Patients' records on the Internet: a boost for evidence-based medicine

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The concept of evidence-based medicine has emerged as one of the fundamental elements in western-style clinical medicine. Two essential components of that concept are the patient's record and the clinical knowledge base.

The way information in the patient's record is generated, handled, and presented has been transformed by advances in modern information technology, starting with the dictaphone and the electric typewriter and culminating in present-day computer-based systems. Tedium, inefficient, and continuously space-demanding medical records offices are being replaced by "listening" computer terminals linked to a central patient register via a local area network (LAN). The required information, nicely presented, becomes obtainable at the touch of a button or with a simple voice command.

Similar systems are being used for the dissemination of clinical information among health institutions in a district or even an entire region. In their letter published today, H I Goldberg and colleagues describe the system linked to the University of Washington Medical Centers in Seattle for electronic transmission of a vast range of clinical, administrative, and financial information. Similar systems operate elsewhere. In Hong Kong, for instance, public hospitals are linked by a fast Ethernet-based LAN,\(^1\) which allows transmission of clinical and administrative information among more than 3000 physicians and 19 000 nurses. Although cost-effectiveness has not been assessed, costs should be very reasonable if calculated per patient event.

The second element in evidence-based medicine is a continuously updated medical knowledge base. The Internet, with all its library functions, contains much more information than any traditional library, and elegant search routines enable the relevant "case-oriented" information to turn up within seconds.

It is therefore natural, as Goldberg and colleagues have attempted, to combine the transmission of patients' details and library information within the same system and to extend the system beyond Seattle. The choice of an Internet instead of a LAN system was easy since most physicians are familiar with the Internet, and its cost is very acceptable, even for low-frequency use. As with databases linked by a LAN, confidentiality of patients' details transmitted over the Internet can be safeguarded by encoded transmission in the secure-socket layer. This precaution makes transmission of information about patients as safe as electronic transmission of any other type of information (eg, banking) and certainly safer than in paper-based systems.

The potential of the proposed Internet-based system for supporting evidence-based medicine is substantial. Correct clinical information at the right time can be provided, especially when the information is most needed—for example, when a patient is discharged from hospital to the care of the general practitioner, and in an emergency, when the patient is unknown to the attending doctor. For similar reasons, access to patients' records and medical databases could, long term and with patients' consent, be extended to other groups of health professionals. It could ultimately extend to the patients themselves, in support of providing them with individualised, affordable, health-education programmes.

New procedures intended for use in clinical practice must be assessed. So should new applications of information technology. Thus the hope is that Goldberg and colleagues will do a randomised controlled trial comparing traditional and Internet-based access to patients' records, with clinical, temporal, and fiscal outcome variables. Moreover, with so many medical records in the system, many important hypotheses could be tested and verified by solid statistical evidence.

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1 Tse JSY. Evolution of clinical management system (CMS) and computer-based patient record (CPR) as key components of the Hong Kong health information superhighway. Proceedings of the 4th Hong Kong (Asia Pacific) Medical Informatics Conference, October 1997; 23-26.