

## LIS technology generates a strong ROI

By Kerry Foster

For laboratory managers lobbying for a new or replacement laboratory information system (LIS), convincing management there is a return on investment (ROI) can be a challenge. Forced to stretch beyond their areas of expertise because of technology and financial pressures, many may wish they also had an IT or a business degree.

Applications specialist Ginger Wooster, MT(ASCP), says her MBA has come in handy over the years. Since 1974, she has worked in the lab environment, 10 years as director of lab operations. "I spent much of my time dealing with business-management issues: productivity, costs, errors, and revenue," says Wooster, "for a facility that processed up to 800 patients daily for a physician group practice with 30 locations. I could not have been successful without a fully integrated LIS." She now helps lab managers and their administrators calculate the potential ROI from an LIS.

### The EMR and system integration

The increase in electronic medical records (EMR) system installations is making it easier to justify the need for and the installation of an LIS. "If, in fact, your organization has implemented an EMR or plans to do so in the future," Wooster says, "it is important to be aware of the relationship between the LIS and the EMR. Without a lab system, there is no way to electronically populate the EMR with lab results."

With a fully integrated LIS, lab results and patient data flow bidirectionally, eliminating manual entry into the EMR. EMR interfaces also allow order entry from remote locations, and providers can view results without contacting the lab. This ensures that the testing lab electronically receives the necessary billing and clinical information; and, in many cases, samples will be delivered already bar coded and ready to run.

Says Wooster, "Error reduction is a huge return on your investment."

Brenda Seely, lab director for 46-bed rural DeKalb Memorial Hospital in Auburn, IN, does about 300,000 tests yearly. "We do a considerable amount of outreach. About 60% to 65% of our testing is outpatient," Seely says. "One of the biggest reasons for installing an LIS was the medical-necessity screening and the rules-based technology that could identify and track problem orders. The LIS result browsers we set up caught problem orders before we sent them to billing and reduced our errors for write-offs by 30%."

For many healthcare organizations, substantial potential revenue is tied up in the accounts receivable department due to improper diagnosis codes and other billing errors that result in denied claims. Not only is revenue delayed and cash flow affected, but billing and lab personnel are also kept busy rectifying each claim. With the LIS, many of these errors would have been identified during order entry, and delays and inconveniences would have been reduced or eliminated.

Lynda Carroll is lab supervisor for Family Care Center of Arlington in Jacksonville, FL. In 2002, this was a two-site, multipractice medical group with 21 physicians and one lab; today, the lab serves six sites and 37 physicians. Carroll says, "The medical-necessity screening and CPT coding we do at the point of order entry in our LIS has reduced from 45 to 28 the number of days our claims are in accounts receivable."

### Reduce FTE expense

An LIS can be a powerful tool for increasing productivity; however, such systems will vary in features, training, support, frequency of upgrades, and their ability to integrate with other systems. One of the most recognized LIS ROIs is the reduction of full-time equivalencies (FTEs) and/or being able to redirect those FTEs. Body indent: Carroll's LIS did not have an interface to her reference lab. "Before we installed our new LIS in 2002, we processed about 150,000 tests with 14.3 FTEs. In 2005, Family Care is now processing over 250,000 tests with only 12.5 FTEs." The reference-lab paperwork and data entry required a 40-hour-per-week job, which

was eliminated when the reference-lab interfaces were established. Quality control (QC) is a one- to three-hour-a-week review from her desk computer now, rather than a visit to each of four sites once every two weeks to review and sign off. "This, alone, has saved me at least five to eight hours weekly."

### Add new testing revenue

Chris Gallinger is the laboratory manager for Associates for Women's Medicine, an OBGYN practice with three locations located in Syracuse, NY. Before getting her LIS, Gallinger says, "We were crazy with all our paper and manual logs, and actually it was our practice administrator who drove us towards the purchase of our LIS. We went live in late 2005 and are now processing more patients with half as many FTEs. Today, we are looking at doing more tests because we have the extra time to do them."

Another cost saving LIS implementation is the elimination of manual processes, both in the lab and in the billing department. Within the lab, electronic interfaces between the EMR, the practice-management system, analyzers, and reference lab(s) allow data to flow between systems and eliminate duplicate manual entry of demographics, insurance, orders, and results. Through these interfaces or by using a Web-based lab portal, electronic results can be reviewed remotely, which eliminates faxing, filing, and numerous phone calls back to the lab to retrieve misplaced paper results.

Louise Rodatz-Ristick, lab manager for Salem Township Hospital in Illinois, also serves a scattered network of clinics in the southern part of the state. "For our very large outreach program, testing is ordered via our LIS Webstation. We do not have to interpret poor handwriting from paper reqs. We get the right coding on orders the first time." Frequently missed in ROI calculations is the testing that can be added because lab personnel have been freed up from administrative/clerical tasks. Rodatz-Ristick says, "Our LIS makes my staff more efficient and gives them time to do more testing. We increased revenue with a new instrument that gave us six new tests."

Carroll says, "With our old LIS and without an interface to our reference lab, we drew samples on Monday and had complete results back to physicians on Thursday or Friday. Now, we draw this morning and have results back by noon." Within hospital settings, this means a reduction in patient bed days and increased efficiency in the emergency department. Wooster asks clients what the average cost per stay is, and what impact waiting on lab results has on the length of stay. "Think of the potential savings if TAT was reduced by 24 hours," she says.

Wooster has found that the biggest difficulty in helping lab managers justify the LIS purchase is access to historic data. Many organizations just are not keeping track of the information, and the amount of write-offs due to medical necessity seems to be one of the toughest figures to track down. Once the cost savings and increased revenue is identified, compare these against the cost of the LIS. Wooster suggests amortizing the cost of the LIS over at least five years and include the cost of annual support and upgrades.

### Technology: a good investment

The outdated paper method can easily be improved upon because much of the healthcare information technology available today is mature, offers many features, and can smoothly integrate with other systems. Information systems reduce errors and increase productivity, which is a win-win for both healthcare staff and their patients. When you add to that cost reductions and increased revenue, it is easy to see that an investment in information technology generates a strong return.

Kerry Foster is the director of marketing for Orchard Software in Carmel, IN, which develops, installs, and supports laboratory information systems. Ginger Wooster, MT (ASCP) is an Orchard Software applications specialist, whose clients include the case histories included in this article. Visit Orchard at [www.orchardsoft.com](http://www.orchardsoft.com) or contact Foster at [kfoster@orchardsoft.com](mailto:kfoster@orchardsoft.com). A more detailed version of this article