

# Benchmarking Best Practice: Using Quality Measures to Strengthen Equipment Services

Jill Schlabig Williams

**Subject:** Arkansas Children's Hospital

**Location:** Little Rock, AR

**Size:** 316 beds

**Staff:** 10-person in-house clinical engineering department

Boyd Hutchins came on board as the director of clinical engineering (CE) at Arkansas Children's Hospital—one of the largest pediatric hospitals in the United States—in 2001. Since then, a few times every year, he's had to counter efforts by outsourcing organizations to convince his administration that they could “save the hospital 20% on equipment service.” His goal, time and again, became to convince the hospital's chief financial officer (CFO) that, by being financially responsible and working efficiently, his shop could save the hospital money and provide a higher level of quality than an outside organization. Suddenly, he found himself facing a key question: How do you measure quality?

That simple question launched a two-year effort to define quality and develop measurable benchmarks to demonstrate his group's success. The payoff from their effort? Cost savings and improved equipment service.

## Challenge

Cindy Holland, Hutchins' direct boss and the hospital's vice president of ancillary services, is a big fan of his department. But, when faced with repeated threats from outsourcing companies, Hutchins knew he had to rely on more than his boss's high opinion of their services. That's when his department set out to identify the most meaningful ways to quantify quality. Their goal was to develop easily measurable benchmarks that would contribute to an overall assessment of department and engineer quality.

“Our staff would meet every morning to talk about quality issues. We were doing a lot of talking, not measuring,” says Hutchins. “We were making a lot of changes, but how did we know if they were good changes?”

Hutchins and his team wanted to quantify their level



The clinical engineering staff of Arkansas Children's Hospital, grouped by their quality dashboard, has used quality measures to cut costs and improve equipment service.

of service to communicate their success. “It's the difference between saying you're an A+ and being able to prove it,” says Hutchins.

## Solution

Hutchins' group spent two years on research, data collection and mining, and report design. They researched a wide variety of resources to quantify quality. They queried local biomed groups and listserves, but didn't have much luck finding useful benchmarks.

Instead, they turned to their customers. “Our number-one goal was customer satisfaction, so we did formal surveys to ask our customers what they want,” says Hutchins. “Their answers were similar: they wanted work orders done in a timely manner and done right the first time; they wanted all preventive maintenance checks done right the first time.” Quality benchmarks based on customer input were developed and tested.

Benchmarks were also developed to reflect individual technician performance, reports Kevin Haralson, a lead engineer in the department. “For example, our benches can get messy, which is not efficient and is potentially dangerous. So we created a bench standard, and we're graded daily on the neatness of our work benches.”

Clinical Engineering Dashboard : Friday, January 09, 2009 12:52:30

**Total Quality Score**

Score Date	11/4/2008	11/11/2008	11/24/2008	12/3/2008	12/12/2008	01/5/2009
Cust.Sat.	100	100	100	100	100	100
JC	28	28	28	28	28	28
Budget	-5.8	-5.8	-5.1	-5.8	-6.1	-5.8
Blanks	.02	.02	.01	.01	.02	.02
Career	100	100	100	100	100	100
Repeats	.7	.93	.7	1.2	1.2	.7
WO30	100	98	84	95	98	76
Bench	99.2	99	98.9	98.8	98.8	99
PO Acc	97.2	98	97	97.5	97.1	97.2
Total Quality	99.94	99.58	99.02	99.40	99.51	98.5
Asset Value	\$68,978,478	\$68,968,807	\$68,914,199	\$68,892,826	\$69,141,141	\$68,978,478
MC%	4.1	4.1	4.1	4.1	4.1	4.1

Last Updated: 12:52:24

The quality dashboard features a rotating, real-time display of key quality measures.

They also developed a financial performance benchmark score for their services, which involves taking the annual maintenance budget and dividing it by the actual purchase costs of the equipment, resulting in a total quality score. They currently use 6% as a benchmark for that indicator. “We use that figure to show our CFO how adding staff can pay for itself,” says Hutchins.

An existing maintenance database contained most of the data they needed, but did not offer an easy way to get at that data. The group developed a new maintenance database. Now, every time they select a new quality criterion to track, they can create custom queries to pull that data out of the system. “With this new system, we can pull the reporting data we need,” says Hutchins. The database evolved over about 18 months, and is still undergoing constant improvements.

Ongoing data collection is not an issue as long as technicians complete and enter work orders on time, they say. Since launching this initiative, the number of fields left blank in their database has dropped from 20% to 0.8%.

Now, the CE department continuously monitors a variety of measures related to Joint Commission compliance, budget efficacy and performance, and equipment database accuracy as well as individual performance marks concerning workplace appearance, customer satisfaction, and repeat repairs. They use these measures to come to an overall quality score.

The group came up with the idea of a display that would show real-time quality measures. Now, a flatscreen “dashboard” posted in the department summarizes all of the quality indicators. Each benchmark offers instant feedback to the engineers and customers. Measures that are on track appear in green, while problems areas are high-

lighted in red. “It has become a centerpiece of our quality initiative. It gives us instant feedback. It’s easy to pay attention to the results of our quality measures, because they’re posted right in the department,” says Hutchins.

The individual scores are tied to performance evaluations so that each engineer can make course corrections concerning their quality throughout the year. Overall department scores are used to detect downward trends and communicate those

trends to the people who can best address them.

The data are made available to other departments as well. “They’re able to see the costs of downtime, and what the equipment is costing them to run,” says Hutchins. The hospital’s capital equipment committee also uses these data to determine replacement schedules.

**Results**

“Our use of quality indicators has demonstrated that we can respond to equipment issues more quickly, offer less downtime, and save the hospital money,” says Hutchins.

“Before, clinical engineering fixed things but didn’t have anyone interested in improving the department,” Holland says. “Now, we’ve seen the department expanding its capabilities, improving customer relationships, and receiving more trust from clinicians.”

“Before something becomes a problem, we can see it and fix it ourselves,” says Haralson. Clean workspaces, clear priorities, and well-planned workloads have improved morale and made everyone happier. The new system even helps them with career advancement. “We can demonstrate our competency and our ability to meet standards, which gives us an incentive to do self-study and teach one another,” he says.

And, last but not least, the biggest benefit of the quality program: improved equipment service. “In the old days, we would do the work on the equipment and that data would be lost into oblivion,” says Haralson. “Now, we’re able to gather and analyze so much information about every piece of equipment that it’s made a huge difference in our ability to manage the equipment.” ■

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