No Wait States... in pursuit of the frictionless patient experience.

Electronic health records have fallen short. Patients continue to wait. Costs remain high. Why focusing on operational management can help hospitals make things right...starting now.

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Waiting is pervasive in healthcare today. A bird’s-eye view of care delivery in most hospitals might resemble the start-stop quality of our nation’s busiest expressways: discrete instances of productive movement (a patient is triaged, a bed is filled, labs arrive, a nurse gives medication instructions, surgery begins) separated by lengthy “wait states” in which value-added activities come to a halt as the operational systems grind, trying to keep pace with demand.

Waiting is symptomatic of not only the complexity of care delivery but also the complex processes and disparate systems used to coordinate that care. Too often, wait states have become the status quo, to the frustration of patients, physicians, nurses, and administrators.

This is not a new problem. In 1996, the Institute for Healthcare Improvement identified wait times as one of healthcare’s biggest challenges. “If we want to reduce delays and increase access, we need to redesign the system that produces them. Better results, lower costs, shorter waiting times, increased access—these will only be achieved by changing the way we do our work.”

Years later, there has been only incremental progress in achieving that goal. Concerned about the continuing problem of ED overcrowding and patient boarding, the Joint Commission issued revised patient flow standards for 2013 and 2014, noting that, “Although the ED may be where a patient flow problem manifests in a hospital, the ED may not be the source of the problem” and calling on hospital leaders to “better manage patient flow as a hospitalwide concern.” Emergency room wait times have become so emblematic of this issue, in fact, that they warrant their own tab on HospitalCompare.hhs.gov.

The “waiting problem” is not unique to the United States. Nor is it unique to acute care settings. In a 2012 survey of outpatients receiving cancer treatment at two hospitals in Sydney, Australia, more than half of the respondents reported being concerned about long wait times during one or more phases of their treatment. A Press Ganey survey of 2.4 million U.S. patients in ambulatory care settings showed that improved wait times correlated with better patient satisfaction and financial performance.

The Joint Commission is asking why our wait times are so high.

Our patients are getting lost in our complexity.

“We operate like a set of silos instead of an integrated hospital.”

THE SAME ISSUES THAT PRODUCE WAITING CAN LEAD TO PATIENT HARM

The OR is behind schedule. Cases are piling up. The anesthesiologist is running late. Everyone is rushing. Things get missed.

The roots of patient harm are complex. In some cases, operational inefficiency leads to distractions, interruptions, or inattention. That operational “noise” can contribute to the risks of patient harm—whether caused by poorly designed processes, inadequate information flow, a mass casualty event, or inaccurate information from untimely status updates—and prevent staff from doing the right thing, despite their best intentions.

Many will remember a 2001 MRI accident in which a 6-year-old boy was struck and killed by an oxygen canister. The proximate cause was the ferrous projectile, but the root cause was operational chaos, in that well-meaning professionals made a chain of disastrous decisions due to gaps in policy, process, training, staff access, communication, and other operational factors.

Or consider hospital acquired infections (HAIs). It’s estimated that 20% to 40% of HAIs are transmitted to patients from hospital employees. Despite years of attention and resources focused on hand hygiene, caregivers still wash their hands only about half the time when entering/leaving patient rooms. Heavy workloads, staff shortages, inconveniently located wash stations, and limited capability to monitor hand hygiene compliance—all operational issues—are among the common root causes of poor compliance rates. In addition, HAIs are a major driver of patient waiting in the form of extended length of stay (LOS)—22 days on average versus five days for a non-HAI patient.

3 http://www.medicare.gov/HospitalCompare/compare.aspx?cmpTab=0&cmpId=5200& SID%2C5202066&stltId=Wilbo=530596&at=4.3.008276&img=-88.5719566&AutoDetectCookieSupport=1
Disparate systems, fragmented care
Few organizations generate as much data as a hospital. But most of that data—for obvious reasons—is clinical data necessary for individual patient care. Operational data is not only far more limited but also tends to be spread across multiple disparate systems, which are difficult to integrate and not designed to work together.

As a result, managers do not have fully integrated tools to monitor workflow, identify bottlenecks—before or as they occur—and take action. Instead, managers are left to review data about historical bottlenecks, delays, cancellations, and dissatisfied patients.

“Reimbursement rates are headed down whether we like it or not.”
“There is no way that I can hit my new operating expense target.”
“I need to get costs down now without impacting patient safety.”

The time for operational transformation is now
GE believes that the emerging category of Hospital Operations Management (HOM) systems may hold the answer. HOM replaces disparate operational systems with a single control system that functions in a similar manner to an air traffic control system—acquiring, organizing, and presenting data from multiple sources in a way that focuses the user on relevant performance characteristics and supplies the necessary information to keep operations running smoothly—across the enterprise.

HOM is a foundational technology on the order of and complementary to the hospital information system (HIS) and electronic health record (EHR). The goal of HOM is to enable evidence-based operations—the complement to evidence-based medicine.

FIVE ATTRIBUTES OF HOM
In our view, HOM systems should be designed around five characteristics: integration, transparency, actionability, predictability, and simulation. These improve operational hindsight, insight, and foresight.

Integration
HOM integrates data in real time from disparate hospital systems to provide a single, continuously updated view across departments and facilities and, for multi-hospital systems, campuses. This makes it possible to monitor the interdependencies between departments, caregivers, and support services.

Case in point: A large hospital near Chicago with a very busy Level 1 trauma center had the goal of reducing average length of stay (LOS) and left-without-being-seen (LWBS) rates in the ED. Examination of data revealed the problem arose from heavy discharge batching on inpatient units in the late afternoon. By implementing a housewide discharge optimization program, including need-focused rounding and increasing pre-noon discharges by two to three patients a day, the hospital was able to decrease ED diversion from 26 hours a month to near zero, and reduce LWBS rate to less than 1 percent. And even though surgical services were not a priority, the new discharge process affected the post-anesthesia care unit (PACU), where holds fell from 200 hours per month to nearly zero—further testament to the value of a taking an integrated approach to decision-making.

Transparency
Transparency in operational data means that a single view of the truth is available to all stakeholders, from the caregiver to the scheduler to the physician to the EVS manager to the patient’s family in the waiting room.

Case in point: A medical center in the Southeast utilized an automated RTLS system in a pilot study to support its hand hygiene compliance program. Collecting data on more than 5,000 handwash opportunities per day, the system yielded high-value metrics that were used by leaders to analyze operational workflows and design programs to improve compliance. In the eight weeks that the system was in place, compliance percentage rose by nearly 30 points. “Our belief is that this tracking technology will reinforce good behaviors and get us to our target of zero infections [from poor hand hygiene compliance],” said the hospital’s CEO.
Actionability
Actionability means that a recommendation is provided precisely at the moment when it is needed. By applying nuanced and advanced analytics in near real time, the HOM system moves beyond data to decision support—proactively recommending a specific action to affect patient flow right at that moment. Often this involves pushing less but more useful data to front line staff and operational leaders, while giving them the functionality to easily probe deeper when merited. The system also provides alerts to prompt action and escalate issues when conditions fall outside of desired operational parameters.

Case in point: A large acute-care facility in the Southeast was struggling with patient flow bottlenecks and high ED holding hours. By combining real-time patient tracking data and smarter discharge processes, the hospital was able reduce discharge time by 3,156 hours and reduce ED hold hours by 68% over nine months. The difference, according to the Chief Nursing Officer, was the immediacy of data through the HOM system: “We [used to] get considerable data on patient flow … 24 hours after the fact. [This] is real-time and it enables you to affect change and movement right at that moment.”

Predictability
The HOM system should be designed so that the wealth of operational data flowing into the system can be mined and analyzed to see operational patterns. This intelligence can help leaders identify demographic and utilization trends, anticipate staffing, equipment, and infrastructure needs; and uncover potential operational issues before they occur. An instructive example of this emerging class of decision support analytics is an application that helps optimize in-patient bed assignments so that resources are used efficiently and effectively. Driven by a sophisticated yet customizable many-to-many optimization algorithm, the application helps bed managers assign the right bed to the right patient at the right time—based on the priorities and preferences of the individual institution.

Case in point: In a pilot project with a major health provider, the application enabled more appropriate matching of bed attributes to patient requirements and helped reduce bed assignment time in the ED by three hours per patient. System data also was leveraged to anticipate supply and demand for beds over the next 24 hours. This information allowed managers to plan resource utilization, such as EVS deployment, more effectively. With an accurate view of prioritized constraints, both transactional optimization (which bed should be cleaned first) and longer-term optimization (how should staffing levels be adjusted for the next shift) can be realized.

Simulation
A full-featured HOM solution should include simulation software to allow leaders to model the hospital’s workflows and to test nuanced alternative scenarios. Modern discrete event-based simulation tools enable leaders to test the impact of a range of operational decisions—expanded services, staffing models, care delivery processes—in order to understand their likely impact and make better decisions. With an HOM, the simulation engine is fed by real-time location awareness data. That keeps it current and makes it much more accurate than with observation data alone.

For example, consider a hospital that wants to expand its orthopedic service by bringing on more spine specialists. The model could simulate the effects of increased flow of spine patients on the entire organization, providing information to help predict bottlenecks and gaps, identify units that could be repurposed to handle incremental volume, flag staff that would need to be cross-trained or upskilled, and so on.

Case in point: A large teaching hospital wanted to better utilize their fixed infrastructure relative to patient flow in order to support projected growth. Multiple capacity scenarios were developed, factoring in growth objectives, utilization data, demand projections, and efficiency targets. These scenarios were tested and validated with proprietary simulation modeling to determine how various changes—such as opening and closing capacity for operating rooms or redistributing daily discharge times or changing the bed mix—might affect staffing, workflow, and the operational cost structure. The “winning” operational changes that emerged enabled the hospital to free up OR capacity for 750 additional cases per year (while shuttering two rooms) and reduce average LOS by 0.35 days. The Chief Nursing Officer pointed to the data integration value of HOM technology as being the lever of change: “We can now draw data from multiple information sources and make nonlinear references between seemingly disparate areas of the organization to better manage capacity today and in the future.”
Realizing the potential of No Wait State

Clearly, much of what constitutes the Hospital Operations Management discussion is not new. The approach focuses on long-standing issues, and the concepts of what can be done—reducing discharge cycle times, driving greater accountability in handwashing, streamlining surgical scheduling, and so on—are not revolutionary. What is different, however, is new urgency and new means for action. The overwhelming cost pressures in healthcare today make it impossible not to address the wait-states problem. We need to act now. And technology is changing what is possible.

Powered by an intelligent software platform that allows dynamic real-time data collection and discrete event-based, simulation-enabled prediction, HOM is the game-changer that healthcare leaders have needed to transform operations. Instead of making decisions with a narrow view of the current situation, HOM provides a complete picture to decision-makers working to bring the resources together to deliver great care. Imagine the impact if we succeed and the no-wait state becomes the norm for hospital operations. Imagine a time when the entire hospital functions as an integrated team … when variances and delays are the exception … when peaks and valleys of demand are encountered infrequently and managed proactively … when operational friction doesn’t contribute to the risks of patient harm … when patients don’t expect to wait.
About GE Healthcare
GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

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