Telemedicine network

Country of origin: Switzerland

Health problem addressed

Continuing education of healthcare professionals and access to specialized advice are keys to improve the quality, efficiency and accessibility of health systems. In developing countries, these activities are usually limited to capitals, and remote professionals do not have access to such opportunities.

Solution description

A suite of software tools specifically designed to work in low-bandwidth, low-infrastructure settings, to provide distance education (“Dudal” module) and tele-expertise consultations (“Bogou” module). These software modules are developed in Java, and deployed using Java Web Start technology.

Functionality

For distance education, slide presentations are converted using open-source office automation software (OpenOffice) into a webcastable format. The webcasting environment includes an instant messaging tool for interactivity.

The tele-expertise environment uses a PKI infrastructure to secure information exchange, and a forum interaction paradigm.

Developer's claims of solution benefits

Most existing tools are not designed and optimized to work in low-infrastructure environments. They lack the ability to connect to medical information sources (e.g., DICOM) and have insufficient security for exchanging sensitive medical information.

Future work and challenges

The main limiting factor for mainstreaming is the availability of the Internet connectivity in remote settings. The situation is rapidly evolving with the deployment of mobile networks and related GPRS/3G/4G connections, in particular in East Africa. In West Africa, satellite connections are still needed, and remain expensive thus limiting the economic sustainability of these tools to larger hospitals.

Other challenges include the necessity to anchor these services in the institutional framework of each country, which is facilitated if countries have a eHealth strategy and related policies and coordination structures.

User and environment

User: physician, nurse, midwife, technician.

Training: training is required and is provided by online documentation and through the support of national coordination teams.

Settings: rural, urban, secondary and tertiary.

Solution specifications

Solution is used to support: Telemedicine; eLearning/mLearning.

Software/Hardware requirements: The software tools require low-bandwidth Internet access, which can be provided by DSL, 3G or satellite links. Uplink bandwidth of 20 kbps and downlink bandwidth of 40 kbps are sufficient to run all services.

Dudal and Bogou modules are Java applications based on open-source libraries, freely available with no license fee.

Standards: DICOM

Currently used in: Mali, Mauritania, Senegal, Burkina Faso, Niger, Ivory Coast, Chad, Cameroon, Congo, DRC, Guinea, Madagascar, Liberia, Ghana, Tanzania, Egypt, Tunisia, Morocco, Bolivia, Laos.


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