Centuries ago, carpenters and metalworkers notched their benches, termed benchmarking, to help apprentices cut stock to a consistent length. More recently, benchmark has become corporate-speak for a widely accepted performance or quality standard. Today, as our high-pressure healthcare economy allows less room for substandard results, the quality of a lab's performance must be measured and compared to a standard benchmark.

Abington Memorial Hospital (AMH) near Philadelphia uses benchmarking to help lab staff improve in key areas, exceeding previous performance levels to become one of the best labs in the field.

Benchmarking shows how a representative sample of their laboratory competition performs. Benchmarking tools, along with peer-group networking, enable labs to set reasonable goals and action plans and to achieve their goals with a degree of predictability. With systematic and disciplined benchmarking, Abington raised its performance to a level that makes it an unusually productive organization — a point of pride for its staff and the entire hospital.

A short course in benchmarking

The overriding logic of benchmarking is that any function that must be managed must first be measured. Only measurement can establish whether staff, processes, and instrumentation are producing results — faster turnaround time (TAT) or higher staff productivity — the lab seeks. Benchmarking identifies best practices within one lab or in other institutions that can be used as goals or points of reference to compare lab results. A best practice usually represents a breakthrough in efficiency or effectiveness that multiple sources agree is superior. A best practice is practical; it works favorably in real-world conditions and can be replicated by other labs.

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AMH's application of benchmarking

Three years ago, AMH's administration wanted significant lab performance gains, especially in staff productivity (billable test per full-time equivalent or FTE) and cost-effectiveness (cost per billable test). Hovering in the 50- to 55-percentile range in those areas, AMH was mediocre. Administration wanted AMH to be in the 35th percentile or better — within the top third of its peer group. Achieving faster TATs and fewer errors meant performing both internal and external benchmarking.

Two years ago, AMH upgraded its competitive benchmarking with ACTION O-I (Solucient, Evanston, IL). These products address the drawbacks of competitive benchmarking by sharing all peer-group data among participating institutions. An extensive participant questionnaire ensures appropriate peer-group placement. Participants receive contact information for key individuals at all peer institutions so they can ask top performers how they achieve their results. Participants can then form action plans to tackle problems the data identifies.

Pre-analytic testing. In this most labor-intensive phase, automation is often the obvious — and easy — answer. But automation cannot solve problems arising from inefficient workflow, and it cannot always be financially justified. AMH intelligently applied the cardinal rule of benchmarking to its pre-analytic testing: Do not throw money at bad processes. AMH made many pre-analytic efficiency gains by ruthlessly analyzing its workflow, questioning staff on each process step, and streamlining where necessary. AMH discovered that an automated pre-analytic instrument would be more expensive than the unskilled labor it would replace. AMH's pre-analytic staff also answers phones; had a machine replaced them, technologists would have had to take calls, which would have been highly inefficient. AMH wisely chose not to automate this testing phase.

Analytic testing. AMH found its lab was overrun with "boxes." AMH had taken on a new instrument to run nearly every new assay it added, thereby creating inefficient workflow
and increased labor needs. Separately, AMH wanted to increase its analyzers’ capacities. Benchmarking helped AMH determine that integrated automation could address all of its issues.

Before integration, AMH’s lab had 10 analyzers; switching to instruments with broader test menus cut the number of analyzers to five. Today, AMH’s instrumentation consists of two ADVIA 1650 Chemistry Systems for chemistry, two ADVIA Centaur Immunoassay Systems, and an ADVIA Work Cell to which the other four analyzers are connected by tracks. All the instruments are manufactured by Bayer Diagnostics (Tarrytown, NY), which also distributes the tracking. Samples are loaded onto the track system, carried to the correct analyzer, and then moved into the Work Cell. The Work Cell allows a single operator to manage all samples in every analyzer. A second technologist assists with loading samples, running instrument quality controls, and stocking reagents.

Post-analytic testing: In its process analysis, AMH learned its lab technologists were wasting time hunting down samples in storage. Automating the post-analytic phase dealt with this inefficiency. When samples leave the Work Cell, some are automatically put into archive racks and others into sort racks for the nontrack testing area. Once designated for archiving, tubes are refrigerated. All tube locations are recorded on computer for easy retrieval.

Assessing the AMH project

AMH’s tracks went live in early 2002. Shortly thereafter, AMH made staffing and workflow adjustments and focused on reagent management. Key indicators of the AMH project’s success after two years were:

- TAT and on-time rate significantly improved. Now, 90% of the lab’s basic metabolic panels and cardiac troponins for emergency trauma are completed within 60 minutes.
- Technologist staffing was reduced by seven FTEs, entirely by attrition.
- Productivity (billables per FTE) improved 28%. Total lab worked hours per billable dropped 22%, ranking AMH in the top 12.5% of its peer group. Worked hours per billable in the core lab fell 52%, placing AMH in the top 7.14% of its peers. AMH far exceeded its original administrative mandate to be in the top 35% in all categories.
- Despite nationwide price hikes for packed-blood cells, AMH’s close attention to cost control (measured as direct cost per billable) reduced total lab direct costs by 5.6%, putting it in the top 4.17% of its peer group. Direct costs per billable in the core lab dropped 48%, placing AMH in the top 7.14% of its peers for this measure.

These impressive statistics do not

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Capture all the project’s benefits. When automation delivered faster TATs, technologists were freed from answering so many phone inquiries about test-completion times, and can complete other lab work more quickly.

Automation also improves result quality. Unlike humans, automated instruments perform virtually without error. Faster, more reliable results increase customer satisfaction. Additionally, automation provides a safer, less stressful work environment because the instruments decrease exposure to biohazards and repetitive-motion injuries.

The fine points of benchmarking

Benchmarking is a tremendous tool, but it is still only a tool and must be properly used and understood. Staff may defend poor performance by questioning the data’s validity, and their claims may be justified. Close analysis of sluggish TATs, for example, may show the cause of the problem is not lab inefficiency but inefficient ordering practices by an uncooperative physicians group. Careful benchmarking analysis gives lab managers concrete data that clearly identifies problem areas for hospital administration to address.

Benchmarking helps organizations identify where profitable changes can be made, but it cannot make the changes. Only people — many of whom are instinctively resistant to change — can do that. As management guru Tom Peters says, “The problem is never how to get new ideas into the mind, it is how to get the old ones out.”

Kathryn Durr is administrative director of the Department of Pathology at Abington Memorial Hospital in Abington, PA.

Create a no-blame lab environment

The laboratory at Harris Methodist H·E·B Hospital — a 250-bed facility in Bedford, TX — processes 600,000 clinical and anatomical lab tests on average annually. In November 2001, Sharon L. Harris, MS, MT (ASCP) SBB, joined the laboratory staff. In less than a year, she was promoted to laboratory director, newly responsible for managing the lab’s staff of 74 full-time employees and for improving service and the turnaround time on test results. Harris had to overcome low morale, and to promote better communication and cooperation (within the lab as well as interdepartmentally), more cutting-edge technology, and increased error-proof safety measures.

After upgrading several of these areas, Harris found the most critical challenge was that of personal accountability on the part of lab workers. “While many of the technicians had good intentions, the mind-set of the department was mired in complaining and finger-pointing,” she says. “Instead of focusing on fixing problems and finding solutions, the staff was busy affixing blame. Each person had to recognize that he needed to be an active part of the solution.

“Finally, a training system helped us create the right environment for improving the quality of our service from the inside out,” says Harris. She found a course — The Question Behind the Question (QBQ!) used by Merck Pharmaceuticals, Bayer, Novartis Pharmaceutical, St. Jude Medical, and Quest Diagnostics — developed by former management trainer John G. Miller. In his 10,000 hours of facilitating sessions, Miller observed that when faced with challenges and frustrations, “Instead of brainstorming and problem-solving, professionals blame stormed, creating more problems and inaction.”

Following Miller’s belief that individuals can discipline day-to-day thinking by taking ownership, replacing “whodunit” questions with better, more accountable questions, Harris and an assistant combined their lab knowledge with the training program, using its 96-page facilitator manual as a guide. They rolled out the course in Fall 2003 to the hospital’s supervisory staff and, subsequently, to all lab techs. Harris believed ameliorating communication and interaction were critical among lab employees before implementing the training in other departments.

While an external facilitator can be provided, the training system is conducted internally in a classroom or team setting by management employees who can customize the flexible course content to their organization. Each of four 27-minute instructional videos stresses personal accountability. Along with a handbook, participants receive CD soundtracks of the video program and the QBQ! book, which offer the opportunity for content repetition — essentially in the development process.

Harris finds progress in worker communication and cooperative interaction has been encouraging. The training has helped the staff search together for new solutions. The lab now has more solutions-oriented staff members actively asking to assist with projects. The lab’s “Good Catch” program for reducing omissions and learning from mistakes has been a success. Staff members have moved from no documentation of occurrences to writing themselves up. The complete list of monthly incidents is posted so that all lab employees can review and identify areas for process improvements that prevent future mistakes.

Staff members are actively involved in making revisions instead of complaining that procedures need revising. Staffers designed and built a lab website to enhance communication. Others designed “We I.D.” buttons as a fun reminder to staff to positively identify patients. Harris notes a vast reduction in the “we’ve-always-done-it-that-way” mind-set.

Other timesaving and safety-enhancing measures have been put in place, since a no-blame environment makes staffers much more forthcoming about their own performance as well as more open to suggesting better procedures and processes. Department employee-satisfaction surveys continue to show an increase in the area of “satisfied” to “very satisfied.” Plans are currently in the works to introduce the training system to other departments.

Editor’s Note: For more information on the training system used by Harris Methodist H·E·B Hospital, call 800-774-0737 or visit www.QBQ.com