

Telemonitoring

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Abstract

Telemonitoring is defined as “monitoring a patient at a distance”. To date most applications of telemonitoring have been concerned with the monitoring of patients at home. In these the required data is usually either entered onto a computer manually by the patient or automatically collected by attached sensors. The collected data is then sent, via an internet link, to a medical centre for analysis. The results of the analysis can be sent to the patient’s doctor.

However, the remote monitoring of patients in surgery and ICU is another important use for telemonitoring. There are two main forms of this:

- 1) Remote telemonitoring - The clinician is remote to the hospital and data has to be sent via link in a similar manner to the home telemonitoring.
- 2) Local telemonitoring – The clinician is still in the hospital but needs to maintain a link with a patient.

One solution to providing a local telemonitoring link is through the use of wearable computers. These highly portable devices are about the size of a paperback book and typically weigh one kilogram. All the standard computer peripherals are used although they are usually modified to accommodate the increased portability of the system. For example, the viewer can weigh 35 grams, be clipped onto a pair of glasses and yet provide a 640 x 480 display.

By wearing one of these systems, an anaesthetist or surgeon can obtain a “head up” display of patient variables, images (X-rays etc) or other information while still observing the patient. A key aspect of this approach is the Human-Computer interface, both in terms of optimum methods for inputting and visualising data, together with the practical aspects of carrying a computer and looking at the display for long periods of time. A wearable computer and suitable wireless network can enable an anaesthetist to monitor a number of patients, support trainee clinicians and remain mobile while still in the hospital.

The presentation will give an overview of remote telemonitoring and then introduce a method of local telemonitoring using wearable computers. As in all aspects of telemonitoring confidentiality of patient information is essential and this area will also be discussed.