

A HELP DESK FOR THE REMOTE ACCESS OF SENSITIVE MEDICAL RECORDS VIA THE INTERNET

Michael Weber, Department for Distributed Systems, University of Ulm, Germany

In a help desk scenario, we differentiate the role of clients (the individuals requesting support or help), and the role of a service center (the institution providing the support). Between service and clients is a 1:n relation. To act in these roles while being at distant locations, all persons have to employ standard networked computer equipment. The help desk system presented here uses the Internet as the network and the World Wide Web as the information and communication service. The help desk system offers three major service functionalities to the clients.

First, it provides a general information service on state-of-the-art issues on malignant hyperthermia (MH). This information is stored on a CD-ROM being distributed to individual anesthesiologists. The CD-ROM content can be accessed using a standard HTML browsers, such as Netscape's Navigator or Microsoft's Internet Explorer. Latest research information on MH is retrieved by activating hypermedia links originating from the CD-ROM-based HTML pages. These hyperlinks point to pages stored in an information server. Thus the static content of the CD-ROM is enriched by the most recent data being available from a research center. From there links go to other institutions all over the world, providing a world-wide information base on MH.

Using a second functionality, the client can access a separately administered and kept patient data base. This data base holds genealogical trees of families with MH indications. A client using the help desk can enter the name of his or her current patient, and remotely get information about this patient's MH-status.

The third functionality enables a client to contact a person at the service center (e.g. the anesthesiologist on call) to clarify urgent questions person-to-person. These audio conversations via the Internet go beyond telephone conversations in that they can employ optional conferencing tools such as text exchanges, shared whiteboard tools, application sharing, and even video conferencing. When nobody is immediately available at the server site, the call is optionally forwarded to the paging system of the hospital to alert the doctor on call who will receive a tailored message.

Since the Internet as such is an insecure medium only authorized personnel should be able to gain access to the system. Therefore, all clients have to register individually before they can access the MH data base for the first time. For each inquiry, a transaction number must be provided. Additionally all data transfers get encrypted using public key technology.

Although the help desk focuses on the rapid access of sensitive patients data suffering from one particular disease, the design and its implementation are generic in the sense that the system can obviously be adapted to a variety of other scenarios in medicine and beyond.