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Better Patient Flow Means Breaking Down the Silos

Patients who worry that their hospital's emergency department (ED) is too busy to reliably deliver prompt care are in good company. A majority of hospital leaders worry about this, too.

Some 200 hospital administrators addressed this concern in a [recent survey](#) conducted by the American College of Emergency Physicians, and most named overcrowding as one of their top five management concerns. Sixty percent said overcrowding in their facility forces the diversion of patients with urgent needs elsewhere. Twenty-eight percent said these diversions occur more than 20 times per year. Forty-eight percent say their hospital fails more than half the time to meet the goal of admitting patients from the ED within two hours of arrival.

Expanding the capacity of the ED to handle more patients is often identified as the obvious solution. But experts say this misses the underlying factors responsible for the logjam: inadequate systems to manage the flow of patients throughout the hospital. In other words, the ED can't solve this problem alone.

Institute for Healthcare Improvement faculty member Kirk Jensen, MD, MBA, FACEP, an expert on patient flow in acute care settings, says that in order to improve flow, hospitals must work at both the macro- and the microsystem. "A hospital is a great example of a complex adaptive system," he says. "You have a number of people who are making day-to-day, even minute-to-minute, decisions in their own microsystem, or particular domains, that impact hospital-wide patient flow, and they are making these decisions without access to information about the macro view, or what is going on in the rest of the hospital. So even if they optimize flow within their microsystem, that's just within their own individual field of play." [[Read the complete interview with Kirk Jensen on flow.](#)]

Andrea Werner, MSW, Director of Heart and Vascular Center at Bellin Health in Green Bay, Wisconsin, knows this from experience. "If you don't focus on the big picture, you can optimize one area and suboptimize another," she says. For example, when Bellin began to improve "patient throughput," as it's sometimes called, in its ED and operating rooms, "we were excited," she recalls. "Then we realized that those patients have to flow onto the units. We didn't have enough beds available for them. We learned that there is a very intimate connection between the macro and the micro, and you make a mistake if you don't look at both."

Diane Jacobsen MPH, Director of IHI's [Learning and Innovation Community on Improving Flow Through Acute Care Settings](#), says several electronic tools are available to support flow improvement, as well as specific changes hospitals can implement to eliminate bottlenecks and improve flow. [See the Flow Topic area for more specific information on [Changes](#) and [Tools](#).]

But to be successful, the type of organizational commitment Bellin has shown to this effort is absolutely key. "They have made it a priority within their hospital, tied it to organizational goals, and addressed all the pieces involved in improving flow," she says. "It's paying off for them."

A Dual Focus

Bellin Health, an integrated health care delivery system that includes 167-bed Bellin Hospital as well as a network of ambulatory clinics, has been a part of IHI's Flow Community since October 2002. The focus on both macro- and microsystem change in its hospital has resulted in measurable improvements at both levels. [Door-to-doctor time in the emergency department](#) — the time from when a patient arrives until he or she is seen by a physician — dropped from 57 minutes to 22 minutes in one year, and capacity in the gastrointestinal operating suite has increased by a third without adding new staff or space. At the macrosystem level, the average length of stay has decreased from 4.2 to 3.8 days, and the acuity-adjusted bed turn rate — the average number of times hospital beds turn over in a year, a measure of how efficiently beds are used — is 109. IHI advises hospitals to work toward an adjusted bed turn rate of greater than 90 with minimal delays, as measured by ED door-to-floor time, diversions, and the number of patients who leave without being seen. Jacobsen emphasizes that increasing the bed turn rate is only effective if delays are also minimized.

Improving throughput of surgical patients at Bellin was a micro-level project that got great results, says Werner. It started with educating the patients. "In the pre-surgical clinic, we do expectation management with our patients and their families. We tell them up front how long they will be here, and they meet with the discharge planner to schedule a discharge appointment and any follow-up appointments. We also make sure transportation home is arranged."

To guide discharge decisions, once patients are out of surgery and recovering on a surgical unit, the hospital uses guidelines to reduce the arbitrariness in all patients' length of stay. "If a patient has gall bladder surgery, for example, their length of stay is determined by whether or not they are nauseous, not by habit or staff's personal preference," says Werner. This way, length of stay is driven only by factors related to the patient's clinical condition.

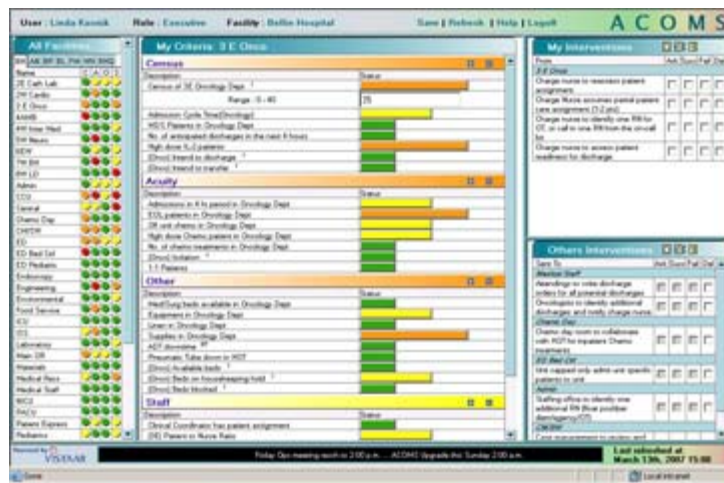
Once the patient's care team has determined that the patient meets the pre-approved discharge criteria, they can issue conditional discharge orders and notify the surgeon, who still makes the final decision.

Paul Signorelli is a mechanical engineer who works in Bellin's Quality Resources Department. He says that in the gastrointestinal surgical suite, the biggest operational change involved modifying the schedule so that one surgical suite is always available for unplanned surgeries. "We did this by assigning two surgeons to alternate between two surgical suites apiece." "This allows us to handle 80 percent of our average daily volume in four surgical suites, leaving our two remaining suites available to handle all the remaining procedures." This change decreased unpredictability and disruptions, and now planned surgeries almost never get bumped. It also increased the hospital's capacity for GI surgery without adding new staff. "Our surgeons can turn and scrub and go right into the next procedure," says Werner.

Flow Command Center

To keep tabs on patient flow issues at the macrosystem level, Bellin relies on a "flow group" with representatives of many key departments and units. The group meets bi-weekly to review data, identify opportunities to improve, and create action plans.

But to really manage patient flow effectively, Bellin recognized the need to match supply and demand on a system-wide, real-time, continuous basis. For this, Bellin established a Flow Command Center and implemented a sophisticated web-based, color-coded system that provides a bird's-eye-view of capacity across the entire hospital, updated every four hours.



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“Each unit regularly updates the system with information about their census, acuity, and staffing, and it creates a picture of how well they are doing,” says Werner. “If supply and demand are matched, the unit is green. If there is a mismatch and they are beginning to stretch their resources, they go to yellow, and then to orange, and finally to red, which means they are overwhelmed.”

“With this tool we can identify exactly how each unit is doing,” says Laura Hieb, RN, BSN, MBA, Bellin’s chief nursing officer. “We can see if they are handling their census, and if they have discharges waiting.”

Bellin’s Paul Signorelli says the computer-based demand and capacity management tool they use, called ACOMS, for Acute Care Operations Management System, helps the organization focus on efficiency. “The overall goal is to achieve balance throughout the system,” he says. “If a unit operates within a silo, it has the potential to overstaff or understaff, depending on the patient population. When you broaden your focus, you can use and manage your resources more effectively.” “The overall goal is to achieve balance throughout the system,” he says. “If a unit operates within a silo, it has the potential to overstaff or understaff, depending on the patient population. When you broaden your focus, you can use and manage your resources more effectively.”

Sometimes effective resource management across units happens spontaneously, says Chief Nursing Officer Hieb. “Recently our medical unit was at full capacity, getting into the red zone and struggling,” says Hieb. “The surgical unit staff saw they were in crisis and since their unit was slower, they showed up on the med unit and asked how they could help.” Hieb says this is one of the most rewarding aspects of ACOMS.

The hospital’s success at reducing length of stay and increasing bed turns is directly related to the ability to see the big picture. With a better overall understanding of the hospital’s flow patterns, for example, Signorelli says they are increasingly able to expand their planning horizon and look forward as far as a week to identify potential bottlenecks, instead of reacting within 24 hours. “If we can get better at long-range forecasts and continually refine as each day approaches, we can address things ahead of time.”

Getting Home on Time

Bellin’s Andrea Werner is quick to point out that the bed management tool — and indeed all the flow-related work — is “not a way to make nurses work harder and longer. We look at the data proactively; we manage our staffing ratios proactively. We are getting rid of the days when there was a huge patient load and not enough nurses by moving the variability out of the workload, moving the resources to the right places.”

Jayne Schoen, ADN, charge nurse on the orthopedics unit, agrees that the tool has been good for nurses. "It has changed the culture into one in which we all help one another, rather than focusing strictly on our own unit," she says. "Everyone knows that they are expected to float to another unit if they are needed, and they know the help flows both ways. Now when a unit gets overloaded, they don't have to beg for help." Not only has this cut down on nursing overtime costs, says Shoen, but it also means that "nurses are getting home on time," a personal benefit that can't be quantified.

Chief Nursing Officer Laura Hieb agrees that the culture of nursing has changed, in large part because the hospital has been sensitive to nurses' concerns about floating across units. "You can't just arbitrarily float nurses to wherever the need is," she says. "If they aren't familiar with the unit and the work, they become anxious, and it's not good for them, and not good for the patients."

Hieb and her nursing leadership team conducted a survey to learn more about nurses' experiences and needs when they work on other units. Two specific initiatives have been launched based on the survey results.

"First, every unit has created a 'helper list,' activities they can ask a floating worker to help with, defined by discipline. So if a nurse comes to the unit, or a certified nurse assistant, there are specific tasks they would be given," says Hieb. The nursing supervisor on the unit facilitates the list and makes sure the floating nurse is supported.

Second, says Hieb, each department has created a more in-depth guide to how things are done on that unit, especially useful for nurses who float to a new unit for an entire shift rather than for an hour or two during a crisis. "Everything isn't standardized across the hospital," says Hieb, "so you need to know the routines on any given unit, things like how they do report and where certain equipment is kept." In addition to the guide, nurses floating for a shift are assigned a "buddy," an experienced nurse on the unit who supports them and checks in with them hourly.

Ultimately, says Hieb, the goal is to facilitate good patient care and satisfied nurses, which means making sure nurses feel comfortable within their scope of work. "If it's not in their scope, we won't assign it to them," she says. She adds that the nursing leadership team is working to create curriculum for every unit that can be used to familiarize other nurses with their work in advance of actually working there. "We would like to orient nurses proactively rather than reactively. So we're working to develop competencies across units and set this as part of the expectations for nursing."

Nurses aren't the only staff who can affect patient flow. "Housekeeping has their own scorecard, and when they turn rooms around within their target goal, they are green, and when they are off by a certain percent, it's yellow, and so on," says Andrea Werner. This has prompted the housekeeping staff to implement several ideas to improve their services, including the use of text paging for housekeeping staff so they can go directly to where the work is instead of returning to a central location for direction, minimizing the amount of time between the need for cleaning and the arrival of the cleaning crew.

Bellin's flow leaders point to each other as a key factor in the hospital's success at improving patient flow, and to the hospital's senior leaders. "Our leadership is really supportive and involved," says Andrea Werner. "Our flow work is directly connected to our strategic plan. This is our future. If we get this right, we'll be the chosen provider in our market. My peers in other hospitals say, 'You are so lucky to be working there.'"