



## Sanford Health Opens New RTLS-enabled "Patient-Centric" Facility

The Midwest health-care provider installed a real-time location system to manage the flow of patients, personnel and assets through examination rooms and common areas, to improve the efficiency of its medical centers and boost patient satisfaction.

By Claire Swedberg

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May 05, 2014—Sanford Health, a nonprofit health-care system operator with locations in 126 communities throughout nine U.S. states, has opened a new "patient-centric" clinic in Moorhead, Minn. that, it says, reverses many traditions related to patient care—and it is enabling that shift with real-time location system (RTLS) technology. The new hospital features RTLS technology provided by RFID Global Solution, using Sonitor Technologies' Sonitor Sense system with ultrasound tags, emitters (location beacons) known as Sense Transmitters and software supplied by Intelligent InSites. Sanford's aim was to launch a new medical center at which patients would no longer sit in waiting rooms and examination rooms for extended periods of time, but would instead flow through the facility quickly and efficiently, with a minimum of waiting time.

Sanford Health is presently in the process of installing a similar RTLS solution at its medical center in Fargo, N.D., and plans to do the same at its USD Medical Center, located in Sioux Falls, S.D.



Sanford's Jeff Hoss

Sanford began looking into RTLS solutions in 2010 as it prepared to upgrade several clinics, as well as open its new clinic in Moorhead, says Jeff Hoss, the VP of Sanford Clinic Fargo, which includes the Moorhead site. The health-care company had been exploring RTLS technology for years, he explains, and sought to use it to monitor events, rather than track individuals or assets. The goal, he says, was to identify when each service had been provided to a particular patient, based on staff and patient location data, and to thereby find ways to better predict workflow, improve patient-service efficiency based on RTLS data, and catch any delays in real time. Hoss had visited sites of other RTLS deployments, including at Washington's Virginia Mason Hospital and Seattle Medical Center.

The company has spent several years working with Intelligent InSites, says Doug Burgum, Intelligent InSites' chairman and interim CEO, to develop a system that would automatically collect data regarding the movements of patients, personnel and assets, in order to improve efficiency and patient satisfaction. Sanford approached Sonitor, which then contracted with RFID Global Solution to install and integrate Sonitor's hardware at the Moorhead site. RFID Global is now in the process of installing the same solution at Sanford Health's Fargo center, with the Sioux Falls site to follow, says Thomas Manzagol, RFID Global Solution's founder and COO.

The 49,000-square-foot Moorhead facility is divided into two sections: the onstage area (where patients are treated) and offstage (offices, laboratories and other areas where staff members work). In the offstage area, the center has installed a status board—a video monitor that displays data from the Intelligent InSites software indicating which patients are in which areas, as well as their status. The software resides on Sanford's own server, sharing data with the company's EPIC hospital-management system.

RFID Global installed ultrasound emitters within each of the clinic's 52 examination rooms, as well as in common areas and hallways in the onstage area. Upon arriving at the clinic, a patient is first provided with a Sonitor ultrasound tag to wear on a lanyard or carry throughout his or her appointment. The patient is first instructed about which room to report to, thereby skipping the waiting-room process. The badge ID number is linked to that individual's name in the Intelligent InSites software. As the patient moves throughout the facility, his or her tag receives ultrasound signals emitted by Sonitor location beacons. The tag transmits its own unique ID number, along with that of the emitter, to the back-end system, via a Wi-Fi connection.

According to Hoss, research has found that patients provide the most accurate blood pressure reading five minutes after reaching an exam room. Therefore, Sanford intends to set up service so that blood pressure is recorded five minutes after a patient enters a room. To accomplish this, the clinic's employees track each patient on a status board. Once a patient has been in the room for five minutes, that status is displayed on the board so that a nurse knows when to enter the exam room and check the patient's blood pressure. Data can also be forwarded to specific workers via text message or e-mail. "Information will be disseminated across multiple mediums," says Megan Glasow, Intelligent InSites' customer-success manager, "including the InSites user interface, e-mail, dashboards in non-patient care areas and on mobile devices."

Nurses and physicians will also wear Sonitor ultrasound badges, so that when a nurse visits a patient's room, the system will identify that action and update that patient's status. When the nurse leaves, the software will be updated again to indicate that the patient is ready to be seen by a physician, and this status is then displayed on the board. If equipment, fitted with

Sonitron tags, is brought to a patient, that data will also be received and stored in the software, thereby creating a record indicating which services were provided by equipment, such as pumps or other machines.

Fifty pieces of equipment have initially been tagged, Glasgow says. With the tracking of assets, she explains, the hospital plans to use that information to identify utilization percentages for owned and rented equipment, as well as increase visibility into rentals, improve PAR levels across the facility, and reduce costs related to keeping less-utilized equipment.

In addition, Sanford Health will be able to use the data for analytics, in order to better determine when it may require more or fewer employees at specific dates and times, and whether the patients are being scheduled appropriately. The system can determine, in real time, when patients may soon experience a delay—for example, because multiple patients require the same physician or service. If this happens, the software enables the staff to identify another location to which patients could be directed, such as a neighboring department at the center.

Initially, Hoss says, the hospital intends to simply watch the data flow, and to determine what kind of data it is receiving and how effective it is. He expects that process to last for approximately three months, after which he hopes the company will use the data not only to move patients more efficiently, but also to track greater details about patients to further improve their service. For example, if a patient is accompanied by several small children, has specific medication concerns, or has problems with sitting alone for too long in an exam room, that data can also be linked to that patient's badge ID so that staff members can be alerted to that situation.

Hoss predicts the first few months will provide data indicating issues that employees and management had already suspected but had not been able to prove, such as the causes of delays or the specific times at which such delays occur most frequently.

The center is launching the system with 100 staff badges and 400 patient badges. At the end of a patient's visit, the last staff member to attend to that individual retrieves the patient's ID badge, after which it is cleaned and cancelled from the software, to be reused by another patient.

Deployments of the RTLS solution at other locations during later phases will include sites at Thief River Falls, Bismarck, Bemidji, Worthington, Dickinson and Aberdeen.

Sanford's implementation signals what Burgum calls a tipping point in RTLS deployments for health-care providers. "We've reached a point," he states, "where a growing number of health-care executives are recognizing there was a world before automatically identified data—and a world after automatically identified data." With the RTLS data, he adds, health-care companies have extensive knowledge about what happens at their facilities, and can thus determine ways in which to improve it. He calls Sanford a leader among health-care companies in selecting a system that will be used on an enterprise level, rather than for just a single department within a clinic.

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