Remote-control health

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With search engine companies establishing online personal health records for their users and surgeons on the brink of making robotic surgery routine, it makes sense to have a remote medical care system that can support nursing staff, care managers and other healthcare workers. Writing in the International Journal of Web and Grid Services from Inderscience Publishers, a Japanese team describes a proposal for such a system.

Akio Koyama of Yamagata University, Japan, and colleagues there and at Yamagata College of Industry and Technology, and Fukuoka Institute of Technology, have drafted a proposal for a remote healthcare system with three main functions. The first function acts as a multipoint communication system with video images and voice. The second automatically uploads vital signs data and referencing. The third function involves remote monitoring of drip infusions that provide the patient with a controlled supply of medication or nutrients. The team has already carried out successful field trials with their prototype remote medical care support centre.

The researchers point out that their system could address some of important socioeconomic problems, such as providing quality medical care for all citizens, even those living in small towns and rural areas.

Currently, access to sophisticated healthcare is often restricted to those in major conurbations and people in sparsely populated areas are usually required to seek healthcare some distance from their homes. "These trips can require hours of travel time for a relatively short examination, and

thus are neither convenient nor an efficient use of the patient's time," says the team. Conversely, having healthcare workers with specialist knowledge travel to remote areas is equally wasteful of resources at various levels. The optimum solution, the team says, is to provide a medical consultancy solution using information and communications technology.

Their remote system brings together technologies that allow video conferencing between patient or local carer and healthcare workers, which also allows medical care data to be uploaded to a database. The vital signs data uploading and referencing subsystem likewise would operate via the internet or via cellular phone and allow a remote doctor to advise local carers on patient requirements. Finally, a subsystem that monitors the progress of a drip infusion using a sensor network would notify remote nursing staff of further requirements, which could then be passed on to a local carer.

There are several technical aspects of the proposed system that require attention prior to such a remote medical care approach being widely adopted, the researchers add. For instance, delays and throughput of video transfer during communications must be improved as well as diagnosis accuracy of the doctor agent and the prediction accuracy of the drip infusion finishing time.

Source: Inderscience Publishers