

McLaren Flint



ASSET TRACKING + MANAGEMENT CASE STUDY

McLaren Flint, part of the McLaren Health system, is a 378-bed tertiary facility serving midwest Michigan. In 2016, McLaren set out to replace an aging fleet of IV pumps that always seemed to be in short supply. While clinical staff asked to increase the number purchased, the operations team was measuring existing pump utilization to see if the capital expenditure could be reasonably reduced.

INCREASING PUMP UTILIZATION AND DECREASING CAPITAL EXPENDITURE

McLaren ultimately selected Midmark RTLS* (real-time locating system) for asset tracking, which allows staff to effectively track and manage IV pump inventory hospital-wide. Using RTLS to increase pump utilization while decreasing pump inventory by 33% enabled McLaren to save \$1 million in capital expense. At the same time, the hospital gained an infrastructure for seamless expansion to additional solutions that improve patient flow and staff safety.

IV PUMP UTILIZATION STUDIES ESTABLISH BASELINE USAGE

Prior to implementing Midmark RTLS, McLaren Flint conducted two utilization studies at the hospital, one independent and one internal. "Although initial desire was to purchase 1,000+ new pumps," explains Dave Dickey, corporate director of clinical engineering, "the studies confirmed that our existing 900 pumps had a

INSTALLATION HIGHLIGHTS:

RTLS Applications

- Asset Tracking + Management

Integrations

- B. Braun IV Pumps

Return on Investment: \$1 million

- Increased IV pump utilization 133%, from 30% to an estimated 70-80%
- Purchased 400 fewer IV pumps

30% pump-in-use rate. Compared to industry standards of utilization rates at 30-40%, we weren't surprised."

The studies revealed a 2.5 to 1 pump-to-bed ratio—twice as many IV pumps than were in use, even during peak capacity. Despite these numbers, clinical staff complained of having too few pumps. Clearly there were areas for improvement, enabling staff to make an evidence-based decision to invest in RTLS, a technology that has been shown to improve the utilization rates of mobile equipment.

PURCHASING LESS WHEN THEY WANT MORE: GAINING STAKEHOLDER CONSENSUS

It's a familiar refrain: clinical staff say they don't have enough IV pumps. Nurses hide them, units fight over them and hospitals typically over-purchase this critical piece of equipment. When McLaren's operations group proposed a 33% decrease in inventory, there was push-back. But this radical shift came with a well-defined plan to increase pump utilization using RTLS.

To foster buy-in from all involved, McLaren created a multi-disciplinary team that included clinical engineering, front-line nursing, IT, transportation, and management from both the local and corporate levels. Together, the team landed on a target purchase quantity of 600 IV pumps, 400 less than the requested purchase of 1,000. Evidence from the utilization studies and a clear promise that when clinicians needed pumps, pumps would be available, convinced the clinical staff. The potential savings of \$1 million dollars gained immediate approval from the CEO and CFO.

TRACKING AND MANAGING IV PUMPS HOSPITAL-WIDE

McLaren Flint replaced its fleet with 600 B. Braun pumps. Each is affixed with an asset tag that relays real-time

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Corporate Director of Clinical Engineering

location information to the Asset Tracking + Management software. The number of IV pumps on each unit is continuously monitored and automatically updated in the software, which helps to manage pump inventory through a process called PAR (periodic automatic replenishment). Each unit, floor or department initially determined their average patient census and how many pumps they need to meet that demand. If the level of pumps gets near the PAR level, the software can automatically trigger an alert so that pumps can be replenished from another unit with excess inventory.

"Clinical departments should always have pumps available to them whenever needed, without having to tour the hospital looking for them," says Dickey. "Since pumps can move with the patient, keeping an adequate supply in each clinical area to meet varying demands throughout the day can be challenging." Now, with McLaren's central distribution model and visibility to pump supply, its transportation team routinely redistributes pumps to ensure adequate availability.

"High-utilization areas, such as surgery, the emergency department and the heart and vascular center, typically have more patients in the morning, requiring more pumps at the start of the day," explains Dickey. "Throughout the day, those patients and their

pumps migrate to inpatient floors. The patients are eventually discharged, and their IV pumps go to the department-specific supply room for cleaning."

At night, the transportation team redistributes pumps back to the high-use areas, using the Midmark RTLS software for an at-a-glance view of which units need more pumps, and which units have excess.

METRICS VALIDATE ASSET UTILIZATION AND ROI

As McLaren expected, the system saves valuable time, which enhances patient safety and care. In one example, Biomed performed a software upgrade on pumps within three days. Previously, locating all pumps for upgrades took several weeks to complete.

However, the effective distribution of pumps made possible by RTLS has made the most significant impact.

"While we are still developing best practices for IV pump deployment, initial assessments indicate that our utilization rate has increased from 30 or 40% to about 80%," says Dickey.

Improving utilization by 133% allowed McLaren to decrease pump acquisition from 1,000 to 600, saving more than \$1 million, even after purchasing and installing the RTLS infrastructure and asset management software.

Dickey is careful to note that utilization is only estimated when using location data alone. "While initially defined by having a targeted number of pumps in defined clinical spaces at all times, true utilization is best measured by tracking actual pump 'on-time,' which is leading us to develop new tools to identify and track actual pump use."

INTEGRATION INNOVATION ELEVATES STAFF VISIBILITY TO PUMPING STATUS

To better understand true utilization rates, McLaren is further innovating asset management by being the first hospital to launch an RTLS-smart pump interface between Midmark RTLS and B. Braun based on IHE® Patient Care Device (PCD) open standards.

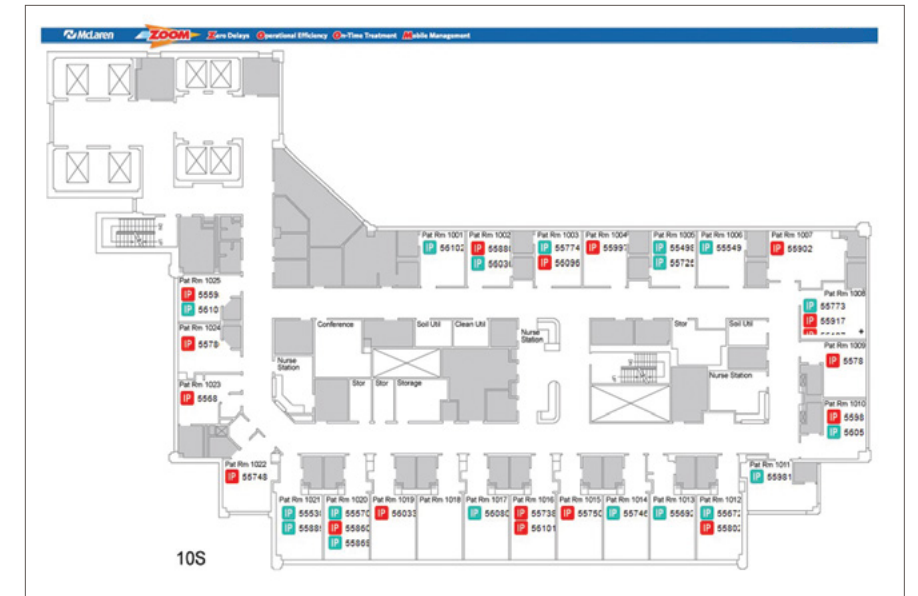
"While Midmark shows us the location of a pump which helps us manage inventory, we also wanted to see the pumping status of each pump," explains Dickey. "Although it is nice to easily see where a pump is located, it doesn't help a clinician if she goes to its location and discovers that it is infusing on a patient."

Now the IV pump dosing software feeds pump status to the RTLS software, which displays "ON" (infusing) or "OFF" (infusion stopped) alongside the pump location. At the same time, the software automatically updates the real-time floor plan, changing a pump's icon to red when the pump is infusing.

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The integration also displays a "download ready" status that shows pharmacy staff that pumps are online and available to receive drug library updates via wireless data push. This reduces the time needed to manually collect the pumps for plug-in updates.

Midmark RTLS asset tags, affixed to IV pumps, allow the real-time location of McLaren's fleet to be displayed in both list format and on floor plans, as shown above. Thanks to an interface with B. Braun, Midmark RTLS also indicates which pumps are available (green icons) or in use (red icons).

SCALABILITY SUPPORTS FUTURE PERFORMANCE IMPROVEMENT

Although Midmark RTLS saved McLaren \$1 million through effective asset management, the health system has a larger vision for RTLS at McLaren Flint and beyond. As Dickey explains, "Although we started with pumps, we now have the RTLS infrastructure in place to explore patient flow, staff assistance and process improvement. We're also looking at future standardization of the technology across our other McLaren Health Care hospitals."

*Midmark RTLS Solutions, Inc., f/k/a Versus Technology, Inc., is a wholly owned subsidiary of Midmark Corporation. In May of 2016, Midmark Corporation acquired Versus Technology, Inc.



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