

Driving down inventory with workflow redesign.

Communication backed by technology boosts infusion pump utilization.

A major hospital owns a seemingly ample supply of infusion pumps – yet nurses insist they never have one when they need it. They wait hours for a pump to be delivered or spend precious minutes searching the floors to find one. These are common scenarios. The solution lies in intelligent workflow design built on clear communication and advanced asset management technology.

In mid-2009, staff members of a 700-bed acute care facility knew their infusion pump handling process was broken. Despite 1,029 pumps in inventory for a typical patient census of 450, nurses reported pumps were available when needed just 36 percent of the time.

Nurses had to wait for pumps ordered from Central Sterile Processing or hunt for them among departments, which took 21 minutes on average. To keep pumps on hand, nurses hoarded them in closets, storerooms, and cabinets. There were no standard procedures for pump cleaning and no designated “ready areas” for clean pumps on the floors. Because no visual cues told whether a pump was clean or soiled, there was an ever-present risk of infection.

In 2009, the hospital worked with GE Healthcare’s Performance Solutions team to redesign the pump workflow and track all pumps with a real-time location system. The project delivered quick, dramatic, and sustainable improvements (see table).

Clear and simple.

The hospital sought help from GE Healthcare in its role as comprehensive equipment maintenance provider and strategic business partner. A key component in that collaboration was the use of value stream mapping to design a new pump process – one the staff could easily sustain on its own.

Using the AgileTrac™ real-time location system from GE Healthcare, the team fitted each pump with a radio-frequency identification/infrared tag. Now, the staff can view pump location and status in real time by using a web browser or integrated computer kiosks.

Each of the hospital’s 37 departments has clearly labeled rooms for clean and soiled pumps. Nurses take pumps only from the clean room and return used pumps to the soiled room for cleaning by Central Sterile. Each clean room has a par level of pumps as “buffer stock” to ensure sustained pump availability.

Clear signage in the rooms instructs staff in pump handling roles and responsibilities, which are standard throughout the facility. Clean pumps are identified by a coiled cord and a sticker placed across the pump door opening; a broken sticker definitively identifies a soiled pump.

As the process rolled out, a Lean leader from GE Healthcare’s Performance Solutions team visited all departments and explained the enhanced pump workflow in detail to all staff members. Department personnel were allowed to set clean room par levels. Staff

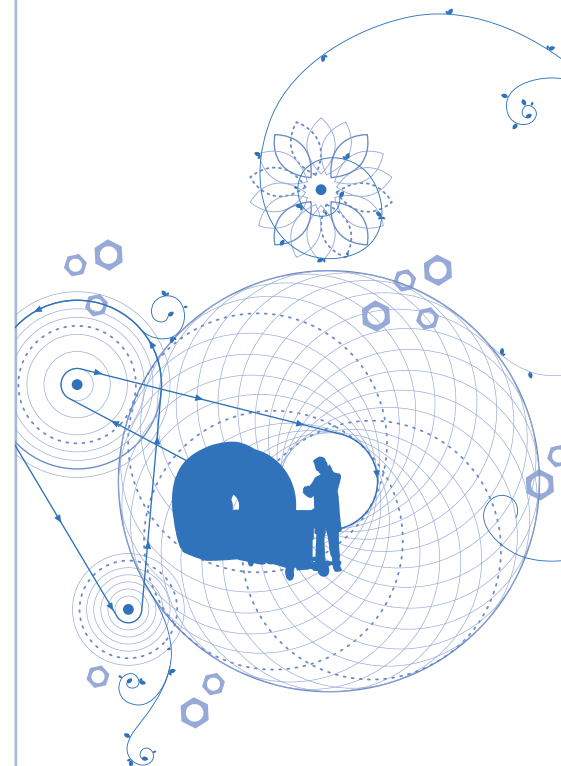
“AgileTrac is absolutely incredible. For years, we struggled to keep track of our equipment. All of a sudden, from one month to the next, we were able to know where everything was, know the quantities of devices we had, and recognize a reduction in our inventory – which is the bottom line.”

**Operating Room
Business Manager**

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members can monitor those levels with the AgileTrac system and lower them if warranted. The system sends automatic alerts to Central Sterile if clean room stocks fall below set levels.

Infusion pump utilization improved quickly and dramatically. Just three weeks into the new process, the team collected 128 surplus pumps from rooms and hoarding spaces and sequestered them. The staff expected to remove about 200 more by the end of 2009. The retirement and transfer of \$1.9 million of equipment to other facilities saved scarce capital dollars.

Searching for pumps was eliminated, saving 730,000 minutes per year – the equivalent of 7.5 full time employees – time that nurses now can devote instead to patient care.

Sustaining the gains.

A month after deploying the process and documenting the improvements, procedures were still in force and the gains holding firm. The AgileTrac system can be monitored remotely to detect any backsliding, such as resumption of nurses hoarding pumps

Infusion Pump Workflow Redesign		
	BEFORE	AFTER
Time to locate pump (average)	21 minutes	< 1 minute
Pump available when needed	36%	100%
Staff can identify clean pump	41%	100%
Staff satisfied	43%	100%
Pump count	1,029	705 (expected at end of 2009)
Capital savings	–	\$1.9 million
Maintenance savings	–	\$104,000 per year
Pump search time eliminated	–	730,000 min. (7.5 FTEs)

on the floors (which has not occurred). In addition, the GE biomedical team on-site can use the system to locate pumps due for planned maintenance.

The staff soon saw more opportunities to use the locating technology. Seven balloon pumps used for open-heart surgery are now on the system, and 70 crash carts are tagged so staff members can quickly find them to replace supplies going out of date.

The operating room business manager, who supervised the project, noted that the AgileTrac technology, backed by close communication, made the process change successful. “When we implemented the process, GE staff went to the nurses and explained it to them,” he said. “To make the staff members comfortable, we let them set the par levels in the clean rooms, knowing that at first they would be inflated. Then, as time went by, we began reducing those levels. It took a little time, but it worked out well because we got that buy-in from the end users.

“There are so many benefits to this system. Before, going from unit to unit searching for pumps was a nightmare. Now, we can simply look on the system. It saves us so much time, and as we go along, it’s going to get even better.”

For more information about GE Healthcare’s Asset Management Solutions email gehealthcare.solutions@ge.com or visit www.gehealthcare.com/agiletrac.

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