How to use Capacity Management to Improve Hospital Finances and Quality Performance Metrics

A key survival strategy for hospital executives is the “real-time enterprise,” an automated environment which allows all physical operations to be monitored in real time. This generates the kind of business intelligence which allows managers to react in seconds to changes that can positively or negatively impact their organization.

Hospital executives know that traditional cost-cutting methods have reached the point of diminishing return. Reduced reimbursement, increasing regulations, staff reductions, mandatory overtime, and lower capital expenditures have had disastrous effects on care delivery and the overall health of provider institutions. Yet the federal government is asking for more givebacks. You say you can’t squeeze water from a stone, but perhaps you can.
The “real-time enterprise” is a company that can turn on a dime. It has nerves running through it which tell the corporate brain what is happening inside and out on a moment-by-moment basis. It can change course as quickly as it can change processes. It is a company conceived for this technological century.

The real-time enterprise has been gaining traction with industry for more than a decade. Basically a bundle of computing horsepower, data analysis, real-time location sensors attached to automation technology -- it is becoming that part of the corporate brain which handles all movement in the production environment.

However, it’s a new concept to healthcare, a field which embraces advanced treatment technology the way NASA once embraced bigger rockets, but avoids operational technology like it was space junk.

But the days of shunning “industrial” solutions may be drawing to a close for healthcare as economics catch up with care giving, especially when the solution has a significant “care and safety” component of its own.

Health reform efforts may eventually result in 40 million newly insured Americans. They’ll be asking for services at the same time the Baby Boom generation begins moving into retirement. Unexpected costs can be incurred very quickly and a healthcare system can rapidly go from profitable to in the red almost without warning.

Hospitals will quickly have to find space for this onslaught, while at the same time discovering new ways to save and make money in order to survive. The fastest way to do this would be to use existing hospital capacity more efficiently by streamlining physical operations quickly. Other problems include hospitals having to assume responsibility for the cost of preventable readmissions, such as hospital-acquired infection (HAI). A PricewaterhouseCoopers report projects that a 300-bed hospital with poor quality metrics could lose over $1.3 million a year, starting in 2015.

Meanwhile, Real-Time Locating Systems (RTLS) are transforming commercial and other enterprises across the globe by creating digital nervous systems which give instant feedback to decision-makers in markets such as manufacturing, aerospace, defense, logistics, and supply chain. Combining RTLS with other types of technology is leading to "robust and innovative solutions, making the final product attractive to end users," according to senior research analyst Nandini Bhattacharya, of Frost & Sullivan. http://www.measurement.frost.com

While patient flow software has been successfully adopted by hospitals over the last two decades, RTLS is relatively new to the hospital market. Although RTLS has gained popularity quickly by reducing costs associated with mobile asset tracking, its real potential has remained largely untapped until just recently. Real-Time Capacity Management™, an amalgam of automated patient flow technology and (RTLS), is tapping that potential by providing a new way to manage hospitals.

By pairing RTLS with advanced patient flow and business analytics technology, it will soon be doing the same for hospitals as it does in other markets. In the decade ahead, the ability to better use existing resources will be critical. According to Lisa Goldstein, a senior vice president at Moody’s, deeper cuts in Medicare and Medicaid will continue. This simply complicates the puzzle of how to do more with less. She predicts the pressure of reduced revenue growth and reimbursement cuts will increase the number of hospital credit downgrades in the short-term.

“Medicare comprises nearly half—43%—of hospital gross revenues,” Goldstein said, adding that Medicaid cuts by cash-strapped states will add “significant stress to not-for-profit hospitals for at least the next several years.” (Moody’s release, 8/9; Wilde Mathews, Wall Street Journal, 8/10).

A more finely honed and better informed approach to managing capacity can turn real-time data into actionable opportunities that improve overall performance. Here is a summary of how this process generally takes place:

- Healthcare financial executives must first determine what data is available about capacity management and what that data can yield to achieve optimum performance.
- Remember that data is only data. Using it well requires domain knowledge evolved over years within the healthcare industry. Establish realistic targets with regard to expense reduction and revenue improvements, and then set achievable metrics for optimizing the available space, equipment, supplies and resources of the healthcare enterprise.
- Critical to the analytic process is identifying root causes of process delays and wait times for space, materials, staff and, most importantly, patients. This means a thorough review of patient placement, bed management, length of stay, transfer diversions or delays, etc., tied to industry-wide “best practice” targets.
- Use available dashboard technology to provide a steady stream of information on all facets of facility operations to key decision-makers in moment-by-moment, snapshot fashion with easily readable graphic displays. Constant measurement of these key indicators is a significant step to improving operational performance. Also, adding a real-time view of the hospital versus a retrospective view allows executives to make more timely business decisions.

The advantages of marrying true “real time” input with advanced flow technology include:

- The ability to incorporate third-party data means decision-makers can follow related financial, clinical and operational information on a single platform.
- Executives and placement specialists can instantly know where there is available capacity in the system and in which units.
- Physicians can know how many patients must be discharged in order for them to admit new patients so they can be more active in the flow process.

The real-time enterprise means faster response times, which translate to money saved and/or earned. Vinod Khosla, the man widely credited with inventing the term “real-time,” says every one percent of revenue spent on the real-time enterprise should return 1.5 to two percent in revenue increases.

In healthcare, the pay off includes better use of space and resources, better infection control, faster transfers, increased revenue and savings and most importantly, better patient outcomes. The quicker an organization can react to change, the better the operation can run.
Real-Time Capacity Management™ creates a digital nervous system that allows hospitals to “feel” their organizational functions the way an athlete feels the pain of a sports injury or the rush of adrenaline.

Using everything from tags that show the location of patients, staff and assets on the move, to data-gathering software that can far exceed human ability to collect, process, analyze and respond, the real-time platform gives executives and managers instant updates of the current state of the institution or system. They can then respond in real-time as events warrant.

Real-Time Capacity Management™ essentially provides executives, managers and patient placement specialists with a live “motion picture” of their institution in action, presented to the entire hospital in easy-to-read, graphics-rich summaries on “digital dashboards.” These next-generation systems promise to deliver bottom line impact greater and more immediate than the conversion to EMRs, because they offer unparalleled control over a hospital’s physical operations.

For example, patients can be tracked in real time from the minute they enter the patient flow process; e.g., by walking in the ED door. Live presentation allows for immediate identification of patient throughput bottlenecks, which can then be resolved before causing serious delays and disruptions.

Executives can see summary information on all aspects of operations; physicians can view incoming and outgoing patients; nursing heads can check patient flow statistics; and department directors can check more in-depth information in their areas, all in real-time.

A successful capacity management program should deliver reductions in ED diversion, reductions in ED length of stay, reductions of patients who leave without being seen (LWBS), increased admission volume, reduced length of stay, and faster discharge times.

There are several patient flow automation systems on the market today which provide a means to streamline core patient flow processes such as patient placement, bed management, transport and EVS. However, without the analytical framework for evaluating and monitoring performance, patient flow software alone cannot help hospitals make long-term, lasting improvements in operational performance.

Automated patient flow yields a tremendous amount of data, but data is not information. It is just a string of facts until someone figures out what to do with it. Robust business analytics solutions from professionals steeped in the patient flow continuum allow hospitals of all sizes to gain new perspectives on their patient flow data by drilling down through the data to uncover the hidden stories between data points and convert them into powerful strategies for operational improvement.

Advanced Business analytics allows users to slice general patient flow statistics into user efficiency and system compliance numbers. For example, by breaking down discharges by time of day as well as overall volume, hospitals can identify bottlenecks in the discharge process and use the information to drive for earlier discharges. In short, business analytics allows hospitals to turn data into the useful, actionable intelligence that’s needed for transformational change.

The metrics being captured and analyzed can reveal problems with patient placement, transport, bed turns, room cleans, discharges, mobile asset location, medical device inventory, correct bed identification and assignment, time between procedures, and EVS and transport exposure to infected rooms and patients. Deep expertise in designing business intelligence and an extensive domain knowledge deep-rooted in patient flow processes is crucial to success.

A comprehensive, state-of-the-art Real-Time Capacity Management™ system should provide the healthcare organization with “instant” snapshots of the following:

- The exact number of patients being admitted from any portal at any time, including ER, transfers, and scheduled admissions;
- The precise number of staffed beds available and the unique characteristics of those beds (negative air, etc.);
- The expected time of patient discharges based upon formal, recorded discharge protocol;
- The precise location of all mobile medical devices, all patients, all physicians and other medical personnel within the hospital at any given time;
- The location of potential bottlenecks which would slow down the patient flow process;
- Admission and discharge analysis;
- The root causes of process delays and wait times for space, materials, staff and, most importantly, patients;
- The precise time of all major patient flow milestones via automatic timestamps, which allows constant measurement of current and long-term performance;
- Optimized utilization of the healthcare enterprise; and,
- Optimized equipment utilization.
Real-life examples of Real-Time Healthcare Management

Rush University Medical Center uses capacity management data for business analytics. Rush uses customized software to predict staffing needs, patient volume patterns and other trends. Staff planning saves the hospital money by ensuring the correct staffing levels are available for peak volume needs. AVP Hospital Operations / Executive Director, Melinda Dunham Noonan, DNP, RN, NEABC, says, “data is the power for making change.”

Scripps Health is going through a transition in analyzing capacity information, no longer focusing only daily/weekly/monthly performance reports. They are driving to the details within these reports - targeting the outliers that show inefficiency, learning the reasons for those outliers and adopting change to improve performance. They have seen improvements in many of their primary areas since adapting customizable reporting tools.

With a home grown system, there would not be an opportunity to focus on that realm of data because of pressure on internal resources to provide top level data across a wide variety of systems.

This ability to dig into the data paid off for Scripps within days of retooling its reporting system. Like many providers, Scripps was having problems with Environmental Services falling behind due to limited staffing or improper alignment of staffing. Most providers focus on the discharge process with nursing, physicians and others, but EVS becomes a bottleneck if their processes are not streamlined. Capacity management tools showed the trends and bottlenecks within the first 2 days of installation.

Another example of this trend is Methodist Healthcare System, an eight-hospital, 1,800-bed system in San Antonio, TX. After making capacity management its top enterprise-wide priority for FY2010, transfer center volume has tripled, the transfer acceptance rate is now 99 percent, monthly diversions dropped from 700 hours to under eight, lost bed time went from 76 minutes to 35 minutes, bed assignment time decreased 78 percent, and the system exceeded annual budget expectations by eight percent.

Methodist is moving toward sharing corporate goals with everyone to help change culture. They are currently sharing flow statistics with bedside nurses through a real-time dashboard that projects unit level metrics and discharge processes by each individual floor. They believe this real-time monitoring will smooth out day-to-day performance, rather than waiting for end-of-month reports to rectify problems.

Methodist also is using capacity management tools to focus on “dead bed time,” where clean beds sit readily available for long periods of time while patients are waiting for beds. Many providers focus on the time that it takes to clean a bed or admit a patient, but Methodist hopes to drive “dead bed time” down by holding patient placement accountable for effectively using the beds.

Conclusion:

The push for new reforms in healthcare will force hospitals to do more with less. But they cannot compromise quality for efficiency because of what’s at stake – the caring, safety and very lives of the patients they serve. Staff cuts, service rollbacks and unmanaged wait times are no longer viable for cost savings because reimbursements will be tied to quality performance.

Real-Time Capacity Management™ allows hospitals to streamline flow, care for more patients and realize rapid revenue increases. It can be a powerful engine which gives health care executives a whole new way to manage their enterprises. But the real game changer is the enabling technology currently known as RTLS.

By using information in real time -- they can increase patient throughput and revenue while maintaining high quality, preparing them for the standards of this new era of healthcare.


About TeleTracking

For more than two decades, TeleTracking Technologies has applied innovative, industry-leading logistics principles to hospitals and health systems to enhance patient care, improve financial performance and gain competitive advantage. Along with its Avanti Patient Flow Consulting®, RTLS and Business Analytics divisions, TeleTracking designs and delivers an enterprise-wide computer-automated platform that reduces overcrowding, cuts costs, generates revenue, fights the spread of infection, manages assets, accelerates patient transfers and provides business analytics for continual operational improvement and business development. The result is an end-to-end system that connects patient flow to patient care for better outcomes.

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