

Web-based remote consultation of clinical data

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The Hospital Information System (HIS), developed at our institute (CNR-IFC) in the project SPERIGEST supported by Italian National Health Ministry, was aimed at the integration of clinical, administrative, epidemiological and management resources in a cardiovascular health care unit. A fully networked system was set up interconnecting the various departments, units and services in our health care institute. The section of CNR-IFC in Massa (G.Pasquinucci hospital), 50 Km far away, was interconnected with the head in Pisa through GARR-B at 512Kbits/s, setting up a VPN for data protection. The outstanding feature of the developed system was the integration of the different sources of information to achieve full access to patient data. All patient medical records were archived into the central clinical repository (SQL database, IBM-DB2), which is accessed across Firewall control within the HIS infrastructure. Dynamic HTML pages were developed for publishing, through the Web server of ARCA, multimedia reports on workstations within the Intranet equipped with standard browser. Specific control lists were set up on the Web server to administrate user access to clinical data. The current release of the Web-based system for consultation of clinical data was mainly developed either by CGI programs written in C language, linked to SQL library, or by IBM Net.Data scripting language macros, enabling dynamic applications combining HTML with dynamic SQL. Java servlets have been recently developed for improving performance. The Web-based package, currently installed in the HTTPS server, contains applications for browsing into medical records and diagnostic reports of both in-patients and out-patients. Web-pages were also developed for on-line reporting health care activity at different departments as well as data of cardiac surgery (adult and pediatric) in tabular format or cardiac anesthesia protocols. Remote consultation of clinical data, from outside the HIS, was initially allowed by modem connection to HIS Terminal Server, given user account. Next step is the use of Internet for remote access to clinical reports or medical records applying proper techniques for data protection and security.