

Wireless patients

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A wireless monitoring system for people with debilitating conditions such as Parkinson's disease or chronic obstructive pulmonary disorder (COPD) could allow healthcare workers to assess a patient's health and the development of their disease without hindering their movements. Details of the system are reported in the *International Journal of Biomedical Engineering and Technology*.

Pallikonda Rajasekaran of Kalasalingam University, in Tamil Nadu, India, and colleagues say that assessment of a patient's disease state under the normal conditions of their everyday lives is becoming increasingly important in improving treatment and following the progression of many conditions as well as keeping costs down by avoiding unnecessary medical call outs and hospital visits. So-called ambulatory investigations are also providing important clues to researchers about a range of health problems associated with the likes of PD and COPD.

Rajasekaran and colleagues have developed a real-time [monitoring system](#) for patients. The system consists of vital signs sensors, a [sensor network](#), electronic patient records and web portal technology that calls on medical personnel when life-threatening events occur. Their system circumvents some of the issues associated with current monitoring technology, such as unwieldy equipment and inconvenient wires between sensors and processing unit, a lack of integration of different sensors, the non-existent support for data collection and knowledge discovery that technology could offer medical research.

The team explains that recent advances in sensor technology, low-power [integrated circuits](#) and wireless communications have facilitated the design of low-cost, miniature, and lightweight sensors, such as movement, temperature, blood pressure, and [heart rate](#) sensors. These devices can monitor various signals, process the data from them, and seamlessly integrate with [wireless networks](#) for health monitoring.

The team has demonstrated efficacy with their integrated wireless system in terms of wireless connectivity and monitoring of vital signs of rehabilitating patients with PD and COPD. They have also programmed the sensors to send out alert signals above a certain unhealthy body temperature, below a specific heart rate, or if blood pressure changes by more than 10 percent. The system itself hinges on standard wireless networking technology with a 750-metre range. The system hooks into a previously available web-based information portal and provides an effective emergency response information system to support the need for multiple parties to share information about patient's status and locations, the team adds.

More information: "Ambulatory monitoring of free living patients affected by Chronic Obstructive Pulmonary Disease (COPD) and Parkinson's Disease (PD) using Wireless Sensor Networks" in Int. J. Biomed. Eng. Technol., 2010, 4, 111-122

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