

Editorial

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A picture is worth a thousand kilobytes

Healthcare is literally swamped by images: new CT-scanners produce several hundreds of images for each exam, functional magnetic resonance produce thousands of raw images per study, not to mention endoscopy or telemedicine with their streams of video images. Gigabytes, terabytes of data must be moved between the technicians, radiologists and clinicians who want to access them in real time. This is obviously stressful for computer networks and storage devices, but the exponential growth in computer performance keeps technology able to cope with this challenge.

Less obvious until recently but more profound are the challenges to the unexpandable human cognitive abilities. Inundated with multimedia signals, it becomes more and more difficult to find the appropriate information at the time it is needed for safe and efficient medical decision-making. Improving the situation implies a) a better understanding of the added value of each stakeholder in the image lifecycle and its contribution to the diagnostic and therapeutic processes, b) the enhancement of human-computer collaboration through better interfaces and richer knowledge-driven systems, and, above all, c) a better understanding and instrumentation of the organisational and cultural aspects of our complex healthcare environments.

These concerns were at the centre of the debates during the conference jointly organized in Lucerne in June 2003 by the Swiss Societies for Radiology, for Radiooncology, and for Medical Informatics, under the title "Image Communication". Selected papers presented at the conference, dealing with the health information aspects of these challenges, are published in this issue of Swiss Medical Informatics.

At the human-machine interaction level, Christian Lovis shows how to improve the contents of the computerized medical record by bridging the gap between medical narratives and structured data. Stéphane Meystre proposes a new approach for developing a clinical decision-support tool for the diagnosis of acute appendicitis. Tony Lam describes a clinical study on the acceptance of a Web-based self-help guide.

At the architectural and organizational level, David Bandon details the global image management strategy and lessons learned in a real world large-scale implementation at Geneva University Hospitals, and explains how imaging is expanding beyond the field of radiology, thus creating new challenges. Stefan Hunziker describes the experience of integrating electronic communication between the hospital and private practitioners. Ousmane Ly proposes a multinational telemedicine network to foster collaboration in healthcare between developing countries of Northern and Western Africa. Claus Eikemeier explores how new communication and sharing paradigms, and in particular the Peer-to-Peer architecture, made famous and controversial by Napster in the music industry, can be used productively in healthcare.

These contributions illustrate how medical informatics has become a key player to help shape the future of a safer and more efficient healthcare delivery system, and, in particular, in the field of medical imaging.

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