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Medicine and new technologies

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Over the years we have seen two trends in medicine: the evolution of medicine into an information intensive discipline and the ever growing use of medical communications. Keeping in mind high information and communication requirements, no wander that information technology and telecommunication are among the most important technologies that lend themselves to the advances in medicine.

To deal with enormous amount of health care data, contemporary medicine uses various forms of information technology. Clinical information system, centered around computer-based patient record (CPR) with patient specific health care related data, is an example of a successful application of information technology in medicine. CPR based information systems are reality that enables capturing and manipulating patient data in an efficient and cost effective way. Even though clinical information systems and medical informatics in general have matured, there are still variety of issues to be researched, ranging from the ways to most efficiently capture, store, retrieve, and use medical information to issues that include privacy, ethics, security, and confidentiality.

Telemedicine is another example of emerging medical technology that is defined as the use of electronic information and communication technologies to provide and support health care when distance separates the participants. A rationale for telemedicine is an uneven distribution of sub-specialized health care providers, located in highly specialized, but scarce institutions. An excellent example is the Institute of Oncology in Sremska Kamenica, a state-of-the-art facility that provides highly specialized health care to oncology patients throughout the province of Vojvodina. The goal of the Institute is to provide high quality of health care to the entire population of Vojvodina, regardless of the geographic dispersion of the patients and primary care practitioners. Telemedicine promises to address the issues involved when distance barriers exist by using the Internet, telecommunications, and information technologies.

Telemedicine includes clinical consults, distance education, administrative services, and clinical and home based applications. Examples of clinical applications range from telepsychiatry and telecardiology to teledermatology and, most recently, telesurgery. The benefits of telemedicine include reducing travels of physicians related to the preparation activities such as reviewing medical records, enabling early consultation of remote specialists and performing early interventions, providing selected health services to the dispersed population, on-site treatment of patients, and improved triage services. Most of these benefits lead to more efficient and less expensive delivery of health care.

Telemedicine leans heavily on the Internet services, such as real time video and audio and World Wide Web. Full advantage of these applications depends on the high performance of the Internet services. Unfortunately, most of us have experienced the fact that the performance of the current Internet could be more frustrating than encouraging. We definitely need new and improved Internet technologies and standards to tackle the new and promising approaches to modern health care practice.

Starting with this issue, the Archive of Oncology initiates a series of both articles and short notes on applications of new technologies in medicine and especially the emerging field of telemedicine. The series is launched with the article "Future of Telemedicine: Internet2?" which appears in this issue of the Archive. The article gives an overview of the current Internet technology and sets a stage for Internet2 which brings high expectations for advance in the fields such as Telemedicine.

I strongly believe that this initiative of the Archive will not only help medical and technical professionals with understanding latest developments but stimulate research and applications in the exiting fields of emerging medical technologies as well .

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