

Workflow improvement boosts pump availability and saves millions.

Kaizen for asset optimization enhances care and reduces capital costs.

A patient needs an IV medication, but no IV pump is nearby. Now a nurse must be pulled from bedside care to search the floors to find one. There's no telling how long it will take. The patient's treatment is delayed. This happens far too often; doctors and nurses are frustrated. It seems like a simple problem — why is it so hard to solve?

Hospitals in the United States spend billions annually on IV pump purchases and rentals, yet pump availability on the floors is a persistent issue. The solution lies in improving pump utilization through better workflows.

Lean methods helped the staff at Abington Memorial Hospital dramatically improve utilization of IV pumps. Once new pump processes were deployed housewide, availability improved so much that a large pump purchase was delayed, saving \$110,000. The hospital also realized a productivity gain of 42 full-time employees (worth \$5.2 million) because staff no longer had to hunt for pumps. The staff resources saved were redeployed to patient care.

A key purpose of the project was to test the value of Lean for broader application.

The hospital, a 570-bed, regional referral center and teaching facility in Abington, PA, faced a chronic shortage of IV pumps on the floors. Staff members had taken to hoarding pumps in places such as patient lockers and closets. A "stat" order for an IV medication often triggered a "pump alert" in which personnel left their regular tasks to sweep the facility for pumps.

The Performance Solutions team of GE Healthcare led hospital managers and front-line staff in a value stream mapping session followed by a Kaizen rapid improvement event. In 3½ days, the team created a new pump distribution process, which was then pilot-tested on one floor.

The team reviewed six months of patient records to determine actual demand for IV pumps on the pilot floor, then devised a streamlined process for cleaning and restocking pumps on the floors. Pumps are now stocked in each floor's clean utility room. Floor space for pumps is marked so staff can easily see when the supply is below a predetermined minimum, at which point restocking occurs.

"Based on the success of the IV pump Kaizen, we are driving toward the Lean process. We now have multiple Kaizens running to achieve process improvements in individual departments. We apply Lean to any process we feel is broken, or where we can make improvements that can save money or improve staff productivity. That's our way of life, and it's not going to change."

Mary Lou Kurilla
Nurse Manager for Supplemental Staff Nursing Administration
Abington Memorial Hospital
Abington, PA

Bruce Reuther
Director of Patient Care Support
Abington Memorial Hospital
Abington, PA

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The new process reduced pump handling steps from 26 to eight. Pumps were available when needed 94 percent of the time, versus 28 percent before the workflow improvements. Cycle time for pump deployment improved dramatically (see table).

“Our passion here is patient safety,” says Bruce Reuther, director of patient care support at the hospital. “Because we have control of our assets now, our staff can spend more of its time taking care of patients.”

IV Pump Cycle Time

	Before Kaizen	After Kaizen
Minimum	50 to 105 min.	35 sec. to 4 min.
Maximum	140 to 275 min.	40 sec. to 10 min.

Note: Cycle time is measured from the time an IV medication order is given until the pump is in place and the IV is in progress.

GE Healthcare
3000 North Grandview Blvd.
Waukesha, WI 53188
U.S.A.

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