Expanding Role of the HIM Professional: Where Research and HIM Roles Intersect

by Jessica Bailey, PhD, RHIA, CCS, and William Rudman, PhD

Abstract

This article examines the evolving role of HIM professionals in research. In terms of both growth and credibility, it is important that HIM as a profession become more integrally involved in the research process. Specifically, this article examines the expanding role of the HIM professional in research-related activities and data management activities. For illustrative purposes, examples from research in the areas of medication error detection, utilization of web technologies in QI processes, and creation of an HIT infrastructure to connect healthcare providers in which HIM faculty members are actively involved in collaborative research projects with pharmacy, nursing, and medicine faculty in an academic medical center setting are provided.

Introduction

The unique skill set of the health information management (HIM) professional is becoming sought after in today's healthcare environment. The increased importance of collecting accurate and timely health data as well as the integration of new technology in the healthcare delivery system continue to both shape and expand the role of the HIM professional. While the primary responsibilities of the HIM professional-providing quality data to support the delivery of quality healthcare and balancing the right to privacy with providing access to health data for legitimate users-remain constant, unique and expanding opportunities in the areas of information technology (IT), database management, and data analysis have opened.[1] The actual and proposed conversion of paper-based records to electronic text has placed the HIM professional into leadership roles over health information repositories and clinical data sets. Demands for health data by diverse user groups create opportunities for HIM professionals to be recognized as leaders in the management of clinical electronic repositories. The HIM professional's role is rapidly changing to one of leadership in an information broker role.[2]

The expertise of HIM professionals is now being used in all healthcare environments that collect, organize, and analyze healthcare data. As the move to the practice of evidence-based medicine increases, employment opportunities for HIM professionals continue to grow in diverse employment settings. According to the 2003 AHIMA Work Force Study data, approximately 53 percent of AHIMA professionals work in hospital acute care settings.[3] This is compared to the 60 percent reported to work in hospital acute care settings in the 1995 AHIMA Roles and Functions Study. Projecting this trend to 2010, one would expect to find less than half of AHIMA professionals working in hospital acute care settings.

The unique skills and knowledge sets of the HIM individual are being recognized in roles that blend professional, clinical, and research skills with knowledge of business operations and insight into management of information systems. In both traditional and nontraditional work roles, job responsibilities have shifted to include involvement in evidence-based quality improvement initiatives, participation in clinical research projects, and risk management. For example, academic medical centers offer employment opportunities for those trained in compliance, performance improvement, IT, and research. The HIM professional possesses the combination of knowledge and skills sought after in collaborative research projects in the healthcare arena today.

HIM educators possess a valuable set of knowledge and skills, placing them in leadership roles in the design and implementation of research projects. The skills and knowledge that HIM educators bring to the research process include (1) expertise in statistics and research methodology; (2) technical knowledge of information systems and of the application of IT to solving clinical problems; (3) understanding of workflow; and (4) knowledge of educational theory and curriculum development.

This article provides information on how the HIM professional may become involved in the design and implementation of funded research projects. For illustrative purposes, the article describes three research projects that demonstrate the broad range of knowledge and skills that both HIM professionals and HIM educators may bring to the research process: (1) development of a Web-based reporting system for medication errors; (2) coordination of a statewide patient safety education program; and (3) development of an information infrastructure linking rural hospitals to a tertiary care center. These examples provide a unique insight into how the HIM professional may be involved in research that affects educational programs and the use of technology in improving systems and workflow.

HIM Applications in Research

The first project focused on the development and implementation of a Web-based reporting system for collecting occurrence reports in a patient safety program to reduce medication errors. Results of this research project included improvement in quality of data within the reports, a 230 percent increase in the number of reports received, an increase in the number of intercepted errors from 17.3 percent to 58.2 percent, and an increase in the number of reported errors attributed to physicians from 4.5 percent to 16.9 percent. These results provided evidence of a heightened level of consciousness regarding patient safety issues throughout the entire organization, which has a direct impact on healthcare practice among providers.

The second project is the development of an educational foundation focused on patient safety and best practices to be implemented in the curriculum of the authors' institution and surrounding healthcare providers throughout the state. The first project served as an impetus for this second project. Members of the HIM faculty have been instrumental in dispersing the patient safety curriculum developed through educational modules both within the University of Mississippi Medical Center (UMMC) and at healthcare provider sites throughout the state.

The third project is the development of an information infrastructure linking rural hospitals to the UMMC, a tertiary care center. UMMC will serve as a resource center for gathering and analyzing patient safety data. The focus will be on expanding the patient safety curriculum and using IT in rural hospital sites throughout the state. A combination of the first two grant-funded research activities led to involvement in these grants currently under consideration.

HIM in the Research Process

To provide specific information on how HIM professionals can involve themselves in research, this article focuses on the roles of HIM practitioners and researchers in the integration of IT in a network of statewide healthcare providers. The success of this project will depend on the integration of HIM practitioner skills and knowledge in areas of research design, information systems, and clinical setting applications. Both clinical expertise and knowledge of basic research methods on the part of the HIM professional are essential in being able to ask appropriate questions and access the necessary data to support the research project.

This research project centers around the impact of implementing technology to improve the flow of data, transformation of data to information, and practical application of this knowledge on improving patient care. The study will incorporate the following knowledge and skills embodied by HIM faculty:

1. The creation of a database using UMMC's laboratory, administrative, and billing information to capture study outcomes: The HIM professional is uniquely qualified in the design and construction of such databases, which integrate multiple data sets.
2. Working closely with the institution's IT department to develop a Web-based vehicle for a reporting structure for rural hospitals: HIM professionals possess knowledge of human disease processes and may serve in a consultative role with IT personnel to coordinate implementation and design educational tools for training healthcare providers.
3. Expansion of IT into rural areas in order to link rural hospitals with UMMC to both improve understanding of hospitals in the state and provide consultants to rural facilities: The HIM professional is uniquely equipped to fill the consultative role, linking rural facilities to UMMC through IT.
4. Development of educational models to demonstrate concepts of continuous quality improvement and the utility of outcome measures as a means to measure performance improvement: HIM professionals possess expertise in performance improvement and continuous monitoring of quality improvement issues.

Impact of HIM Research on Healthcare

The end goal of this and the other research projects is to provide the clinician (physician, nurse, risk manager) with software tools that reduce workload and improve patient care and safety. To assist the clinician, a central theme in all of these projects is to provide the practitioner with access to resources that were not available prior to the research efforts. For example, interactive educational modules that may be accessed through Blackboard or via the Internet by Web page will be developed, and educational programs will be presented to practitioners throughout the state. The challenge of this project is not in obtaining the technology necessary to create an information infrastructure, but in overcoming many healthcare providers' fear of implementing new technologies within a practice setting.

The research team plans to familiarize the healthcare providers with the value of identifying medication errors and the benefits of tracking and analyzing medication variance. The group will also develop, implement, and evaluate educational models that incorporate evidence-based best practices using provider-specific performance data and thereby improve health outcomes for patients served by providers throughout the state. Of utmost importance will be the construction of a data warehouse to enhance clinical IT.

Benefits of IT for Healthcare

Construction of a data warehouse will be pivotal in completion of the study goals. As a basis for evidence-based clinical care or foundation for clinical decision support, IT has been greatly underutilized in the US healthcare system. The majority of healthcare encounters are documented in a paper format, and data from these encounters are dispersed in a collection of paper records scattered throughout an institution. Currently, about 19 percent of healthcare provider organizations and only five percent of clinicians use complete computerized patient record systems.[4] Paper records are generally unorganized, are frequently missing data, and must be transported from storage to sites of care. These obstacles, to name a few, do not encourage efficient, timely delivery of healthcare or safe practices.

Yet to be realized by the healthcare industry are the potential benefits of using IT as a basis for a clinical decision support system to provide clinicians with customized, up-to-date, patient-specific, and disease-specific information. Data show that phone, fax, or mail is used in more than 90 percent of healthcare communications, and only one third of hospitals have computerized physician order entry (CPOE).[5] Expenditure for IT within healthcare is significantly lower than other industries; only 40 percent of surveyed healthcare organizations planned on spending 1.5 percent of their operating budgets on IT, compared to roughly 8.5 percent allocated for IT in other industries.

A recent study by the Center for Information Technology Leadership suggests that use of advanced computer systems by healthcare providers could potentially result in the prevention of 2 million adverse drug events and 190,000 hospitalizations and save up to $44 billion annually.[6] In a July 1, 2003, press conference, Secretary of Health and Human Services Tommy Thompson promoted the use of a paperless record system for the entire medical community. Thompson announced that the Department of Health and Human Services has commissioned the Institute of Medicine (IOM) to design and standardize a model electronic patient record with an implementation target of 2004.[7]

Integral to the use of IT to improve patient safety and care is the automation of centralized patient- and provider-specific clinical information databases that can be accessed by the provider during a particular episode of care. This technology exists and is available to most healthcare organizations through data warehouses and online analytic data processing (OLAP). As noted in the IOM report *Crossing the Quality Chasm*, "computer-aided decisions support systems that couple medical evidence with patient-specific clinical data to assist the clinician . . . in making diagnoses and evaluating treatment options" are among the most "promising IT applications" for healthcare in the 21st century.[8] Although healthcare may be drowning in data, most healthcare professionals and systems lack information. The goals of a data warehouse and OLAP support software are to provide the right information at the right time.

Data warehousing technologies will allow the physician to bring together disparate data from throughout the organization, specifically for decision support purposes. The data warehouse will serve as a system- or organization-wide data repository for both economic and clinical data. A data warehouse has particular value in healthcare by providing the physician or healthcare provider with immediate information that can be used to trend clinical outcomes, evaluate treatment options, and measure the effectiveness of treatment protocols.

Structurally, the data warehouse to be developed for this initiative employs a multitiered architecture that centers on the development of a central data repository, data marts, and end-user (direct physician) tools. The multitiered structure is particularly useful when data come from different sources and in different forms. In this architectural structure, the source systems represent where data are collected (relational databases), and the central repository is where the data are stored. Data marts provide fast, specialized access for the end users, operational feedback integrates the decision support information back into the system for trending and quality control, and the architecture end users represent the physicians or clinicians accessing the warehouse. Specifically, the benefits of using data warehouse technology for clinical treatment center around access to timely data for decision makers; customized information for end users; ability to handle large, disparate data sets; minimal need for training; ability to identify trends; and, most important, improved patient care management for treatment.

Discussion

The purpose of this article is to provide information on how the HIM professional may become involved in the design and implementation of funded research projects. To accomplish this goal, the UMMC HIM faculty's role in the process of writing a grant proposal and planning a research project is described. The authors recognize that the unique skill set of HIM professionals allows them to play a significant role in planning a research project, coordinating the efforts of the research team, and implementing the research design.

In order for HIM practitioners and academicians to be successful in conducting research and obtaining funding to conduct research, they must often be part of multidisciplinary teams. Multidisciplinary teams provide not only the necessary skill sets to be successful, but also a network of researchers to help in the generation of ideas and opportunities for future collaboration. The core team for these projects provides a unique blend of the experience of healthcare providers, pharmacists, informatics specialists, an epidemiologist, and system analysts. The healthcare providers include medical doctors, a pharmacist, and the HIM faculty from the School of Health Related Professions. This diverse, multidisciplinary team will be responsible for the development, implementation, and completion of these projects. The team is composed of experienced researchers who have developed strong professional and collaborative relationships across disciplines. Although each member of the team brings experience and knowledge that complements that of other team members, the HIM professional is in a unique position to facilitate collaboration of the team and lead the research process.

Conclusion

It is imperative that HIM professionals, educators, and practitioners alike increase the visibility of our profession, making others within the healthcare arena aware of HIM's potential role in the research process. Increasing the visibility of our profession will require HIM professionals to create a presence in the literature and become involved in funded research across boundaries that span the health disciplines.

All well-trained HIM professionals have the knowledge and background to significantly contribute to increasing the visibility of our profession by volunteering to participate in research projects and serving on medical staff committees with an interest in research opportunities. In two areas of research-reduction of medical errors and improving patient safety education-HIM professionals at UMMC have been part of Agency for Healthcare Research and Quality and Health Resources and Services Administration funding ($4.3 million). The funding of these grants has provided ample opportunity for the HIM faculty to participate in educational presentations to physicians, nurses, pharmacists, and other allied health professionals, as well as students across the state of Mississippi.

The authors found key vehicles to increase the visibility of our profession. First, it is important that we make connections with clinicians who are active in research in order to demonstrate our unique skill set and willingness to participate in research projects. This may be accomplished by working on research topics of interest to other healthcare providers through participation in group research projects. Find opportunities to begin networking with healthcare providers outside HIM. Volunteer to participate in research, and be willing to learn new skills or improve old skill sets and become involved in quality improvement projects at your organization. This participation will increase opportunities to present work in healthcare publications that span the health disciplines.

The expanding role of the HIM professional has ramifications for educators and curriculum developers in HIM programs. The HIM curriculum will need to provide a greater emphasis on data management, quality improvement, research design, statistics, and IT. Consideration should be given to developing Master's and PhD-level programs. In addition, there will be a greater need

to provide support on a national level for PhD research projects and other funded research projects conducted by HIM professionals.

The authors recognize that in order to be productive scholars and practitioners, our projects must build on one another. Each research project provides the opportunity to expand our roles as HIM professionals and build on our network of colleagues involved in research within our institution and within the greater health community.

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***Jessica Bailey**, PhD, RHIA, CCS, is an assistant professor in the School of Health Related Professions at the University of Mississippi Medical Center in Jackson. **William Rudman**, PhD, is a professor in the School of Health Related Professions at the University of Mississippi Medical Center.*

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