

Vital Signs through the Airwaves

The Infinity M300 patient-worn monitor securely and reliably transmits **VITAL PARAMETERS OF PATIENTS ON THE MOVE** via WLAN connections, giving them freedom of movement that can help accelerate recovery.

PARENTS take care of their children when they are young, and often children have to take care of parents once the latter reach old age. In between, doctors and other care givers help them both. Each of these life stages requires a balance between health monitoring and freedom of action. An imbalance here can be dangerous—even a matter of life and death. In such a situation, freedom of movement can work wonders—and a new small device is now doing just that by giving back some of the joy of living to patients with heart trouble, while at the same time monitoring their most vital parameters.

Isolde Schröder, a nurse at the Bad Wildungen Hospital in Germany, is one of the country's first healthcare professionals to have used the Infinity M300 mobile

patient monitor. “At first we were skeptical, as we usually are with new things,” Schröder says. “We actually thought it was going to make life more difficult.”

Vital parameters and positioning

However, it's the device's many positive features that have been attracting her attention since it went into service in June 2008. “It enables patients to be just as mobile as they were before—and sometimes even more so,” she reports. As a result, patients can now leave their beds, unless otherwise instructed by their doctor. During the entire time, they are continuously monitored by the Infinity M300, which weighs only around 280 grams and is carried in a small case worn around the patient's neck. The device even comes with a special bag for use in the

shower. The Infinity M300 has a color display that shows real-time data on the patient's condition. It's also equipped with a wireless connection that continuously sends the information to the Infinity CentralStation at the nurses' monitoring station. Such supervised mobility boosts patients' self-confidence, which in turn can speed up the recovery process and potentially shorten their hospital stay.

The Infinity M300 stands apart from equipment produced by other medical device manufacturers. For one thing, the Infinity M300 has built into it the algorithms necessary for recognizing irregular heartbeats and values outside specific limits. That means the device functions even without the wireless connection to the Infinity CentralStation at the nurses' station. The color screen of the Infinity M300 displays patient data, which enables accurate identification of the wearer and helps ensure that he or she will be given the proper medication period.

But the real secret behind the Infinity M300 is invisible: the device connects on to the hospital's computer network via wireless, in the same way a laptop connects to a private network. This eliminates the need to install additional proprietary network components or antennas, which not only shortens installation time but also streamlines network management.

According to Detlev Froebel, a specialist for network solutions in Dräger's Marketing Department, the use of conventional WLAN data infrastructure can lead to substantial savings. Numerous successfully implemented Infinity OneNet projects (Dräger's name for the open, multi-



Mobility to go: Just put on the Infinity M300 patient-worn monitor

service data infrastructure also used for monitoring) have shown that along with the infrastructure cost savings achieved, this approach also results in much greater flexibility and a holistic approach to security. If hospital policies allow it, Infinity OneNet also enables patients to use the network infrastructure to surf the Web. Because of multilevel security, medical data is kept completely isolated from all other information flows, says Froebel. This network infrastructure can also accommodate other uses such as patient location.

WLAN technology is already well established and reasonably priced, so it's a relatively simple matter for hospitals to set up wireless networks that also function outdoors. Having done this, Bad Wildungen Hospital now has four patients who can move about freely within a predefined area. "It was unusual for us in the beginning," says Schröder, who had no prior experience with cardiac telemetry monitoring. There were several incidents in which patients accidentally left the wireless network's transmission area. Fortunately, the Infinity M300 sounds an alarm when that happens—and this alarm is triggered on both the device itself and at the central monitoring station. However, the Infinity M300 continues uninterrupted monitoring and analysis of vital parameters.

Continual monitoring advantages

Prior to going into the market in September 2008, the Infinity M300 also proved itself at the Avera Heart Hospital in Sioux Falls, South Dakota, USA. More than 60 devices have been transmitting patients' vital signs to a monitoring center at the

Dräger Infinity® M300 patient-worn monitor

The Infinity M300 provides the performance of a full-sized patient monitor in a compact patient-worn device. The mobile monitor, which is linked to the hospital computer network via standard WLAN (Wireless Local Area Network), displays ECG and SpO₂ data on its color screen. The device's software includes algorithms for detecting heart rate, heart rhythm, and oxygen saturation. In the event of an emergency, the Infinity M300 issues an alarm both through the device itself and at the Infinity CentralStation.

The Infinity M300 can be used with any standard WLAN (802.11 b/g) network, and data traffic is reliably secured with the help of a multilevel security concept. An ergonomic cable management concept reduces the amount of wiring needed for ECG and oxygen saturation sensors, thus ensuring patient comfort. The monitor has a built-in battery that can be easily recharged either at the bedside while the patient is wearing the device or at a central storage/charging station. This recharging feature eliminates the need to routinely discard batteries—saving time and money while helping the environment

hospital since June. The hospital's old telemetry system was shut down when the Infinity M300 was put into operation, says the hospital's biomedical technician, Jim Hitchcock, who is also happy about the color display of the new Dräger patient-worn monitors. "One of the first signs of a patient problem is often a declining SpO₂ value," says Hitchcock, "and if a clinician can see a patient's arterial oxygen saturation along with the ECG waveform, the clinician can save valuable time."

Hitchcock also appreciates the lithium-ion batteries that are recharged every night at a bedside charger next to the patient's bed. "You no longer have to change batteries like with the old devices," he says. This saves the staff a lot of time—and the

hospital a lot of money. Because the Infinity M300 can be installed relatively quickly, many non-cardiac departments are interested in the portable monitors as well. "The Infinity M300 is ideal for the intermediate level between intensive care and normal wards because it doesn't require monitors to be installed at beds in order to keep track of potentially unstable patients," Froebel explains. Thus it appears that many different kinds of patients will soon be benefiting from these new "little boxes of freedom."
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Further information online, including:

 Product brochure

 Data sheet

www.draeger.com/96/M300

