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Susan Leavitt Gullo, Elliot Hospital's maternity ward director, conferred recently with nurses. Flow management has made the hospital's obstetrics ward more efficient and even safer. (Globe Staff Photo / Suzanne Kreiter)

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Getting in the flow helps hospital time deliveries

By Scott Allen, Globe Staff | January 25, 2005

MANCHESTER, N.H. -- It was a morning ritual that nurses at New Hampshire's busiest obstetrics ward dreaded: calling expectant mothers to tell them they couldn't come in to deliver their babies after all.

Doctors had become so eager to schedule surgical deliveries and labor inductions first thing in the morning that Elliot Hospital often couldn't fit everyone in, especially when there was a surge in the number of women going into labor naturally. So nurses often had to call women at 5:30 a.m. to reschedule deliveries. Some obstetricians told patients to go to the hospital anyway, triggering unseemly jostling for beds at the desk, and making women even madder when they were sent home. "You see this?" said obstetrics ward secretary June Judge, holding up a pendant of a stick figure whose electrified hair is standing on end. "My hair used to look like this."

Just when hospital officials feared they might have to expand the obstetrics ward, they came upon one of the hottest ideas in healthcare -- "flow management." On the advice of a Boston University consultant, nurses last March set aside half the beds for scheduled deliveries and decided each afternoon who would get to use them the next day. **The other half were reserved for women going into labor naturally.** Almost immediately, obstetricians began spreading deliveries through the day, the morning chaos disappeared, and an issue that had festered for years was resolved.

Rising above the perpetual crisis management that so often engulfs medical centers, hospitals **in the last three years** have begun using flow management to look for bottlenecks that create chronic delays or overcrowding and to try to eliminate them. Frequently, the logjams are caused by seemingly minor obstacles, such as a slow cleaning crew **or haphazard scheduling of surgeries**; but the results of eliminating them can be dramatic. In many instances, hospitals can become more efficient, more pleasant, and even safer at relatively little cost.

Charles Baker, chief executive of Harvard Pilgrim Health Care, said that when he first grasped the

significance of flow management, "I thought, 'Oh my God, this is big!' "

Flow managers at East Alabama Medical Center in Opelika, reduced the time patients wait for a room following surgery by 80 percent when they realized much of the delay came from nurses being too busy **to get a summary of their new patients' medical conditions over the phone.** Now, officials fax patient records instead of calling. Similarly, Boston Medical Center last year slashed waiting time in the emergency room after administrators discovered that many delays were caused by doctors booking too many nonemergency surgeries at one time, filling up the available recovery rooms. By spreading out the schedule, the hospital created more space to admit patients waiting in the ER and reduced by 99 percent the number of patients whose surgery had to be "bumped" because of emergency patients.

Improved efficiency and reduced chaos often mean a safer hospital where patients are more likely to get timely treatment and the medical staff is less likely to make a mistake. Canadian researchers have found that patients in intensive care are twice as likely to die when the ward is at its busiest, while numerous studies show that haste is a factor in many of the most serious hospital errors.

Dr. Donald Berwick, president of the Institute for Healthcare Improvement in Boston, believes flow management could be the single biggest improvement in US healthcare over the next five years. "When you use the science [of flow management] properly, you get phenomenal results," said Berwick, whose influential group has been a leading booster of flow management and of one of its top thinkers, Eugene Litvak of Boston University.

Dennis Keefe, chief executive of the Cambridge Health Alliance, said the power of flow management lies in making administrators think more analytically about their job. The Alliance's Cambridge Hospital used software developed by Litvak to predict future patient numbers based on trends and experience. The exercise allowed officials to adjust employee schedules rather than scrambling to hire nurses on days when numbers jump, while cutting in half the number of patients transferred to other hospitals because of staff shortages.

"Over time, you use fewer [temporary nurses] and overtime . . . so you achieve cost-savings that really do offset the higher levels of staffing," said Keefe.

Litvak, a Russian-trained economist who came to the United States in 1988, said he is astonished at how far US hospitals trail behind other industries in applying management principles, especially an idea as basic as avoiding needless customer inconvenience. If other industries followed US healthcare's approach to customer comfort, he jokes, airline passengers would be riding in the luggage compartment and hotel guests would be sleeping in halls.

"I believe that part of the problem is that for clinicians, particularly physicians, there is an element of disrespect" toward managers, explained Litvak, who runs the Program for Management of Variability in Health Care Delivery at BU's School of Management. As a result, he said, they don't appreciate the difficulty of making a complex institution run smoothly and view aggressive managers as little more than a threat to their traditional autonomy.

At Elliot Hospital's maternity ward, managers were caught between the independence of the obstetricians and a big change in the way women have babies. Once, the vast majority simply went to the hospital when they felt labor contractions, but, today, two out of every five babies are born during scheduled deliveries where the doctor either surgically removes the child by caesarean section or gives the mother drugs to induce contractions.

"Women don't deliver the way they used to," said Dr. Christopher Lynch, assistant medical director of Elliot Health Systems. "Now they deliver when the cousin from Des Moines can be there."

The trend wouldn't be so troublesome if obstetricians didn't schedule so many deliveries for the same time. However, most doctors preferred the 7 a.m. start because it improved the odds of a normal workday. As a result, on days when the scheduled deliveries exceeded the unit's eight labor and delivery beds, or when there was an upsurge of unscheduled deliveries, the nurses in the ward couldn't accommodate everyone.

But hospital officials' various schemes to ease the morning crunch always collapsed, in part because the 40 obstetricians, family practitioners, and midwives who deliver babies at the hospital do not work for Elliot and schedule deliveries independently. "They always had the same solution: more nurses, more beds," recalled Dr. Marc Leclair, medical director for obstetrics at Elliot. "But really we needed [more beds] for six or seven hours a day."

Meanwhile, hospital officials feared that the maternity care problems would drive away future patients. "If people are angry, they don't come back," said maternity ward director Susan Leavitt Gullo.

Finally, Leavitt Gullo heard Litvak talk about flow management in scheduling surgery, and she decided it might work in labor and delivery, too. With Litvak's help, the hospital developed a new system that limited scheduled deliveries to half of the labor and delivery beds, but gave the obstetricians, family doctors, and midwives assurance that, if their patient had an appointment the promise would be kept.

Initially, some obstetricians dismissed the plan as unworkable, including one who called to complain just five minutes after the new schedule took effect. But the system started to work very quickly. Doctors found they could plan their days and not spend hours waiting for a room where they could perform a C-section. Nurses no longer started the day shift with so much stress and chaos, said Leavitt Gullo.

Patient reaction is harder to gauge since relatively few mothers have delivered under both scheduling systems, but the hospital's internal surveys of patient satisfaction have shown a slight improvement since last March.

Now, Elliot Hospital has appointed a committee to try flow management techniques throughout the 296-bed hospital, including operating rooms and the emergency department.

For Litvak, success stories like Elliot's embody the sea change in his fortunes since 1997, when he attracted four students to his first business course in flow management for hospitals. This year, he has 40 students in the classroom as well as 35 more on the waiting list and many more who take it over the Internet. He also has a steady stream of hospitals that want his advice.

"Sometimes I even feel guilty," said Litvak, explaining that flow management is at least 100 years old. "But I can tell people are very grateful, and that makes me happy."

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