

INSIDE EDGE

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Deriving Operational Efficiency from IT

EXECUTIVE SUMMARY

Brooklyn Dodgers owner Walter O'Malley famously said that running a baseball team couldn't be that difficult, otherwise how could everybody be such an expert? That might describe where we are today with healthcare IT. Like baseball, everybody seems to be an expert at talking about the need to get value from IT in healthcare. Let's agree that's a good thing—if everybody is talking about value in IT then the discussion is focused on the right topic. The truth is that anybody who's shopped for anything, from groceries to garden tools to clothes or a home, knows what value is.

Why is it, then, that many healthcare CEOs and CFOs seem frustrated with the return on IT investments? We decided we needed an updated perspective on this issue, one that has dogged healthcare IT for years—and to identify as much as possible the areas where IT could be applied to drive operational efficiency. So we asked our own panel of real experts—a CIO, a director of care transformation, a physician CEO of a technology firm, and a couple of veteran healthcare IT consultants—to describe where we are in the IT adoption curve and how we derive efficiency from IT going forward.

How we got here

As a managing director at Navigant and former president of FCG, Steve Heck has a long-term perspective on the interplay of technology and productivity, witnessing how multiple industries used IT to increase productivity in the last three decades. Heck also knows that healthcare is in a necessarily slower lane.

"I'm a big supporter of technology. However, it's clear that corporate America is in a cycle five to 10 years ahead of providers," he says. A big shift occurred in healthcare in the 1990s, when a lot of provider organizations brought IT in-house from time-share and shared services like SMS, influenced in part by industry success with manufacturing automation. That began a proliferation of internal IT capability for providers, including internal IT staff. The CIO position was strengthened and given a seat at the table. Starting in the mid-1990s for the next five years Y2K posed the biggest challenge, and replacement of first-generation systems became a universal solution.

"In the year 2000," says Heck, "everybody ran out of gas, ran out of capital, and consultants and vendors suffered, too. The big wave since then is clinical. Since 2001 hospitals have made a commitment to the clinical world equivalent to the commitment industry has made to enterprise resource planning systems," he says. "CEOs bought it. Everybody hyped it and everybody believed the return would be clear."

In the meantime costs skyrocketed. Healthcare organizations that purchased systems in the 1990s for \$30 million to \$40 million, all of a sudden faced prices of \$100 million. "Now it costs in the range of \$200 million to \$300 million to implement enterprise clinical solutions," says Heck. With IT investments far beyond what was expected, vague ROI and the inability to track the original dollars invested—at a time of increasing capital scarcity—many healthcare

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executives have become leery of the value of IT.

NAVIGANT CONSULTING



Steve Heck, managing director, Navigant, Chicago

“Getting lost in the translation is that, one, individual sponsors are not held accountable, and, two, health systems don’t spread the cost of IT back to the original initiative. They all start with good intentions.

Sponsors get distracted. There’s not enough rigor around standardization, processes and standard order sets. It all starts to get compromised. An original \$50 million investment gets lumped as part of IT strategy and shows IT costs going up. All of a sudden it’s now \$150 million. It was supposed to be three years and now it’s six. Few are really tracking hard dollars or soft dollars. And now reimbursement has been cut and I’m running out of capital. Where’s the end?” he asks. [In this regard we consider George Bo-Linn, MD, former CMO of Catholic Healthcare West, a prophet. Three years ago he predicted to the SI Spring Conference this scenario: “I think we are going to hit a wall in three years because nobody knows what it is truly going to cost to maintain these systems.” Capital is one thing, he was saying, operations is entirely another.]

The corporate world views the IT department as a third-party supplier of infrastructure and treats IT more as a business. “They’re the supplier of service,” says Heck. “In hospitals the distinction is blurred. In doing strategic reviews with hospitals across the country, we’ve haven’t found a single hospital in the last five years that has managed the process”

of documenting benefits from IT. [That said, the SIWebII community “Clinical Systems Benefits Measurement and Realization” shows that organizations like Allina Hospitals & Clinics, Banner Health and Texas Health Resources are evidence this can and is being done.]

Health systems should implement a two-part strategy, he says. “Step one, you need to create an internal commerce system for IT exposure. Paying for IT should not be an abstract process. So, when I’m in the laboratory, I know there are 40 printers, 210 devices, 170 of which are powerful PCs. All of those costs go to the lab. It becomes a part of the lab’s investment in IT. That should translate to fewer FTEs, higher output and movement into the upper quadrant of quality. Step two, I’d commercialize the internal IT function as much as possible. When they’re captive outsourcers to the hospital, if they don’t have contracts with users, they can’t get spanked. People can’t shop around. They’ve got to create internal commerce. Insist IT is a service organization.”

Efficiency according to Marx

Deriving efficiency from IT starts at home, according to Edward Marx, CIO at Arlington-based Texas Health Resources. Having been at the thirteen-hospital system only since October, Marx is just about to launch an initiative that will drive efficiency in his IT operation similar to the one that cut a third of his IT costs at University Hospitals in Cleveland where he was for the previous eight years.

“It’s the same basket of goods,” he says. “We know we can get greater efficiency out of IT, so we’re developing a strategic plan for IT that’s aligned with clinical goals, and developing several steps that lower the unit costs per IT transaction.”

Marx’s team is conducting baseline measurements on those unit costs and imple-

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April 7

EDW Reporting Facilitates Ongoing EHR System Improvements at Northwestern

- David Liebovitz, MD, CMIO, Northwestern Medical Faculty Foundation and medical director, Clinical Information Systems, Northwestern Memorial Hospital

April 10

Safe Harbor and Stark Law Update and Case Studies

- Ira M. Kalina, partner, Drinker Biddle Gardner Carton, Chicago

April 24

CPOE Outlook: 2006 vs. 2007

- Adam Gale, COO, KLAS Enterprises, Orem, Utah

April 29

Predictive Knowledge Management

- Vi Shaffer, Research VP, Gartner, Stamford, Conn.
- Tonya Hongsermeier, MD, corporate manager, Clinical Knowledge Management, Partners HealthCare, Boston

April 30

Leveraging the EMR for Clinical Data Warehouse Reporting

- Jonathan S. Einbinder, MD, MBA, corporate manager, Partners HealthCare Information Systems, Boston

more events on next page

menting strategies to reduce the cost and increase the value of IT. “So a year from now we’ll measure how we’re doing. Very few people do that. I call it our tax on the system. We as IT are the biggest tax on the 13 hospital presidents in our system. It’s incumbent that we lighten that tax and increase our service. We’ll continuously benchmark ourselves going forward while increasing services and quality.”



Edward Marx, CIO,
THR, Arlington, Texas



One successful strategy Marx is carrying forward from University Hospitals is develop-

ment of strategic partnerships with IT vendors. “Today we have 750 software applications and half that number of vendors. We’ll go with just a few vendors. In return we get lower prices, a higher level of service, more dedication—and access to senior executives. I’ve had discussions with the CEO of Cisco and the president of Oracle.”

It’s an effective strategy particularly for hardware costs. THR gets its computer gear from three suppliers—HP, IBM and Dell—and Marx says it doesn’t get any price breaks from any of them. “Typically you’ll get significant price cuts if you consolidate your purchases to a single hardware vendor,” he says.

A similar strategy is to winnow the number of business intelligence or analytics software vendors. “We’re using six or seven of the top 10 business-intelligence products,” says Marx, ticking off names like Hyperion, Microstrategies and SAP. “These are very robust applications. And that’s costly. We’ll single out which one of these can meet our needs and elimi-

nate the rest.” The cost is not just for the software applications, he notes, but for software maintenance, staff training and people to support it. The latter involves having to support six or seven different experts and customers within the organization.

THR has developed a stringent scorecard to evaluate vendors and “keep them honest,” adds Marx, who expects to take two years to reach his efficiency objectives and then be able to cut 10 percent from his IT operations, saving about \$5 million a year.

IT special ops

When it comes to efficiency, savings trumps sexy. For example, managed print services are a major THR objective. “THR probably has three printers for every FTE and the printers are typically old. If you right-size and get new technology—devices that combine printing in a device that faxes, scans and copies—it reduces the cost of printing by 40 percent,” he says. “Our printing budget is probably upwards of \$10 million a year, so just by doing a managed print strategy we can save \$4 million annually—and the services actually increase.”

Marx is not afraid to get granular when it comes to using IT to streamline processes, calling on what might be called a “special ops” team that can tackle the innumerable bottlenecks that plague a typical hospital and health system. “We have a small group of developers in our IT shop who have developed a handful of applications that automate inefficient administrative processes like capital requisition, for example. Getting capital used to be a 14-step process, requiring 14 signatures over 30 days. Things got lost. Now it takes less than a day.”

Specialized web portals are another THR strategy. For example, executives who previously had to go to multiple sources

Upcoming Events continued

May 6

CITL: The Business Case for Telehealth Technologies for Physician to Physician Communication

- Eric Pan, MD, MS, Center for IT Leadership, Partners HealthCare, Boston

May 7

Advocate Case Study

- Joel S. Shoolin, DO, MBA, VP, Advocate Health Care, Oak Brook, Ill.

May 13

Kaiser makes PHRs available to all Members

- Jan Oldenburg, practice leader, Health Content, Internet Services Group, Kaiser Permanente, Oakland, Calif.

May 15

University of Pennsylvania Clinical Business Intelligence Case Study

- Paul E Pancoast, MD, MBA, Deloitte Consulting LLP, St. Louis
- Brian Wells, Chief Technology Officer, University of Pennsylvania Health System

May 20

Remote Application Hosting

- Mike Smith, KLAS Enterprises, Orem, Utah

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for financial information now can visit a single portal to view that information. Similarly, THR developed an award-winning portal for board members giving them a single site for information germane to their roles.

Another relatively simple IT application makes meeting management more efficient. THR has provided a PDA to each meeting member at all its 13 hospitals across north Texas to enable them to vote at virtual meetings and register the result immediately. “Normally we would use paper and then have to assimilate it all. Now we do that digitally up front. We make decisions during the meeting that shape how those meetings end,” says Marx. It’s difficult to quantify value in dollar terms, but the improved technology-enabled communications should result in:

- Increased velocity of decision-making
- Reduced need for travel
- Transparency (the results of the voting that drives the decision process are readily available)

Finally, THR is planning to unify its communications so that voice, email and video are all combined in a single, converged network. “It makes personal and organizational business flow better because you can talk, send emails, voice mails and even video on the same system. There is lots of added value,” he says. At University Hospitals, this strategy provided value by reducing the operating costs of running disparate networks while increasing the efficiency of communications.

Banner ROI

Banner Health, a Phoenix-based integrated health system with 20 hospitals in seven western states, has the advantage of measuring the impact of IT on operational efficiency in new hospitals built to

meet high population growth. Judy Van Norman, senior director of care transformation, led a benefits study of the overall effect of an all-digital environment at 173-bed Banner Estrella—expanding to 208 beds this summer—which opened three years ago in a burgeoning new suburban development on the city’s west side.



Judy Van Norman,
senior director, Banner
Health, Phoenix



Banner Health.

Banner conducted the study using an HIT Value Model developed by Intel and with the help of its CIS vendor Cerner. The study team couldn’t establish a before-and-after baseline with a new facility, so it constructed a baseline virtual hospital from a weighted average of eight Banner hospitals and analyzed the 10 key performance indicators. The results identified an annual ROI of \$1.6 million adjusted for case mix. And, while patient satisfaction wasn’t one of the metrics in the model, Banner Estrella has scored the highest patient-satisfaction ratings of all 20 Banner hospitals. It also has one of the shortest ALOS, fewer adverse drug events and lower costs for overtime and document storage.

The greatest financial impacts resulted from improvements in ALOS reductions in pharmacy costs and net revenue increases from a drop in the number of patients who left the ED without treatment. Even with case mix taken into account, the net improvement in ALOS for case rate, capitated and fee-for-service admissions was 7 percent better than the virtual hospital—with the bulk of that seen in the high number of OB deliveries—and pharmacy costs were 18 percent lower. Banner plans to extend the care

THR is planning to unify its communications so that voice, email and video are all combined in a single, converged network.

transformation initiative to all 20 of its hospitals by the end of this year.

“What we came up with was a measure of clinician overtime—existing staff staying beyond the end of a shift to complete documentation,” says Van Norman. “Banner Estrella found that they—the clinicians—were able to perform documentation concurrently with care delivery. And it wasn’t the lowest users of overtime in the system because, even as patient volumes ramped up in the new hospital, they were offset by the use of automated task lists and structured documents—documentation by exception. It streamlines your documentation of medications, for example, at the time the medications are given.”

Another indicator of IT-driven returns at Banner Estrella: the ability of ED physicians to see more patients per hour of work. “There were lots of reasons for improved efficiency,” says Van Norman, including faster turnaround time on ancillary tests and elimination of the traditional delay from order writing to the execution of those orders. “We’re hoping in a second, follow-up study being launched next month that reduction in overtime will be even greater.”

Notwithstanding the fact that clinical quality is what Van Norman truly “gets jazzed up about,” she noted that IT generates other efficiency returns not necessarily documented in the benefits-realization study. “We’re finding that with concurrent coding enabled by the EMR, we drop bills on patients at least one day earlier. So, from the cost of money perspective there’s an ROI. And almost every process in medical records is being changed. It’s much easier and more fun to run an all-digital medical records department than a paper-based one. There used to be so much effort around collating, organizing and producing the chart. The electronic chart doesn’t have to be organized. Paper shuffling is dropping significantly.”

Buckets of value

Deriving value from healthcare IT often requires a framework just to begin thinking about it. Manuel Lowenhaupt, MD, uses a simple but effective visual. “I look at creating value in healthcare in terms of buckets,” says the CEO of Andover, Mass.-based Radianse, which develops applications that use RFID-based real-time location systems (RTLS) in hospital settings. Lowenhaupt’s first bucket is efficiency, measured in dollars from a simple end-of-the-day calculation of your costs and revenues. A second bucket contains improved clinical outcomes, especially as defined by CMS core measures and P4P. The third bucket is about satisfaction for internal and external customers—are doctors and nurses happier and more productive? Are patients happier with the service?



Manuel Lowenhaupt,
MD, CEO, Radianse,
Andover, Mass.



Lowenhaupt further breaks down technology-driven efficiency into *dependent* benefits and *enabled* benefits. Dependent benefits are those—like unit-dose medication administration tracking or patient tracking—that are impossible to achieve without technology. The ability to generate electronic claims forms with ADT via an electronic billing system is clearly another example. Enabled benefits are those that technology greatly assists but are not dependent on technology. “We can do a whole lot with paper systems, without technology, but the technology sure makes it easier. Could I manage patient flow by having a person stick their head into the room? Yes.”

Banner Estrella found that they—the clinicians—were able to perform documentation concurrently with care delivery. And it wasn’t the lowest users of overtime in the system because, even as patient volumes ramped up in the new hospital, they were offset by the use of automated task lists and structured documents—documentation by exception.

The Brigham installed an RTLS platform hospital-wide with asset tracking to cover thousands of medical devices across all major care areas on 17 hospital floors—including perioperative and emergency departments. The hospital garnered an ROI in just over a year.

The key with enabled benefits, says Lowenhaupt, is to ensure that you can measure and monitor them and get real-time feedback about them. Sometimes that's possible even with something as modest as a photocopier. But by applying the most sophisticated technology, like RTLS, it's possible to track medical devices, patients and staff to execute evidence-based medicine better, what experts call evidence-based management.

“Organizations have spent millions of dollars on a variety of IT strategies but they haven't really changed behaviors. Some even annoyed end-users. We have a real challenge. As you think about the dependent and enabling technologies model, how do you ensure change management and performance?” he asks. The goal is to take technology as a tool and embed it into a performance-improvement framework.

“I can put RTLS tags on stroke patients, but if I don't have a process-improvement methodology all I'm going to have is a view into the chaos.”

Lowenhaupt relates the story of the breast-biopsy process at a large teaching hospital. Surgeons complained about the amount of time patients were being held up in radiology. Putting RTLS tags on patients allowed the facility to track them and determine that the average length of time for seeing those patients was six hours. It turned out patients were spending four hours in unattended waiting, the vast amount in the surgical area. “In terms of timely care and patient experience, it's critical to make that more efficient,” says Lowenhaupt.

Brigham and Women's, a 747-bed hospital in Boston, was able to derive efficiency from RTLS applications for asset tracking. High operational and capital expenses were traced to excess rentals and repurchasing lost equipment including telemetry transmitters, 12-lead ECG

cables, infusion pumps, portable monitors, defibrillators, external pacers and other devices. Physicians had to wait for equipment to start procedures and nurses needed to hunt and gather that equipment.

The Brigham installed an RTLS platform hospital-wide with asset tracking to cover thousands of medical devices across all major care areas on 17 hospital floors—including perioperative and emergency departments. The hospital garnered an ROI in just over a year, projecting a yearly gross savings at \$300,000; increased staff satisfaction and productivity based on finding equipment quickly; real-time alerts increase efficiency and reduce loss; improved equipment flow.

“Reducing ‘hunting and gathering’ can also impact length of stay, significant in a hospital that treats the sickest of the sick and where clinicians are constantly trying to find a bed,” says CIO Sue Schade. “It was relatively easy to put in, not very invasive. Whenever you do an IT project, you feel really good about the ones that went well, went quick and offer good results. This was definitely in that category, very easy,” she says.

“There are opportunities for leveraging RFID beyond equipment tracking, particularly in support of some of our key process improvement initiatives,” says Schade. “A logical next step, for example, would be to capture data on how long patients are in different areas and use what we learn to further identify new ways to improve the patient experience.”

The Brigham, an early adopter, piloted the active-RFID-enabled technology in 2004/2005 based on a formula developed by L. Michael Fraai, director of biomedical engineering. Covering multiple units, operating rooms, common areas and departmental portals, the Brigham pilot was as large as many other hospitals' full

implementation of real-time asset tracking. “We were able to show a 50% reduction in lost equipment, which led to a 15-month ROI,” says Fraai. “The results were positive enough that it became a ‘must do’ investment hospital-wide.”

Asset tracking is now used in the emergency department, med-surg units, and common areas and where it was originally implemented—cardiac care and perioperative units. In the spring of 2008, when the Carl J. and Ruth Shapiro Cardiovascular Center opens, it too will feature the real-time location platform.

Borrowing from the auto industry

To drive efficiency studies, many hospitals are seeking more granular operational reports from IT systems, according to Dave Dimond, Scientific Advisor to LatticeCare. However, the data in these reports is often suspect because humans still manually key in the “trigger events” associated with their actions. In the future, to alleviate this issue, hospitals will follow the manufacturing industry by provisioning the following types of systems:



Dave Dimond, scientific advisor, LatticeCare, Boston

1) Sensor-enabled real-time location systems (sRTLS) – provisioned to record resource and patient movement throughout the entire enterprise to generate mines of data;

2) Real-time flow metrics defined around value-added and non-value processes – calculated in the form of event-driven process chains to “paint the pictures” of variations in patient experience. “This is where the sensors come in; they identify the handoffs, asset idle time and even

velocity of movement in the ‘plant,’” says Dimond.

3) Visual process step displays—for all staff working on the “frontlines,” the production-intensive patient-care centers in hospitals.

With these systems, care teams can more easily optimize the patient’s experience from the bottom-up with what manufacturing calls “inline intelligence,” versus a traditional top-down strategy using dashboards and scorecards. To build a cohesive operational production system like this requires care teams to work with COOs and facility leaders to sponsor and provision location systems that support a wide variety of efficiency initiatives. The good news is that most sRTLS systems are now cost-effective enough that a return on investment is easy with a focus on sensor-enabled transportation and asset management. “When you couple this with collaborative paging systems, the ROI is a no-brainer,” he says.

Dimond cites Toyota as a great model for how an entire company’s culture—built around an obsession with efficiency—leads to better quality as a market differentiator that can yield profitable growth. The principles of the Toyota Production System are in use in a number of health-care facilities, including Virginia Mason Medical Center (VMMC) in Seattle. At the core of the VMMC’s transformation is a cultural obsession with reduction of waste coupled with a focus on flow—from the perspective of the patient. After several-years incubation, what emerged was the Virginia Mason Production System (VMPS), a systematic application of Toyota principles to a healthcare setting. VMMC redesigned the process for chemotherapy patients, for example, so that everything flows to the patient versus the patient flowing through the process. The system has reportedly paid off, as the hospital reduced overtime expenses by

Virginia Mason Medical Center redesigned the process for chemotherapy patients, for example, so that everything flows to the patient versus the patient flowing through the process.

\$500,000 in a single year and key measures related to productivity increased by 93%.

The Toyota Production System (TPS) around which VMMC built its transformation emphasizes training, standardization and human creativity. TPS, almost ubiquitously adopted by the manufacturing sector, is typically blended with other improvement techniques in healthcare such as PDCA, Baldrige, Six Sigma and Lean. Lean, which some consider synonymous with Toyota, focuses on decreasing waste in eight areas:

- Redundant Processing of Information
- Human Resources Utilization
- Excess Production
- Excess Inventory
- Human Motion
- Transportation
- Defects
- Waiting

While hospitals typically have programs and methods to look at most of these, the break-through is to look at them from the vantage point of the patient's flow. The single most potent opportunity is to apply Lean service principles for the benefit of the patient experience by mapping their "value stream," Dimond says. A value-stream map is a tool to identify the amount of value-added versus non-value-added time a patient spends in the process. Value-added actions must meet all three of the following criteria:

- 1) The customer is willing to pay for this activity.
- 2) It must be done right the first time.
- 3) The action must change the product or service in some manner.

Value-stream mapping visualizes processes in order to aid work teams in process redesign efforts. "Too often organizations get trapped into implementing processes around IT systems, which are

designed around homogenized efficiency goals, when they should be focused on value-stream mapping to design the optimal flow," Dimond says. The healthcare industry is beginning to discuss flow in the context of queuing theory to help "de-bottleneck" a patient's journey through the system. Much of this work has focused on the two most production-oriented areas of the hospital—the OR and the ED.

In 2006, the California Hospital Association published a comprehensive study, "Improving Patient Flow and Throughput in California Hospitals Operating Room Services." Developed by the Program for the Management of Variability in Health Care Delivery at Boston University, the study reported the benefits of efforts at Boston Medical Center, St. Johns Regional Hospital Health Center and Cincinnati Children's Hospital and Medical Center. Through this effort, the group developed a scientific methodology around the study of variability to optimize flow and classify variability. One significant finding noted was that artificial variability, which is often the result of physician preference, must be addressed first. This means organizations have to gather data and share it for physicians to grasp the dramatic impact their individual preferences have on the patient experience, ED diversions and overall efficiency. The report calls for the development of a data system capable of providing information on intra-operative efficiencies across anesthesiology and surgery.

Note: The PDF may be downloaded at: <http://www.calhealth.org/public/press/node1.asp?ID=6> under Special Reports & Articles.

Dimond says one of the larger obstacles to gathering this type of data is that hospital department systems do not span

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the human “supply chain” that serves the patient as they flow through the department. In the future, as hospitals embrace sensor-enabled RTLS for asset tracking, they will have a unique opportunity to harness this data for many efficiency initiatives. “Manufacturing has been doing it for years. You can’t do this in just one department. It requires an enterprise commitment from the top down to support digitization of processes and thus efficiencies,” he says.

Some organizations have rejected the idea of the hospital as a “factory” while others have embraced a common manufacturing concept called “tuning the plants within the plant,” where flow optimization may be applied in a stepwise manner. “The danger for healthcare,” says Dimond, “is that by tuning the OR in isolation you can actually create bottlenecks in other areas like the ED or PACU. That’s why campus-wide sRTLS are so helpful, since they have the ability to generate operational data stores and process mines that give the department based teams an enterprise perspective on overall patient flow. Dimond notes that some systems have embedded sensors which measure the state of a resource, and can even sense proximity to other sensors. “These features are extremely powerful for creating data to support collaborative improvements between various functional groups in a hospital,” he says.

The University of California, San Francisco (UCSF) Medical Center adopted a relatively low-tech asset-tracking that uses a network of ZigBee sensors that plug into existing electrical outlets. The core technology is considered by the big networking vendors to be “disruptive” to their business model because it’s extremely cost-effective, foolproof and

requires little maintenance. “Don’t be surprised if your IT department is not interested in ZigBee. It’s a very, very unique technology—so simple to install and use that some technical folks wish it would go away because they would prefer to have an excuse to beef up their existing wireless networks to do RTLS,” says Dimond. The benefits of asset management and resource utilization will pay for the infrastructure of such technology, which is so simple that 700 sensors were installed and operational across the campus in less than 48 hours.

Dimond says many organizations will try to use their traditional network infrastructures to develop intrinsic location systems, when it’s really much easier, more precise and cost effective to go with the new sensor-enabled technologies which can extract operational data out of the box. “There’s a treasure trove of efficiency systems that can be developed across an enterprise-wide sRTLS infrastructure,” he says. “From this data will emerge a new science of better ways to improve hospital efficiency.”

Conclusion

After decades of evolutionary change with healthcare IT, often marked by costly trial and error, CEOs are demanding that IT investments have executive sponsorship and incorporate benefits measurement, monitoring and feedback from start to finish. By pursuing IT investment with business-like rigor, organizations can derive solid operational efficiencies. In the future, the potential for operational efficiency will expand exponentially with the ability to use RTLS to track patients, staff and assets in a way that creates a coherent picture of the enterprise as a whole and enable significant operational improvements.

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Conferences 2008/09**

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April 16-18, 2008
Camelback Inn,
Scottsdale, Ariz.

Fall Conference 2008

Hosted by Northwestern
Memorial Hospital
Sept. 25-26, 2008
Chicago

Spring Conference 2009

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Camelback Inn,
Scottsdale, Ariz.

Fall Conference 2009

Hosted by Texas Health
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Sept. 24-25, 2009
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Lucile Packard Children's
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