Significantly lower investment costs, increased telemetry coverage, and efficient project implementation. According to the management team at Memorial Medical Center in Springfield, Illinois, the new Infinity® M300 patient-worn monitoring system offers a wide range of advantages. Above all, the hospital staff values the fact that Dräger's advanced telemetry solution utilizes the hospital’s existing Wi-Fi infrastructure resulting in significant cost savings.

Changes were needed at Memorial Medical Center. The previous telemetry system was outdated and offered no Wi-Fi capabilities. Telemetry patients were restricted to specific units that were wired for telemetry. Unfortunately, some specialty units such as psychiatry, OB and rehab were not wired, so there were times that patients were not able to be placed in the care unit best suited to their individual needs. This resulted in a suboptimal use of bed space and prevented efficient workflow.

Today, Memorial Medical Center uses a total of 120 Infinity M300 patient-worn monitors running on the hospital’s existing wireless network all throughout the hospital. As a result, telemetry patients can be monitored in any care unit and during transport, which gives them flexibility as they regain mobility during rehabilitation.

The coverage area for telemetry monitoring in the hospital is now 450,000 square feet, compared to 75,000 square feet with the previous telemetry system. This expanded coverage not only provides a significant economic advantage, it also offers clear gains in terms of patient safety, says Deidra Glisson, RN, Director of Nursing Operations.

“No matter where a patient is, we always have an eye on their ECG. This increases their safety.”

Near the top 10% in patient satisfaction
According to Senior Vice President and Chief Operating Officer Doug Rahn, Memorial Medical Center is on a sound economic foundation. In patient satisfaction surveys, the hospital has consistently ranked “near the top 10 percentile nationwide,” says Rahn.

The role of technology is inseparably linked to hospital operations, according to Dr. David Graham, MD, Senior Vice President and Chief Information Officer. He has noticed a significant change over the last several years: investments are allocated less frequently to construction infrastructure or aesthetic aspects of the hospital, and much more to technology and IT. Dr. Graham states, “Technology is essential for the way we care for our patients in a rapidly changing environment.”

According to Dr. Graham, intelligent technology investments yield cost savings, reduce surpluses and inefficiencies, and allow a hospital to deliver high quality care to more patients in a shorter amount of time. That’s why Dr. Graham is convinced that “technology is closely connected to our bottom line.”

For example, electronic patient records, which can be accessed via mobile devices, have been available since 2010. Physicians use tablet PCs for data retrieval at the patient’s bedside and anywhere inside or outside of the hospital. The data processing center was recently
restructured, and in 2008 $800,000 was invested into the expansion of the hospital’s wireless network, with 500 new access points installed to support wireless medical technology as well as patient and staff Internet access.

CLEAR REQUIREMENT: USE WIRELESS LAN
When the management team at Memorial Medical Center began searching for a provider for the new telemetry system, a clear requirement was that the new system needed to use the hospital’s existing in-house wireless LAN infrastructure. They did not want to install a proprietary telemetry system because a great deal of money had recently been invested in a state-of-the-art wireless network.

Donna Crompton, RN, System Director, Clinical Informatics, states that only three providers — including Dräger — were able to offer a wireless solution. But Dräger was the only manufacturer that could integrate its telemetry system into the hospital’s existing wireless network, which was exactly what Memorial Medical Center was looking for.

“When we took a look at manufacturers, we recognized that several were still encumbered by an outdated way of thinking. But we wanted to have the opportunity to use the investments we had already made,” says Dr. Graham. This combined with the fact that several units at the hospital offered positive feedback on the Dräger bedside monitors in use was also a decisive factor. According to Crompton, “We had already established a very good working relationship with Dräger.” As a result, Dräger was awarded the contract for the new telemetry system.

NO INTERRUPTIONS IN PATIENT CARE
Another advantage of the Dräger telemetry solution was a significantly shorter implementation time. Deploying an additional telemetry network with the same coverage area could have taken years; the Dräger project took less than a year and a half. The transition was completed seamlessly via integration into the hospital’s existing Wi-Fi system.

“There were no interruptions in patient care,” says Dr. Graham. “Not a single patient room needed to be closed.”

What made the hospital management team even happier was that by using the existing infrastructure, the coverage of the telemetry system was not only extended to include the three units which were not previously covered, it was also expanded to include the hospital’s entire Wi-Fi network coverage area.

The range of the hospital’s telemetry monitoring quickly grew to five times its previous size. For Crompton, this is an additional benefit that doesn’t cost a cent.
That’s because the additional range is “a present that will be given again and again.”

Crompton estimates that installing a telemetry system from a different provider, which would have required a separate telemetry network, would have cost at least an additional $400,000.

Infinity M300 monitors replaced the existing telemetry devices in the hospital’s telemetry and medical surgical nursing units. In addition, patients are now monitored in the maternity, psychiatric and rehab units – which previously were unavailable for telemetry monitoring.

Patients are continuously monitored in their rooms, during transport and in all areas of the hospital where wireless coverage is available. Deidra Glisson, RN, Director of Nursing Operations explains, “This monitoring option now allows us to help our patients become mobile a bit more quickly. “In the past if the ECG signal were lost in an elevator, the nurses would no longer have visibility to the patient’s vital signs. Now they simply look at the built-in color screen of the Infinity M300 to see the values or identify the cause of any alarms.”

Glisson believes it is possible that increased mobility could have a positive effect on a patient’s recovery time.

The implementation of the Infinity M300 solution has received positive feedback. According to Dr. Graham, the implementation went “smoothly” and the assistance from Dräger was “exceptional”. The focus was on security: network management tools that are unique to standards-based network systems allow the prioritization of data on the wireless system to ensure that, for example, life-critical vital signs information has priority over administrative data. Feedback from the departments that now have the Dräger telemetry system has also been positive.

“Our nursing staff is very pleased with the new wireless solution,” says Crompton. The new devices are smaller and more mobile than the previous ones, making monitoring easier for nurses and patients alike.

Finally, the telemetry system has freed up more working space for clinicians. While the previous system required a room of its own with a separate air conditioning system, Dräger helped the hospital design the installation so the Infinity M300 system servers could be housed in an existing server room.

“SMOOTH IMPLEMENTATION”

From a technical perspective, the implementation of the Infinity M300 solution was seamless. Dräger supported Memorial Medical Center throughout all phases of the implementation. According to Crompton, who is a member of the project team, “Dräger looked over the construction plans with us during the initial phase, assisted us in the surveying process, gave us equipment recommendations, and worked closely with our biomedical technology and IT staff to ensure that we had the correct technology.”
“This provided us with additional space and allowed us to re-design the nurses’ station to operate even more efficiently,” says Crompton.

Nurses and care personnel rapidly became proficient with the Infinity M300 devices, says Glisson. Online training helped with the launch and clinicians generally grasped how to operate the M300 very quickly.

ALL-IN-ONE MONITOR
The clinicians at Memorial Medical Center have also had positive experiences with the integrated pulse oximetry ($\text{SpO}_2$) monitoring in the Infinity M300. This enables caregivers to monitor the oxygenation of a patient’s hemoglobin, without the patient having to carry an additional $\text{SpO}_2$ device with them everywhere they go.

Monitoring with the new Draeger system also offers clear advantages in emergency situations. In the past, if an alarm sounded, alarm details were only available at the central station and not at the patient site because the old telemetry devices did not have sound capabilities. This delayed patient care while the nurse tracked down the reason for the alarm, reports Crompton.

Today, while staff still uses printed ECG output at the nurses’ station, they are not dependent on it. If the patient complains that he doesn’t feel well, the physician can view the heart rhythms directly on the mobile device. Crompton explains, “The nurses in the intensive care unit report that they appreciate the capability of being able to view the ECG immediately when responding to a Rapid Response call or a Code situation of a patient who has remote monitoring. While all of the technical equipment they need in an urgent situation can be pushed into the room, they can view the ECG simply by pushing a button and instantly make an initial assessment. This makes a big difference.”

“CLEAR FINANCIAL AND PATIENT CARE ADVANTAGE”
What’s the bottom line at Memorial Medical Center?
Rahn sees the new Infinity M300 telemetry system from Draeger as an enormous technical advance for his hospital.

“Alarm details are available at the central station and on the mobile device. Nurses respond to visible and audible alarms.”

“When Draeger provided us with the opportunity to continue working with our existing wireless network instead of being locked into the platform of a different provider, this flexibility was astounding to us, and opened up many possibilities for reducing costs.” Rahn is convinced that the monitoring system is a huge technical advancement for the hospital. “It gives us a great deal of flexibility in coordinating patient care. It provides us with the latest information on our patients, regardless of where they are in the hospital. And we can continue to expand our wireless monitoring based on the flexibility of the system.”

The hospital’s Chief Operating Officer also sees economic benefits: “There was a clear financial advantage because we did not need to double our infrastructure. That’s why I knew we would be able to save money over the long term.”

When Memorial Medical Center invests in technology, it also checks its profitability over a specific time period. This includes taking into account the impact on market share and competition. When it comes to the Draeger telemetry solution, Dr. Graham is convinced that the hospital’s growing market share is in no small part a result of being able to seamlessly monitor patients with higher acuity levels in several units in the hospital.

“We’ve received a significant return on our investment in the first year,” concludes Dr. Graham.
Doug Rahn, Senior Vice President and Chief Operating Officer, sees the new Infinity M300 telemetry system from Dräger as an enormous technical advance for his hospital. It makes optimal use of hospital space flexible and delivers up-to-date information for telemetry patients, no matter where they may be. Doug Rahn: “When Dräger came to the negotiating table and provided us with the opportunity to continue working with our existing wireless network instead of being locked into the platform of a different provider, this flexibility was astounding to us, and opened up many possibilities for reducing costs.” Doug Rahn is convinced that the hospital saved money with this option at the outset, and in ongoing service and maintenance costs.

Dr. David Graham, MD, Senior Vice President and Chief Information Officer, emphasizes the importance of technology – not only for patient safety but also for the cost effectiveness of modern hospital operations. Providers must adapt to the technical conditions at the customer’s site and develop an affordable integration plan. The solution needs to take the hospital’s existing investments into account in order to ensure a faster ROI. Dr. Graham feels Dräger filled this role perfectly during the launch of the Infinity M300 at the Memorial Medical Center.

Donna Crompton, RN, System Director, Clinical Informatics, was a member of the project team which selected and implemented the new telemetry solution. Dräger was the only provider whose telemetry solution could be used with the existing WLAN infrastructure. Above all, she valued the support from Dräger throughout all levels of the implementation – from planning to after sales support. Donna Crompton estimates that the Dräger solution cost about $400,000 less than the solutions from other suppliers.

Deidra Glisson, RN, Director of Nursing Operations, reports that the nursing staff is very happy with the seamless monitoring of patients. She has also noticed an increase in patient safety because monitoring is not interrupted at any point during the hospital stay, including during transport. Glisson also does not rule out the possibility of positive effects on a patient’s recovery time and length of stay with the Infinity M300 – because the quality of care increases thanks to continuous monitoring as patients increase mobility.
DRÄGER INFINITY® M300: CONTINUOUS MOBILE PATIENT MONITORING

About the Memorial Medical Center
Memorial Medical Center, a 500-bed acute care hospital in Springfield, Illinois, is part of the Memorial Health System, a network of three hospitals in Springfield, the capital of Illinois, Taylorville and Lincoln.

Memorial Medical Center offers a wide range of medical services, and specializes in cardiology, orthopedics, surgery, urology and is a Level 1 Trauma Center. The intensive care units and OR capacity have been expanded over the last several years to meet increased demands. Memorial Medical Center now commands a 60 percent market share in the region.