Creating an HIM Profession in the Sultanate of Oman

by G.D. Mogli, PhD, FHRIM

In 1993 just 4 percent of hospitals in the Sultanate of Oman had an HIM department. Today's transformation demonstrates that HIM is key to quality healthcare the world over.

In recent decades the Sultanate of Oman has undergone significant modernization of its healthcare system. Two major hospitals were built in the late 1980s: the 600-bed Royal Hospital and the 350-bed Sultan Qaboos University Hospital. Both facilities were equipped with modern technology and were partially computerized. However, other hospitals administered by the country's Ministry of Health remained poorly structured, organized, and managed.

Overall, hospital infrastructure was insufficient to deal with the pressing demand of patients. Moreover, there was no obvious concept of proper maintenance of medical records. Health records management was absent at the fundamental planning and budgeting level of health services. This lack was recognized as a contributing factor in poor health services.

During the early 1990s, the minister of health began to revolutionalize the entire healthcare delivery system, and the country has since taken dramatic steps to improve its hospitals and health centers. In the process, the minister identified the need to put the country's health information management on par with international standards. The Ministry of Health invited a representative of the World Health Organization to consult on the project and in 1993 appointed him medical record adviser.

The Ministry of Health planned the modernization of facilities in phases, beginning with a survey of conditions and development of an action plan, creation of an HIM profession, and culminating in an electronic health record (EHR) system.

HIM: The Missing Link

Work began with a survey of healthcare facilities. The medical record adviser visited all major hospitals in 1993, collecting information through questionnaires and interviews with director generals, hospital administrators, department heads, and healthcare consumers. Of the 46 hospitals administered by the Ministry of Health, 29 took part in the survey, including the major tertiary and regional referral hospitals. Of the respondents, 14 hospitals represented fewer than 50 beds, and 15 operated more than 50 beds (9 hospitals ranged from 100 to 600 beds).

The study found that 96 percent of the hospitals were functioning without medical records departments. Only five qualified health information professionals were working in the system; three of the five were located in the new Royal Hospital. Other than the Royal Hospital, the medical record departments that did exist were minimally staffed, and the majority of clerical staff possessed less than a secondary school education and lacked any formal medical records training.

In the absence of professional information management staff, doctors and nurses carried out medical record functions, and patients handled their own records. The system lacked a master patient index, and patients lacked ID cards. Coordination within and between facilities was further complicated because patients visited clinics of their choice and filled prescriptions at various facilities.

As a result, minimal medical information was documented, and new records were often created for each episode of care. Care providers often repeated history, investigation, and prescription due to lack of records, and they often prescribed drugs without a record of known allergies and drug reactions.

The situation caused overcrowded and chaotic clinics, labs, and pharmacies, overburdened doctors and nurses, and frustrated patients. Poor documentation resulted in administrative and medico-legal problems, incomplete and inaccurate statistics, and high expense.

Building a Health Information Work Force

From the outset of the modernization effort, the medical records advisor stressed to ministry leaders the importance of health information management and the vital role of an integrated health information system in rendering quality healthcare services. The ministry established a central medical records department and a national ad-hoc committee charged with creating health information departments, the policies to govern their operation, and a professional HIM work force to run them. This constituted the second phase of the project, the creation of concrete objectives and measures.

The first goal was the creation of medical records departments on par with international standards. Basic resources had to be allotted, such as the provision of adequate physical space, the installation of modern filing equipment and computers, and the provision of centrally printed and supplied standardized medical record forms.

The lack of current HIM practice required the full development of policies, standards, and procedures. This included decreeing the implementation of the unified medical record (UMR) system, a comprehensive view of patient care based on the premise of one record for one patient. The ministry identified the need for a record retention policy, which required solving the related problem of an acute space shortage, and it proposed a national central archive and research department. Medical, paramedical, and administrative staff nationwide took part in orientation on the new policies. The training reached 84 percent of doctors, 54 percent of nurses, 63 percent of paramedics, 22 percent of administrative staff, and 91 percent of medical record department staff.

An entire subset of goals and measures focused on creating a professional HIM work force. The ministry estimated a need for 25 medical record officers, 252 medical record technicians, and 1,062 assistant medical record technicians (AMRTs), or clerks. An effort was made to recruit qualified expatriate medical record officers. The medical record advisor led intensive orientation on establishing medical record departments and training personnel.

Educational programs were undertaken for different categories of HIM staff. In the first eight years, 720 AMRT candidates enrolled in a six-month training that included 240 hours of theory and 480 hours of directed practice. A two-year diploma program in medical record technology began in 2002, admitting 20 students per year. It was decided to send candidates to US universities to receive BS degress in medical records, as it was not economically feasible to conduct a program locally.

National training in ICD-10 coding began in 1996 with three five-day sessions for medical record officers and statisticians. Forty-five individuals from the Ministry of Health and other health institutions participated. Nearly 800 medical, nursing, and paramedical staff attended two-day workshops on ICD-10 and mortality coding that year. ICD-10 was officially implemented January 1, 1997.

Twenty-five AMRT-trained nationals were selected as the heads of medical record departments, taking part in three-day workshops on effective management of medical record departments.

Decade’s Journey to an Electronic Health Information System

Having established HIM departments, the focus of the plan turned to the computerization of the hospital information systems, including medical records. The Ministry of Health had realized the importance of computers in healthcare delivery and patient services very early; however, the computerization of hospital information systems was undertaken only after the visit of WHO consultant in 1992–93.

The project required a great amount of planning among various levels of officials, and a great amount of data related to demographic, disease, and services was necessary to demonstrate the role of efficient HIM in improving the quality and cost effectiveness of healthcare. The subsequent computerization process saw many meetings, debates, orientation sessions, victories, and setbacks that ultimately paved the way to electronic data management in the hospitals.

Prior to the introduction of an integrated electronic information system, patient data was held in a set of three databases that managed patient registration, admission, and laboratory investigation. The databases, created in 1987, could not be interlinked and were slow to operate. Upgrades to hardware and software in 1991 improved performance, but retrieval of information remained slow.

By 1996 the ministry had implemented a computerized medical record system based on off-the-shelf database software and a common network operating system. The system achieved shared access to data, but it was very slow and only allowed limited access to the client server at any given time. Further, the user interface was complicated, and the security level was low. The following year saw upgrades to more powerful software and hardware. Computer formats, however, lacked standardization.

Many initial hardware and software problems were resolved with proper budgeting that facilitated the purchase of adequate equipment. In addition, much of the hospital staff initially lacked computer literacy, and the majority of the older staff was adverse to the new technology. Computer training was made mandatory. By 2000 the country had achieved an integrated hospital information system that encompassed medical records, clinics, wards, nursing, pharmacy, laboratory, and radiology information systems.

Early efforts suffered from a lack of coordination between information technology, HIM, and clinical staff. It became clear that HIM staff had a vital role to play in orienting IT professionals and providing them with a clear conception of the needs of the system. HIM staff also worked to involve and train the clinical staff.

The initial implementation of the computerized system resulted in longer waits for patients. An effort was made to educate patients on the project, phase in changes, and provide additional staff. Steamlining the authorization process allowed for problems to be addressed quickly.

In order to collect user feedback, address problems, and accelerate the transition to an entirely electronic health record, a one-day workshop was conducted in 2002. Fifty-eight participants from clinical, HIM, and other departments attended. Most attendees expressed satisfaction with the system, and they also identified important work still to be done, including a contingency plan for system outages, measures for security and confidentiality, encryption of digital signatures, legislation on national EMR policies, and electronic auditing. These problems were addressed as the computerization of hospitals continued.

The system is not entirely electronic yet. Paper copies of records still exist due to lack of national laws on record retention. Once national laws on legalization of electronic versions of records and record retention are promulgated, healthcare information will exist entirely online.

The implementation of an EHR system was not easy. It has encountered innumerable obstacles and administrative difficulties that have been overcome in a gradual manner by adopting suitable measures.

The Transformation from Past to Present

Ten years after the appointment of the medical record advisor, the author surveyed the medical record departments of the major Ministry of Health hospitals, comparing the initial status with the current state.

The appreciation of HIM's important role in an effective healthcare system is evident. Now, 92 percent of hospitals have well-organized, well-equipped medical record departments. Staff is better educated, with a minimum of six months training, and 720 trained AMRT professionals work throughout the system.

The goal of one patient, one record, and one number has been achieved through the UMR and the master patient index. The EHR system provides access to complete health information, which improves the continuity of care and prevents duplication of lab, radiology, and other investigations and the repetition of prescriptions.

Healthcare providers' services are properly utilized, minimizing duplication of work, improving quality and quantity care, and lowering dissatisfaction among the care providers, administrators, and patients. Good HIM practices have lowered the cost of care and improved both care and administration.

The major contribution has been the exceptional vision and leadership of the minister of health. Likewise, the commitment of information technology, HIM, and clinical departments made the Herculean task of developing the EHR system possible. Staff take pride in a modern technology environment with a fully computerized medical record system, where health information for patient care, education, and research can be accessed in seconds at the press of a button.

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