Wireless Technologies Transform Modern Medical Treatment

GBI Research

Technological advances in wireless technologies are leading to developments in the remote patient monitoring market, offering increased convenience to patients and improved access to efficient data management for medical professionals, states a new report by industry experts GBI Research.

The new report* states that patient monitoring systems – specialized medical devices used to measure and record patients' vital signs – are of critical importance in hospitals, home and ambulatory settings. Wireless patient monitoring devices collect and transmit patient data, not only removing the confinement caused by wired bedside monitors, but also allowing patients to be continuously monitored from remote locations, expanding the treatment of a patient to a potential worldwide collaboration.

Advances in sensor technology have resulted in the development of sophisticated patient monitoring systems based on biomedical sensors, which are used to create a wireless network system known as the Body Area Network (BAN). These sensors can measure patient vital signs such as blood glucose levels, blood pressure, and the electrical impulses of the heart and brain, and transmit this collected data to be stored for further review. Wireless Intelligent Sensor (WISE) based monitoring devices are also used to monitor vital patient medical parameters, and can predict and prevent emergency health situations. This quick and timely transmission of data in ambulatory or critical care settings allows swift intervention by physicians in case of emergencies, potentially saving many patients' lives.

In order for wireless medical technologies to flourish, there is a need for high-speed and comprehensive access to wireless networks, challenging the abilities of current infrastructure. Devices must be made with the quality and reliability to function and communicate well, and networks must offer unlimited and dependable wireless coverage. Technological advances such as Bluetooth low energy, ZigBee green power, Wi-Fi direct and EnOcean are enabling wireless sensor networks in the application of patient monitoring devices. Patient monitoring systems can also include GPS location tracking tools to respond to a patients' need for help.

Technological advancements continue to take place to enhance the performance of patient monitoring devices. For example, Nihon Kohden's patient monitors contain new technology that can determine cardiac output using pulse wave transit times, which enables the recognition of fluctuations in blood pressure between regular blood pressure measurements. When the pulse wave transit time threshold is exceeded, the monitor records the Non-Invasive Blood Pressure (NIBP) measurement to confirm any irregularity in blood pressure measurement.

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