The Paperless Patient: Electronic Records Gain Ground

By Leslie Rock

In recent years, the practice of medicine has been transformed by the use of information technology to manage the fast-growing body of medical knowledge. But the computerization of the core component of health care information--the patient's chart--has lagged behind. Only recently have many hospitals and clinics, including some of AIHA's US, CEE and NIS partnership institutions, begun to automate their patient records.

The most significant benefit of electronic patient records is timely access to vital clinical information. Health care providers can view electronic information within seconds, rather than waiting for days to receive paper copies from the medical records department. Such rapid access to patient information--from lab results to previously prescribed drugs--can help the provider make more informed decisions about patient care.

At the same time, there is growing concern that the use of electronic records poses a threat to patient confidentiality. Internet technology makes a computerized patient record system more flexible by allowing medical personnel to view and enter patient data from any location, but also makes the system vulnerable to intrusion by outsiders. On the other hand, the experiences of US hospitals suggest that the real threat does not come from outside but rather from within the institution itself: casual "browsing" of patient information by hospital workers for unauthorized reasons not related to work. The inappropriate use of patient data may be best addressed by clear policy guidelines that include sanctions when violations occur (with a computerized system, unlike paper, all user activity can be logged and analyzed).

Cost is a major obstacle to the widespread use of computers to manage patient records. A completely electronic patient record system requires a powerful network server and a large number of computer workstations as well as software development, user training, and ongoing technical support. Such a system can cost from $20,000 up to several million dollars for an average US hospital, depending on its comprehensiveness.

As a result, only 10 percent of US hospitals use a completely electronic, paper-free patient record. Most of the others have automated parts of the patient record, moving gradually to a fully electronic record. Similar statistics are not available for CEE and the NIS, although the numbers are likely lower. Few hospitals anywhere have implemented the kinds of comprehensive multimedia patient records shown in prototype at medical informatics conferences. These systems integrate doctor's notes, digitized images and historical charts of the patient's medical data. Such records can include X-ray, ultrasound, CAT-scan and other radiology images stored on computer through programs like WinRad.

For many AIHA partner institutions in CEE and the NIS operating under reduced budgets, the cost of implementing a comprehensive patient record system is prohibitive. Nevertheless, a growing number of NIS and CEE institutions are finding that they can move toward their twin goals of improving the quality of care while reducing or avoiding costs by automating their patient record systems. Partners have sought creative solutions by using tools they already have, such as software applications that were provided by AIHA through the Learning Resource Center project. Among the most commonly used is Microsoft Access, a relational database management system.

For example, the rheumatology department at City Hospital No. 2 in Vladivostok, Russia has developed an Access database to store clinical data about patients with chronic illnesses. The database can be accessed from any of eight networked workstations in the department so that doctors and nurses can view and update data during the course of patient care. The hospital plans to link the rheumatology database to existing networks in the accounting and administration departments, in order to automate patient billing and other management

activities. At the EMS Center in Vladivostok, ambulance dispatchers have begun entering patient data into a recently designed Access database when they receive an emergency call (see "Hooked on Helping," CommonHealth, Summer 1997, page 28). In the next phase of development, the database will be networked to hospital computers to give trauma staff instant access to data about the first critical stages of medical intervention.

The neonatal intensive care unit at Faculty Hospital in Kosice, Slovakia is developing a database to manage information on critically ill newborns. Plans call for implementing a related database in the maternity wing, in order to give neonatal intensive care staff rapid access to information about the mother's health and pregnancy history.

Other partners are working beyond the institutional level to advance the development of computerized patient records in their countries. Andrei Martynikhin, the information coordinator at St. Petersburg Medical University (part of the St. Petersburg-Atlanta partnership) is the secretary of a nationwide task force called Subcommittee 55, which has started to develop standards for medical information technology in the Russian Federation. Nationwide standards make possible the electronic exchange of patient data among different health care facilities, which in turn will enable the creation of a comprehensive health record spanning a patient's lifetime.

In its own facilities, the university is introducing several automated systems for capturing clinical data. For example, employees will be able to order drugs from the pharmacy using a web browser. SPMU is also negotiating with a software company to install a patient record system in its obstetrics and gynecology clinic.

Many other partner institutions have expressed an interest in creating computer-based clinical records. In response, AIHA offered a basic orientation session on database design at workshops for information coordinators (see page 30), and reference manuals on Microsoft Access are being provided to the partnership Learning Resource Centers. As paperless patient record-keeping becomes more popular, AIHA will continue working with partners to support the development of electronic patient record systems in their institutions.

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