Evidence Based Library and Information Practice

Commentary

Applying Evidence in Practice: What We Can Learn from Healthcare

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Applying research findings to practice is the foundation of evidence based practice. In healthcare, evidence based practice depends upon the development, promulgation and application of clinical guidelines. While evidence based medicine (EBM) has been enthusiastically embraced by many, gaps persist, and transmission from research to practice remains slow and uneven. The perception that EBM threatens professional autonomy accounts for some resistance, but even among practitioners who support EBM in concept, the uptake of guidelines has encountered numerous barriers. A recent study of guideline implementation by residents in a tertiary care medical center provides insight into the barriers to guideline adoption, and draws parallels between the uptake of EBM in the healthcare sector and the uptake of evidence based library and information practice (EBLIP) in the library and information field. Through increased understanding of the diffusion of evidence based practice in one field, LIS practitioners can position themselves to avoid similar impediments.

Background

In 2001, the Institute of Medicine (IOM) published its landmark report *Crossing the Quality Chasm,* which noted that it takes an estimated 17 years for scientific evidence to move from research finding to implemented practice. The IOM made four recommendations to move evidence into practice more swiftly:

- Develop guidelines based on evidence
- Disseminate guidelines through application of information technology
- Develop financial incentives for adoption
- Prepare the workforce and set goals for improvement

Clearly, the IOM was calling for greater use of evidence—most often through applying

evidence based guidelines—and for effective ways to implement them.

The library and information community has been instrumental in efforts to increase the use of evidence in practice. The growth of the EBM movement has often included librarians whose activities include quality filtering the literature to find the best evidence, attending clinical rounds to answer questions arising during the review of individual patients, conducting systematic reviews to support guideline development, and working with the medical community to propose a new kind of health professional—the informationist—who would provide the best evidence to the clinical team during the course of clinical care. Librarians have also worked to introduce evidence based practice into the field of library and information practice and have adopted many practices that are similar to those provided as part of evidence based healthcare.

Professional fields other than clinical medicine have also been affected by the evidence based movement. Library and information science has spawned the EBLIP movement which has grown in stature and visibility over the past decade or so. Though clinical medicine has arguably the longest and most robust experiential basis for evidence based practice, it is by no means universally adopted nor is it free from criticism. Despite criticism, calls for evidence based practice have become ubiquitous in many fields.

Implementing EBM, however, has proven to be more challenging than initially expected. The literature of evidence based practice is replete with studies on implementing guidelines, and various theories have been employed to explain, predict, and accelerate adoption. One of the most frequently used theoretical frameworks for understanding implementation of evidence based guidelines is diffusion of innovation. Originated by Everett Rogers (1995), diffusion of innovation is defined as the process by which an innovation is communicated through channels over time among members of a social system. (It has been popularized by Malcolm Gladwell (2000) in his book *The Tipping Point*.) The key elements in diffusion theory are: the innovation, the communication channel the rate of adoption, and the social system—the context and organizational environment. The innovation itself has also been found to have an effect on the decision to adopt or reject an innovation. These characteristics as they relate to an evidence based guideline are: 1) relative advantage over current practice (this could be in terms of cost, convenience, efficacy, ease); 2) compatibility with workflow; 3) complexity (difficulty of use negatively affects adoption); and, 4) observability (innovations that are visible to others are more likely to be adopted and spread to others). The process of adoption itself is posited to have five stages: knowledge or awareness, persuasion, decision, implementation, and confirmation (or maintenance).

Diffusion of innovation provided the theoretical framework for a case study of medical residents' use of a guideline for managing a high risk, anticoagulant drug in a top-rated, academic medical center (Dalrymple, Lehmann, Roderer, & Streiff, in press). In-depth interviews and participant observation revealed that residents initially consulted the evidence based guideline provided to them, but when it didn't produce results as expected, or when its implementation created problems in workflow, pragmatism trumped evidence. The residents disregarded the recommendations in favor of their own experience. When a newer guideline became available, however, the residents adopted its recommendation because it was more compatible with their workflow while producing comparable results. In this instance, the residents chose the evidence based guideline that had the greatest relative advantage and compatibility, as predicted by diffusion theory. This qualitative case study, while not generalizable, illustrates how diffusion of innovation can help explain why individuals may not adopt evidence based guidelines despite their apparent commitment to delivering excellent, safe patient care.

Implications for Evidence Based Librarianship

What can be learned about evidence based library and information practice from this experience? Insights from evidence based medicine, and in particular, health care informatics, can yield valuable lessons for health information professionals who are interested in encouraging the diffusion and adoption of LIS evidence into practice. They can help information professionals understand and appreciate the challenges inherent in evidence based practice. The following section will address some of the issues inherent in diffusing LIS evidence into practice.

The Evidence Base

Creating an evidence base requires that individuals must undertake research studies. Once studies are conducted, published, and made accessible for systematic review process and/or meta-analysis, an evidence statement is made available, along with an assessment of its strength. Typically these have been made available in healthcare through the Cochrane Collaboration. A final step is the issuance of a guideline, generally carrying the imprimatur of a recognized group or organization.

Although the evidence base in LIS is smaller by far than the evidence base in medicine, it does exist, and efforts on the part of groups such as EBLIP and professional associations such as the Medical Library Association and the Special Libraries Association have done much to encourage its growth. However, barriers to conducting research, such as the lack of time, money, knowledge and skill and the absence of a culture of inquiry and incentives from leadership all affect research productivity.

Availability of Evidence

In medicine, the evidence is presented in the form of guidelines, few of which are either presented or consulted at the point of care. Both cognitive science and information technology are being harnessed to bring guidelines to the point of care through computerized decision support systems (CDSS) as well as to a variety of mobile devices. Although they are very promising, decision support systems are still being refined, even after years and millions of dollars have been spent in developing and testing them.

Though it is unlikely and probably not necessary to design decision support systems for information professionals, it may be both feasible and desirable to deliver evidence to the information professional's desk top or handheld device. It surely should be made available at the time organizational decisions are being made, yet many libraries and librarians lack adequate access to the LIS research evidence base. The evidence summaries published in this journal are a good first step in making accessible the evidence resulting from the LIS research base. That it is open access is also a very important step. However, accessing the evidence summaries requires the initiative to formulate a question, undertake a search and access the journal.

Application of Evidence

A premise of the EBM movement is that the application of best evidence positively affects patient care, and that the presentation of evidence to health practitioners will automatically result in their use of it. The reality appears to be more complex. Simply providing evidence does not automatically ensure adoption, because adoption usually implies behavior change on the part of the clinician.

This has implications for librarians and information professionals both in their roles as providers of evidence that supports professional practice, and as professionals themselves making decisions in the course of daily work. In the first instance, information professionals must recognize that even an informationist service cannot guarantee that the evidence presented will be adopted. Because it is difficult to know whether, when

and to what extent the presented evidence is adopted, it is challenging to argue that evidence has made a difference in patient outcomes. As almost any health researcher will attest, demonstrating effect in medicine is very, very difficult; there are simply too many intervening variables.

In the second instance, providing evidence will not necessarily change librarians' behaviors either. That is, diffusion and adoption of an innovation—in this case, an evidence based guideline—must be understood not so much as an information problem but as a communications and behavioral change problem. It is essentially change management, a point that Andrew Booth (2009) suggests in his recent piece in *Health Information and Libraries Journal*. To implement change management, we need to look beyond evidence summaries to examine potential users, their problems, and their organizations. As Booth states, we need to "look more widely at evidence that examines the process by which we achieve quality improvement and change strategies more generally" (p. 83). Indeed, the research issues surrounding implementation of changes in practice, especially within an organizational context, have commanded greater attention in the informatics literature of late.

Data, Information, Knowledge

In healthcare informatics, one of the challenges is to create and manage data according to agreed-upon standards so that it can be aggregated across patients, institutions, and regions. Once data is aggregated, it can be transformed into information that provides the basis for decision-making. While not regarded as research in the sense that the RCT stands as the highest level of evidence, the hierarchy of data, information and knowledge can produce usable evidence that can be applied in organizations to solve problems. Most clinicians don't conduct research, but they are often very keen to understand how their patient outcomes compare to local, regional and national norms. Similarly, most information professionals may not conduct research, but they can collect data systematically so that they can compare their performance to other similar organizations.

Initiatives such as LIBQUAL+ and LIBQUAL lite, developed by the Association of Research Libraries, enable library and information professionals "to assess and improve library services, change organizational culture and market the library." (Association of Research Libraries, 2009). Used in over 1000 libraries worldwide, LIBQUAL provides data that can be used to generated comparative studies about how a library is performing. Such activities can lead to creation of best practices and to comparative effectiveness research, goals that are very similar to those of evidence based practice in healthcare. Increasingly, health professionals acknowledge that failure to apply evidence may be as much an organizational issue linked to change management as it is a decision on the part of an individual practitioner. Gathering data to feed back to individuals and organizations about their performance may be another route to achieving the goals of evidence based library and information practice, one more suited to a world in which the individual professional must work within the constraints of an organizational culture.

Conclusion

Several insights from the IOM's qualitative study of guideline adoption are applicable to library and information professionals. Through increased understanding of the diffusion of evidence based practice in one field, EBLIP practitioners can position themselves to overcome or avoid similar obstacles and facilitate the adoption of evidence based practice.

Implications for Practice

- Challenges in applying research findings to practice are informed by studying guideline implementation.
- Rogers's Theory on the Diffusion of Innovation provides a useful frame of reference for adoption of evidence.

- In a work-based setting pragmatism frequently triumphs over evidence.
- Particular challenges for EBLIP include the creation of an evidence base, poor availability of evidence, devising strategies for applying evidence and the need to develop routine data systems.

Implications for Research

- More research is needed around evidence to support library decisions and the utility of decision support systems.
- We need to look beyond mere provision of evidence summaries to investigate potential users, their problems, and their organizations.

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