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Health information management: what business are we in?

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Abstract

Developments in information technology will drive the change in records management; however, it should be the health information managers who drive the information management change. The role of health information management will be challenged to use information technology to broker a range of requests for information from a variety of users, including health consumers. The purposes of this paper are to conceptualise the role of health information management in the context of a technologically driven and managed health care environment, and to demonstrate how this framework has been used to review and develop the undergraduate program in health information management at the Queensland University of Technology.

Keywords: conceptual framework; education; health; health information management; information technology; knowledge management

Introduction

The provision of a *service* that supports the *informational* aspects of patient care is fundamental to the business of health information management. These informational aspects involve the availability of relevant and contemporaneous information for use in ongoing individual patient care, to assist the work of clinical staff through knowledge-based systems that can support diagnosis and treatment, and through provision of tailored and practical data for administrative and management purposes and decision-making. This view contrasts with the common perception of the practice of health information management (HIM), which is to maintain the physical aspects of patient records and to store the paper trail generated as a result of patient care. As technological solutions for managing patient information saturate the health care environment and change the physical aspects of record management, some individuals may sense a threat to their professional identity or integrity. It is argued that, regardless of the solutions proposed by vendors of information technology for the management of patient records, the informational aspects of HIM practice are vital to the work of health facilities and will, in fact, strengthen the identity of health information managers (HIMs) as *knowledge brokers*.

The purposes of this paper are to examine the implications of information technology for HIM practice, to present a conceptual framework for HIM practice in the future, and to provide some insight into the new directions for HIM education at the Queensland University of Technology (QUT). The redevelopment of the health information management program is being guided by the belief that QUT needs to provide tomorrow's HIMs with the skills to understand, manipulate and report on the health information which is under their care and control. That is, a move towards the management and use of the information that is inherent in health information systems. The ability to evaluate, implement and utilise new technology for data capture, processing and reporting is also vital for graduates.

Implications for HIM practice of the information technology environment

Information technology and the ways it will transform the management of health care information dominate the literature as a key health industry trend. For example: point-of-care systems ([Perreault & Metzger, 1999](#)), internet and intranet platforms for access to health-related information ([Chadwick, Crook, Young, McDowell, Dornan & New, 2000](#); [Halamka & Safran, 1999](#); [Schoenberg & Safran, 2000](#); [Shortcliffe, 1998](#)), knowledge management ([Barry, 1996](#); [Butcher & Rowley, 1998](#); [Kerka, 1997](#); [Malhotra, 2000](#); [Malone, 2001](#)), the impact of Australia's HealthOnline strategy ([National Health Information Management Advisory Council, 2001](#); [Mount, Kelman, Smith & Douglas, 2000](#)), sharing of data across health care sectors, development of natural language processing and health terminologies ([Cohn & Chute, 1997](#); [Fenton, 2000](#); [Johns, 2000](#); [Peden, 2000](#); [Scott, 2002](#); [Schnitzer, 2000](#)) and consumer-led and -controlled interactions with the healthcare system ([Kloss, 1999](#)).

Developments in technology have generated an expectation among health industry decision-makers and also health care consumers for access to health information, which is no longer a homogeneous commodity collected solely for the purposes of patient care. In addition to supporting diagnostic and treatment decisions, information is used for self-care, health promotion, casemix-based and other funding decisions, resource allocation, risk management, planning and evaluation, health insurance and for research and health statistics. Therefore, the role of health information managers will be challenged to provide health information services and solutions which respond to myriad requests for health information. The boundaries for managing information are increasingly blurred as the need for information crosses institutional, community and primary health services. Information technology will drive the trend for seamless and integrated information systems, but it will be health information managers who will manage the quality of the data resource and perform the expanded analysis and reporting on health data. The nature of this expanded analysis will be, for example, to profile health services and explore links with morbidity data, general practice services, data related to pharmaceutical use and health insurance data, and to report on health issues.

With better integrated information systems, health information collected in hospital settings should be used to facilitate the transition to care in community and other health settings. In this role, health information managers should become *agents of collaboration* for information services.

In particular, health information managers need to understand the language of health and to participate in the development of mechanisms for natural language data collection and processing. Increasingly, the health industry is exploring the need for standardised clinical terminologies ([Cohn & Chute, 1997](#)) and

the health information manager requires an understanding of the relationships between clinical terms used to describe unique medical concepts and the more aggregated form of data collected with standardised classifications. Facilitating the collection of consistent, comparable clinical information is necessary for functions such as outcomes research, continuous quality improvement, epidemiology and evaluation.

The business of health information management: conceptual framework

In the roles held by health information management professionals there is generally a clear understanding by them of the work to be performed, the associated responsibilities and the tradition that has programmed these roles into the health care system. However, the question might be asked, is there a conceptual understanding of the business of health information management and how it should be programmed into a more technologically driven health care environment? It is argued that, if we truly appreciate the contribution that health information managers' skills and expertise can make to health care delivery, technology should be viewed as a new tool for health information managers *rather than as a substitute for health information managers*. In the following conceptual framework, a model is proposed for the business of health information management that can be applied, irrespective of the nature of the information systems (electronic, manual or a combination of the two).

Conceptually, the role of a health information manager may be portrayed as that of a *manager of health information* who is able to *profile health information* and provide *health information services and solutions*. These activities are set within *the health care delivery context*, and so an understanding of the health care system and trends within the management of health care is an important platform upon which to base future developments in health information management services (refer Box 1).

1: Concept diagram for health information practice



The concept diagram for health information management practice illustrates an *expanding core*, with layers of information processing and management adding to the knowledge base for health. At its core, health information management involves data capture and this requires health information managers to have:

- an understanding of what data needs to be collected
- an understanding of what information is available in the context of health services
- systems for collection, classification and aggregation of health-related data
- a thorough knowledge of medical terminology, anatomy, physiology and fundamentals of medicine in order to transpose other skills into the health arena and to develop effective communication between clinicians and other health workers, the community and individuals
- data collection processes which also take account of capture, processing, storage, and retention using both paper-based and electronically based media
- processes for determining data quality, validity and integrity
- the ability to manage human resources as well as information.

These functions are interpreted as *managing health information*.

Once health information is managed appropriately it can be used to *profile* health services, health outputs and health outcomes. Essentially, information profiling consists of:

- an understanding of *how* information may be used for decision-support
- an understanding of *who* requires information and *why*; in other words, the nature of that information need
- routine and strategic reporting and dissemination of information
- an analysis of process flows, outputs and outcomes to contribute information to evidence-based practice
- negotiation and communication skills
- quality management techniques
- business, office and department management.

The *health industry context* provides a framework for understanding the requirements for information management, profiling, and provision of services and solutions. Health information professionals who possess a comprehensive and detailed understanding of the health care delivery system and how it is

defined can make important contributions to the business of health. For this reason, health information managers must have a good understanding of the following:

- the structure and organisation of health services
- epidemiological and public health directions
- health policy parameters
- health service planning and evaluation activities
- principles and models for resource allocation
- people management and communication skills.

In addition to providing a framework for describing the role of health information management, this concept diagram identified the core knowledge clusters of the QUT HIM curriculum, and assisted the review and development of the curriculum.

New directions for HIM education

A review of the curriculum in health information management at QUT was undertaken in 2001. The review utilised a number of processes to identify the new directions required for HIM education. These processes included stakeholder consultations, mapping Health Information Management Association of Australia competencies (HIMAA, 2001) to the existing HIM program, literature reviews and alignment with the concept diagram described earlier.

The primary goal for this review was to develop a program that would provide graduates with the expertise and techniques to *broker* health information services. The program places a heavier emphasis on health informatics and the use of technology to manage and profile data than was previously the case. It provides a broad perspective on information management practice by moving from a custodianship orientation to a service orientation. The use of techniques and methodologies for evaluating health-related computer applications and conducting quality management programs will be developed. The program uses the continuum of care as a framework to indicate the skills and expertise in health information management (HIM) which support informational aspects along the continuum. It responds to feedback from health industry stakeholders (private and public organisations; acute, non-acute and ambulatory sectors) that health information management needs to be much broader than the hospital-based HIM work. It also introduces a component on health terminologies, recognised as an emerging niche area in HIM practice.

The importance of developing a program that not only addressed the necessary content areas, but also developed techniques for life-long learning was central to many of the discussions during the review process.

Examples of these specific content areas or techniques include *problem-based learning*, which uses cases and practical examples to demonstrate key concepts and simulate the pressures of providing health information services. Other examples include *small group discussions*, which enable the use of communication and negotiation skills, and *project management skills*, which enable students to conceptualise the organisation, management and implementation of health-information-related initiatives. These have been introduced into the course as specific units and/or modules, and are woven through assessment items and the mode of delivery of lecture and tutorial sessions.

Box 2 presents the new program in health information management mapped to the areas in the concept diagram. All units in the course are designed to encapsulate the core concept of managing health information. The emphasis here is on health information that is not solely patient-care related and captured by the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (Third Edition)(NCCH, 2002). It extends to an understanding of the entire health care system *infrastructure*; for example, the epidemiological, legal, ethical, and medical sources of information and how these govern decisions relating to privacy and security, funding and casemix-based systems, resource allocation and health policy. The foundation knowledge obtained in the study of units such as medical terminology, anatomy and physiology, as well as disease processes, also aligns to the core concept of managing health information. These units provide an understanding of the technical language of health care which is critical to a health information manager's ability to represent accurately the nature and complexity of medical care through clinical terms and classifications, and to communicate effectively and broker health information services and solutions to a multi-disciplinary health care team. The extent to which health information managers are able to add value to the collection and organisation of health information will require leadership in the business of health care through the profiling of information and the provision of innovative services and solutions. The units designed to enhance these skills include *information management for health, project and contract management, human resource issues and strategies, and quality management in health*.

2: New directions in health information management: mapping concepts to unit offerings

First year units	Manage health information (data capture)	Health information profiling	Health information services and solutions	Health industry context
Introduction to Health Services Management	✓		✓	✓
Information Management for Health	✓	✓	✓	✓
Medical Terminology	✓			
Computer Systems for Health Management	✓	✓	✓	
Medicine and the Law	✓			✓

Interpersonal and Group Processes	✓		✓	
Contemporary Public Health	✓			✓
Disease Processes	✓			
<u>Second year units</u>				
Human Anatomy and Physiology	✓			
Epidemiology	✓	✓		✓
Management of People and Organisations	✓	✓	✓	✓
Health Information Services	✓		✓	
Clinical Classification	✓	✓	✓	
Health Administration Finance	✓	✓	✓	✓
Quality Management in Health	✓	✓	✓	✓
Human Resource Issues and Strategies	✓	✓	✓	✓
<u>Third year units</u>				
Casemix Management	✓	✓	✓	✓
Project and Contract Management	✓	✓	✓	✓
Health Policy, Planning and Evaluation	✓	✓	✓	✓
Medical Documentation and Abstraction for Classification	✓	✓	✓	
Resource Allocation in Health	✓	✓	✓	✓
Health Informatics	✓	✓	✓	✓
Management of Health Information Services	✓	✓	✓	✓
Professional Practice	✓	✓	✓	✓

Conclusions

The increase in the application of information technology to health information systems may be viewed as an opportunity to strengthen the health information manager's ability to manage and use health information. The use of technology in health has thus far been relatively limited and focused on data-processing applications. This is beginning to change as knowledge-based systems with application for clinical care are emerging. It is vital for the health information managers of tomorrow to be cognizant of these changes and to be able to position themselves to take advantage of the prospects inherent in the move from records management to *information management*.

NB: Since the time of writing the new course was approved for commencement in 2003. Implementation of the new course is being phased in over a three-year period.

Acknowledgments

The contributions of the other members of the team involved in the HIM curriculum review process are acknowledged: Andrea Besenyi, Dr David Evans, Sarah Grealy, Ellen Logan, Jenny Nicol, Kylie Keates, Michelle Somlyay, Nicole Mair, Joy Smith, Louise Savrda and Garry Waller.

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