services and will serve as a supplement to the monthly acquisition list now published.

Many departments dread quality improvement activities. However, the medical librarians find CQI to be an exciting process. The structure of a CQI program provides a framework for the library staff to examine all aspects of the library's operation. This article describes one aspect of the program: user satisfaction. The CQI process enables the librarians to identify underserved user groups and their needs, to market the library and its services to these groups, and to make changes to accommodate those needs.

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End-user errors: a content analysis of PaperChase transaction logs

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INTRODUCTION

In recent years, information professionals have witnessed a proliferation of software products that enable the primary consumers of information (i.e., the end users) to search bibliographic and other types of electronic databases. In the field of medicine, a number of products have been developed that allow end users to search MEDLINE as well as other health-related databases. Although studies of these products and similar nonmedical systems show that end-user satisfaction is often high, some information professionals are concerned that the results achieved may not be worthy of such enthusiastic praise [1–3]. This paper reports on a study of end users of MEDLINE using PaperChase, a user-friendly, menu-driven program designed to be used with little or no training. Transaction logs were examined to identify the types and frequency of apparent searching errors made by users. This work is an extension of the author's previously published study of PaperChase users at the University of Michigan, in which transaction logs were examined to describe characteristics of end-user searches and to determine the effect of experience on searching behavior [4].

METHODS

The transaction logs examined in this study were a subset of the searches used in the previously published study. In the earlier study, the random sample consisted of fifty house officers and fifty medical students who had been searching PaperChase for approximately six months. For the new study, fifteen house officers and fifteen medical students, all in the "intermediate" searcher category, were chosen randomly from the original sample, and transaction logs of five new searches from each of the thirty searchers were selected randomly and examined (n = 150 searches). The "intermediate" category was defined in the previous study as searchers who had performed between ten and twenty searches in the preceding six-month period.

From the transaction logs, information could be ascertained about the end users' searches, including the number of statements used and records displayed, the use of Boolean operators, whether subjects were