



Classic

Hospital Libraries Have a Positive Impact on Clinical Decision Making and Patient Care

A review of:

Marshall, Joanne Gard. "The Impact of the Hospital Library on Clinical Decision Making: The Rochester Study." Bulletin of the Medical Library Association 80.2 (1992): 169-78.

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Abstract

Objective – To determine the impact of hospital library services on clinical decision making.

Design – A descriptive survey.

Setting – Fifteen hospitals in the Rochester area of New York, United States of America. Seven hospitals were in the city of Rochester, and eight were in surrounding rural communities.

Subjects – Active physicians and residents affiliated with the Rochester hospitals.

Methods – This study built upon the methodology used in an earlier study by D.

N. King of the contribution of hospital libraries to clinical care in Chicago. Lists were compiled of all the active physicians and residents who were affiliated with the Rochester hospitals. In order to ensure that there was a reasonable number of participants from each hospital, and that librarians in hospitals with larger numbers of staff were not overburdened with requests, predetermined percentages were set for the sample: 10% of active physicians from hospitals with more than 25 medical staff members, 30% from hospitals with less staff, and 30% of residents and rural physicians. This resulted in a desirable sample size of 448. A systematic sample with a random start was then drawn from each hospital's list, and physicians and residents were recruited until the sample

size was achieved. Participants were asked to request information related to a clinical case from their hospital library, and to evaluate its impact on patient care, by responding to a two-page questionnaire.

Main results – Based on usable questionnaires, there was an overall response rate of 46.4% (208 of 448). Eighty percent of the respondents stated that they probably (48%) or definitely (32.4%) handled a clinical situation differently due to the information received from the library. In terms of the specific aspects of care for which changes were made, 71.6% reported a change in advice given to the patient, 59.6% cited a change in treatment, 50.5% a change in diagnostic tests, 45.2% a change in drugs, and 38.5% a change in post-hospital care or treatment. Physicians credited the information provided by the library as contributing to their ability to avoid additional tests and procedures (49%), additional outpatient visits (26.4%), surgery (21.2%), patient mortality (19.2%), hospital admission (11.5%), and hospital-acquired infections (8.2%). In response to a question about the importance of several sources of information, the library received the highest rating amidst other sources including lab tests, diagnostic imaging, and discussions with colleagues.

Conclusion – This study validates earlier research findings that physicians view the information provided by hospital libraries as having a significant impact on clinical decision making. Library supplied information influences changes to specific aspects of care as well as the avoidance of adverse events for patients. The significance of this influence is underscored by the finding that relative to other sources, information obtained from the hospital library was rated more highly.

Commentary

Marshall's Rochester study built on previous research conducted by King in Chicago on the contribution of hospital libraries to patient care. The elimination of the hospital library requirement by the New York State Department of Health was a driving force behind the decision to conduct the Rochester study. The study was conceptualized as a means of investigating the value and impact of information in the hospital setting in an effort to ascertain the direct contribution of libraries to health care institutions. The Rochester study went beyond King's study by measuring the importance of changes in clinical care that could be attributed to the use of information obtained from the library by identifying the specific aspects of clinical care that changed due to information provided by the library, by discovering the situations in which library provided information prevented the occurrence of adverse events for patients, and by computing the relative value of this information in comparison with other sources of clinical decision making data.

Apart from extending the research parameters beyond King's, the impact of Marshall's study was heightened by the finding that the utilization of information from literature searching resulted in saving the lives of 40 persons (19.4%) in 200 cases. This discovery was particularly significant since previous studies (e.g. Lindberg et al.) found reduced impact on mortality figures of around 10%. Another landmark finding was that literature searching had a greater impact on patient care management than other sources of clinical information, namely diagnostic imaging, lab tests, and consultations with colleagues. In going further than King's work and Klein's research on the effect of online literature searching on length of stay and patient care costs, the Rochester study supplied detailed information about the "specific nature and

extent of the impact of information provided by the hospital library" (169) in terms of the delivery of patient care, and hence health care outcomes. The study's findings confirmed what librarians previously felt to be true based on their observations and interactions with users, and provided tangible proof about the significance of their work.

The Rochester study continues to be of significance today. This can in part be attributed to the fact that the questions raised by this study – to what extent do literature searches save lives and how does the information they provide relate to other clinical information in importance – are still to be answered. Additionally, the issue of adverse events arising from patient management errors, identified in the Harvard medical practice study in 1991, still exists today (Leape, Brennan, Laird, et al.). Equally true is Marshall's statement that information provided by hospital libraries can contribute positively to reducing "the frequency and severity of adverse events in hospitalized patients" (177), thus rendering the focus of the Rochester study of continuing significance.

The importance of this work is not limited to the sphere of medical librarianship. The library and information science research literature and the health sciences literature bear testament to the significance of the Rochester study. Sherwill-Navarro and Wallace's article about the impact of research on the value of medical library services positioned the Rochester study as one of the most read, cited, and valuable articles published on the topic. These authors found that in the year of its publication, the citation frequency for Marshall's work was "more than ten times the average frequency for an article published the same year" in the *Bulletin of the Medical Library Association* (36). A recent search of the *ISI Web of Science* revealed that

this study has been cited every year since its publication in a total of 70 English-language articles out of 95 citations that include reviews, letters, and editorials.

Urquhart and Hepworth, Burton, Casado-Uriguen et al., and Ali have all conducted research patterned after various aspects of the Rochester study. Marshall's specific categories of impact (avoidance of unnecessary tests, hospital admissions, patient mortality, reduction in length of hospital stay, and improvement of clinical decisions) were included in a taxonomy developed by Abels, Cogdill, and Zach of library and information services contributions to hospitals and academic health centers. Other citing publications focus not only on the value and impact of information on clinical decision-making but also on a range of related topics, including total quality management service benchmarks, evidence based medicine, evidence based nursing, evidence based strategic planning in libraries, the impact of clinical information retrieval technology on physicians, patient safety, user education, the role of librarians, library outreach, the information needs and information seeking behaviors of health practitioners and administrators, decision support systems, and continuing medical education.

Marshall acknowledged the study's limitations: a response rate of 46.4%, the possibility that the medical society president's letter of support that accompanied the package sent to participating physicians could have increased the overall response, results based on self-reporting, and the asking of yes or no answers where qualitative type responses would have been more suitable. Despite these limitations, Marshall's work is valuable not only as a piece of research demonstrating value, but also as an example of quality LIS research. Although the level of evidence is not high since the study was

based on self-reporting of impact, the study is nevertheless meticulous in design and analysis.

Undoubtedly the annals of medical librarianship will record the Rochester study as historically significant in posterity because it has contributed to the store of knowledge directly demonstrating the value of libraries to clinical care, and has formed the basis of many further studies. In so doing, this seminal study has contributed positively to the research literature of the health sciences and library and information professions.

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