

Ubiquitous health: Enabling telemedicine to cut hospital visits, save money

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A ubiquitous health monitoring system that automatically alerted the patient's family or physician to problematic changes in the person's vital signs could cut hospital visits and save lives, according to Japanese researchers writing in the *International Journal of Web and Grid Services*.

Akio Koyama of Yamagata University and colleagues there and at Yamagata College of Industry and Technology and the Fukuoka Institute of Technology explain that the population of the developed world is growing older, [medical costs](#) are rising, and there are not enough doctors to heal the elderly sick.

One solution might be to reduce the incidence of illness that requires a hospitalisation by providing those at risk with a remote monitoring device. The team is developing a wearable vital sensor that might be worn like an emergency call device familiar to many elderly people and their families. Indeed, the team has designed the device to be used anywhere without disrupting the everyday life of the patient.

The vital monitor would keep check on specific facets of the patient's health. In the development device, temperature, pulse, and waist size are monitored. The data is transmitted through the cellular telephone network and on to a web database that is accessible via a browser and flags up any problems for the patient's family or doctor and sends an emergency alert if necessary.

Body temperature is a useful indicator of overall patient health, significant deviation from the norm usually indicates a serious illness. The pulse sensor can detect arrhythmias in the heart by measuring the shape of the waves and the pulse rate. The waist sensor is associated with more long-term monitoring of the patient, allowing the doctor to automatically keep track of whether the patient is gaining or losing weight significantly.

The team has not only developed the appropriate sensors but has also outlined a data transmission protocol that could use the [cellular network](#) efficiently. They are currently extending the concept and developing a remote sensor for metabolic syndrome/diabetes.

More information: "Design and implementation of a ubiquitous health monitoring system" in *Int. J. Web and Grid Services*, 2009, 5, 339-355

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