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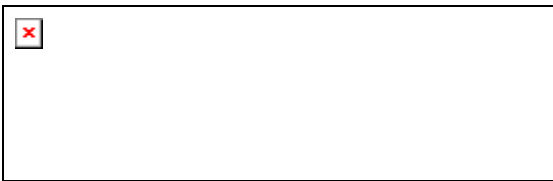
On the Mend

Revolutionizing healthcare
to save lives and
transform the industry

by
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Focus on the Patient

It was just after dinner on a bitterly cold night in March 2007 that Myrtle Bellis took a turn for the worse. Her skin grew pale and clammy, her heartbeat skipped and fluttered; she could not catch a full breath. As Myrtle lost and regained consciousness, her daughter Cindy telephoned for an ambulance and gathered up their coats.

Cindy Krueger followed a few minutes after the ambulance through a storm of snow and ice to Appleton Medical Center, certain that her 91-year-old mother was suffering from pneumonia. All the signs were there and it would be Myrtle's eleventh round with the disease. Cindy thought her mom just needed antibiotics, but she was not willing to take a risk with her mother's fragile health. After all, she was no doctor.

When she arrived at the Emergency Room, Cindy found her mother on a gurney, parked in a hallway, lying in her own waste. Myrtle had been taken for a CT scan where she had a bowel problem, and then she was simply returned to the emergency department to wait. Cindy asked for help cleaning her mother from people in the ER who were "too busy." An orderly finally arrived to transfer Myrtle to a hospital room and he helped Cindy maneuver her mother into a bathroom for cleanup.

Later, Myrtle was tucked into bed without diagnosis or treatment to wait until morning. Cindy drove home for a couple hours of sleep.

The treatment Myrtle received is one of the ugly truths that nobody in healthcare likes to face, but we must. In order to create meaningful change, everyone will have to look closely at what happens to patients, especially in the worst moments.

Morning Rounds

In a medical unit – meaning non-surgical, non-emergency – such as the one where Myrtle was admitted, doctors usually come to patients’ rooms early in the morning. They check the chart for lab results, ask the patient a few questions if possible, write new orders and leave. These physicians are known as hospitalists and they see a lot of chronic illness and elderly patients.

ThedaCare used to run medical units in this same way: hospitalists did rounds alone or with residents and students, wrote orders, and then depended on nurses assigned to that unit to carry out those hastily written instructions. Hospitalists and nurses were not assigned to patients; they were assigned to units and to weekly schedules. Some doctors were good about updating the electronic medical record quickly; some were not.

As Cindy Krueger recalls, four different physicians saw her mother during morning rounds over four days. One doctor thought he saw inconclusive evidence of pneumonia. The others believed it was probably something else – a bad cold or “just old age.” Cindy was at her mother’s bedside by 6 a.m. every morning and, after one bad scare, began staying with Myrtle all day.

“My mother has diet-controlled diabetes. She doesn’t take drugs,” Cindy said. “The first day, though, a nurse came in with a needle full of insulin. I sent her away. Another time a nurse came in with syringe and said, ‘This has got to go in her belly.’ She told me it was [a blood thinner] because mother was bedridden. But mother wasn’t bedridden at all. I had her up and down all the time.

“Finally, my mom was scared to be alone because nurses would come in with pills and when she asked what the pills were for, the nurses would just say, ‘Something the doctor ordered.’ They didn’t seem to know *why* they were doing anything.”

After four days, Cindy withdrew her mother from Appleton Medical Center. The following day, she took Myrtle to her regular doctor, who prescribed a round of antibiotics. Myrtle was feeling better within a week.

S.O.P.

The standard operating procedure in U.S. hospitals is such that anecdotes like this keep happening. An orderly is told that it is his job to deliver a patient on a gurney to the CT scan. A nurse's job is to deliver medication ordered by the doctor. Whose job is it to care for the patient?

Meanwhile, doctors are expected to drop into a patient's room and the possibly complicated medical scenarios therein – perhaps the result of years of chronic illness – give the issue less than fifteen minutes, get it right and move on. And then there is little consultation between the specialties. Healthcare professionals operate in virtual silos and with great authority. Heart doctors usually know little about bones; they leave that work to the orthopedic surgeons. Your cardiologist is not conferring with your urologist, and neither doctor is speaking to your psychiatrist. Likewise, a hospital laboratory has ineffective and scant communication with the pharmacy or internists.

Here is the ugly outcome of this silo working style: lack of communication and lack of focus on the patient, as a whole, results in misguided or contradicting orders and millions of incidents of medical harm every year.

“That’s the way it used to be here and nobody liked it,” said Jamie Dunham, RN, manager of the Collaborative Care unit at ThedaCare’s Appleton Medical Center. “The doctors would come in and say something to the patient and then the nurse came along later, tried to read the doctor’s notes and asked the patient, ‘What did he say?’ We were so task oriented – delivering medications and baths and drawing blood – we weren’t really caring for the patient.”

A New Way, Again

Realizing that ThedaCare needed change, leaders tried one improvement program after another over the course of many years. Most of the programs offered incrementally better results for a while, until everyone slid back into old habits.

In the 1990s, people seized on the idea of electronic medical records as the answer to doctors' information needs. With all records available at the touch of a button, the argument went, contradictions and miscommunication would evaporate.

In 1996, ThedaCare became one of the first healthcare systems in the world to make medical records available electronically and it was no panacea. All the waste in the system – such as redundancies and mistakes – was replicated electronically. Few doctors took the time to slog through screen after screen of seemingly irrelevant information. Physicians and nurses complained that time spent looking through records cut into face-time with patients.

Finally, it became clear that more than computerized records, patients needed individual and undivided attention. ThedaCare's leaders started thinking about breaking down the divisions between caregivers' specialties, divisions of labor, and habits of working to create a unified focus on the patient. Because this would require change of everyone involved, it was clear that hospital units needed a revolution instead of isolated, incremental adjustments.

Starting From Scratch

In early 2007, a core team of nurses, pharmacists, administrators, social workers, and physicians was assigned to work for six months on redesigning the in-patient care process – addressing the facility design, the work duties, and the specialized skills of everyone involved.⁷ The team included Jamie Dunham, who had been agitating for change in nurses' working conditions, and others like her. Former patients and leaders from other industries – such as our friends from Ariens, the snow blower company – were invited to consult as well.

The makeover team was determined to burn down the old hospital model – one of medicine's most sacred cows – in order to engage all staff directly with patients. They used lean principles as a guide, but also redefined the model to become more patient-focused. This was in striking contrast to the traditional model of care in hospitals, where

⁷ This work was made possible in part by a Robert Wood Johnson Foundation grant administered by the Institute for Healthcare Improvement.

physicians control patient care, giving orders that are followed by all other caregivers who are not expected to provide input.

The team began by documenting the typical journey of a patient admitted to a hospital unit. By drawing a value-stream map that recorded every step taken by caregivers attending the patient, it soon became apparent that the activity surrounding the patient was a hectic, wasteful mess. Nurses were constantly hunting down and fetching supplies instead of using their skills and training at the patient's bedside. They were often out of the loop regarding patient needs. Doctors were not getting complete and accurate information, and were not consistent in communicating a plan of care. Pharmacists were so far removed from the action that they were rarely consulted at all. As a result, there were many medication errors. Each specialty was locked in its own silo.

To deal with the chaos, just about everyone was in the habit of making heroic saves. When a patient was harmed, managers would track the error to an individual and place blame, as if that was a solution. This was not unusual in American medicine; "shame and blame" is the most common form of addressing medical error in this country. Still, documenting the baseline performance to see what was actually happening to the patient on a unit floor, instead of what was supposed to be happening to the patient, was humbling for ThedaCare.

Over six months, the team collected data, dreamed up new ways to accomplish tasks, took turns playing different roles, and kept asking, "How does this step benefit the patient?" They used cardboard and surplus equipment to mock up an idealized hospital room, and then a better hospital unit. At each step the team asked, "Does this task, done this way, serve the patient's needs?"

The Birth of Collaborative Care

The new unit, operational since late 2007, is essentially a large square, with all patient rooms facing an open meeting area where healthcare teams meet to confer on patient care. The new layout means that no patient is hidden away in a room down the hall, far from the nurses' station. Every patient room is visible from the central meeting area and each room has a large supply cabinet that is filled from outside the room – using a set of

slide-out shelves accessed by a closet door just outside the patient's room – so as not to disturb the patient with housekeeping.

Each of those slide-out supply cabinets includes a secure drug box, stocked with the patient's medications. (Although some narcotics are kept in another secured location with tightly controlled access.) Pharmacy technicians, who resupply the drug boxes, use bar code readers to double-check identity as they make their rounds. They also carry extra supplies on their carts to restock the shelves, so as not to waste a trip. The carts have become compact, rolling pharmacies. Because all supplies are situated near the patient's bed, nurses have stopped hunting and gathering throughout their shifts.

More important than architectural changes, Collaborative Care has completely altered the working lives of doctors, nurses, and pharmacists, making them full partners in patient care. Roles were redefined and new standards set.

Now, in the Collaborative Care unit, a nurse, physician, and pharmacist gather with the patient and family within 90 minutes of admission to develop a care plan. Everyone is involved in the discussion. The medical team is also together for morning rounds to check the care plan and modify it as needed. Nurses are never left with illegible orders. Instead, the nurse is part of the original discussions and knows how and why everything is happening.

“When you first graduate, you really want to be the perfect nurse – get to know your patients, explain things to them and make them comfortable. Then you get overwhelmed with tasks and everything starts slipping away,” said Jamie Guth, a nurse in the Collaborative Care unit. “The first day I spent shadowing another nurse in Collaborative Care, I saw again the nurse I wanted to be.”

Pharmacists, once hidden away in the basement pharmacy counting pills, have also become front-line caregivers. Besides joining in the initial consultation, the pharmacist attends morning rounds whenever possible. His or her presence at the patient's bedside addresses one of the most problematic issues in hospitals: medication reconciliation. This means reconciling the list of drugs the patient is actually taking with the list of drugs the patient should be taking – often prescribed by various doctors without consulting one another – with the drugs that doctors now think are needed. One of the most common errors made by staff is inadvertently omitting a drug the patient was taking at home

during his or her hospital stay, according to the Institute for Healthcare Improvement. It is widely believed that medication reconciliation error is the root cause of most cases of patient harm. Yet the pharmacist is usually hidden away in a basement, counting pills without knowledge of their use.

On the floor of a Collaborative Care unit, the pharmacist enters a patient room pushing a computer cart, connected wirelessly to the hospital system, with two flat-screen monitors – looking like a two-headed monster. One screen shows the patient’s current medications; the other has current lab results or new orders. Meeting with the patient in person, verifying current drug usage, and consulting with the doctor about new prescriptions has helped the team reduce medication reconciliation errors to zero for the past two and a half years.⁸

“We’re seeing the patient now, not just the lab results or the doctor’s orders. We’re seeing the person and the response to drug therapies,” said Charlotte Gutowski, Appleton Medical Center’s lead pharmacist.

As one of the original Collaborative Care team members, Gutowski was particularly struck by patient complaints about being asked repeatedly for the list of their current medications – by clerks, nurses and doctors who were not, apparently, speaking to each other. Now, pharmacists are responsible for collecting that information and Gutowski finds herself spending quality time with patients – a lot of time, with some – making sure she knows every drug being taken at what dose and frequency. She calls it putting on her sleuth hat.

This means that pharmacists are no longer mere order takers. They closely monitor kidney function to assess the patient’s reactions to drugs and they consult with family members. They are full partners in care. Many doctors working in the Collaborative Care units, in fact, note in their prescriptions that the pharmacist is to decide dosage.

The pharmacist’s cart, with its two-headed computer, is admittedly unwieldy and not a particularly elegant solution. But it is a good illustration of a lean healthcare ethos: make it better now; make it perfect later. Patients prefer that their medications are correct immediately. Elegance is secondary.

⁸ Prior to Collaborative Care, hospital units at ThedaCare averaged 1.25 medication reconciliation errors per chart.

Foresight

The plan of care decided at the initial patient consultation goes beyond the usual “doctor’s orders” in that it is not just prescriptive, it is predictive. In the old model, a doctor might order a drug and a laboratory test and move on. Now, the plan of care includes not just the drug, but also how long the patient is expected to stay on the drug, what lab tests should be ordered to check the drug’s effects, and how the dosage might be changed based on lab results. The plan of care might include when and how much physical activity a patient should get, and how dietary habits might need to change over the predicted course of the hospital stay. And the plan always includes the patient’s expected discharge date – also written on a board in the patient’s room – so that all paperwork and appointments can be completed before that time.

So, the plan of care is an informed prediction of the course of a patient’s hospital stay. There are many intersections along a patient’s journey and a patient may encounter detours along the way. But foresight enables staff to plan ahead and cut down on the wasteful waiting that a patient often endures just before being discharged.

Having a unified plan of care also means that the physician is not the only one who knows what needs to happen. In Collaborative Care, a nurse takes over as case manager as soon as the plan is written and each nurse is assigned two or three patients to manage. As the patient moves through a series of “tollgates,” spelled out in the plan of care, the nurse is responsible for ensuring that every clinical necessity happens before the next tollgate. For instance, the nurse will be sure that the dosage of a blood pressure medication known to cause dizziness is reduced before attempting to walk a patient down the hall. Nurses also use Milliman Guidelines, which are recognized conventions for the care of a wide range of medical conditions and chronic illnesses, to predict a patient’s progress through care.⁹

Using the Milliman Guidelines plus the individualized plan of care, nurses are expected to stay alert to patient needs before they happen and to notify other team members if something – like new testing – needs to occur. The nurse maintains the master checklist, making sure key clinical criteria are met before the patient receives the next aspect of

⁹ Milliman Guidelines include benchmarks for beginning and ending standard, recognized therapies for medical conditions. Pneumonia or congestive heart failure, for instance, have guidelines that include giving certain drugs at specified times, and include expected length of stay in hospital.

care. Airline pilots use a similar process to check that all systems are ready before their wheels leave the ground and before they land.

Like pharmacists, nurses in the Collaborative Care unit are full partners in patient care. Because they participate in all consultations, the nurse is cognizant of each step in a care sequence and can more confidently inform and educate patients and their families. Nurses also collect and share information on the psychological and social needs and background of the patient. If the patient is grieving the loss of a spouse, for instance, or can only afford half of the prescribed drugs, everyone on the team can be informed.

These were new roles for nurses and physicians and sometimes there was friction before acceptance. Doctors are trained to be autocratic and firm in their decisions. Many nurses were attracted to their profession because they wanted to help, not lead. An Organizational Development team worked for weeks with staff in the mocked-up patient care unit, role playing and working through the repercussions of nurses directing doctors and orchestrating team approaches to care before real patients arrived in a real Collaborative Care unit.

Still, not everyone was comfortable with the new model, concedes Dr. Mark Hermans, administrative lead of the hospitalists¹⁰ at Theda Clark and Appleton medical centers. As one of the original designers of the Collaborative Care model, Dr. Hermans knew that he was asking other physicians to accept a lot of change.

“Doctors are used to working independently, not having people right there in our thought processes. A team meeting is like being on stage,” Dr. Hermans said. “Also, you’re working with a group of colleagues that you’re elevating, in terms of medical knowledge, and you have to be comfortable being challenged by your team as they learn more.”

A few doctors did not appreciate the change and left ThedaCare for other opportunities. Most of the staff hospitalists stayed, however, and in extensive physician interviews after the pilot site had been operational for several months, doctors reported that the nurses in Collaborative Care were better informed, better at thinking on their feet, and more helpful to the doctors overall.

¹⁰ Hospitalists are general physicians, usually internists, who practice on the non-specialized, non-surgical medical units of a hospital.

New-patient admissions and morning rounds require more time in the new model, but improvement teams are shaving minutes off here and there. Rounds that took 30-40 minutes per patient early in the Collaborative Care unit's operation are now averaging 23-25 minutes. That is still more time than it takes for a single doctor to pop in, check on a patient and make his notes. Then again, doctors in Collaborative Care report fewer calls from nurses and pharmacists later in the day with questions about orders. That means fewer misunderstandings, headaches, and interruptions for the physician. It also means fewer errors, which touch off new rounds of work for everyone.

Lean thinkers in every industry put in this extra time at the beginning of a process and find that it pays big dividends down the line in terms of time savings and fewer errors. This is often referred to as building quality at the source.

The Change Routine

Instead of responding to hierarchy and heroically firefighting in an environment of shame and blame, Collaborative Care teams now meet in daily huddles to review any issues with patients or work flow. When problems arise such as a medication error or a patient fall, team members use PDSA (plan, do, study, act) cycles to determine what happened, find a corrective plan, implement it, and study the results on the process. Teams then create new standard work¹¹ or, if the change did not achieve the desired results, the PDSA cycle begins again. PDSAs are not drawn-out or academic exercises and are often completed in an afternoon. (See Chapter 5 for a more complete description of PDSA.)

When errors occur now, instead of scrutinizing people, people study the process. Staff members write and rewrite standard work as they search for better methods and work sequences. As other lean organizations have discovered before ThedaCare, people are very rarely the problem. If there is an error, the fault is usually in the design and sequence of work.

¹¹ Standard work is a step-by-step description of the actions and tools needed to complete a task. It is a foundation of continuous improvement, because a task cannot be changed and improved if we do not know how it was accomplished in the first place.

The Results of Teamwork

Collaborative Care began with a pilot unit in late 2007. In the first two years of operation, 2,400 people were cared for in that unit, with dramatic improvement in patient satisfaction, quality performance, and reduced medication errors compared with similar hospital units.

Quality of pneumonia care, for instance, went from hitting 38 percent of the quality markers to achieving 95 percent, consistently. That means patients with pneumonia are now getting 95 percent of every possible need – as defined by a federal quality panel – cared for now instead of having those needs met less than two-fifths of the time.

Patients report being “very satisfied” with the total experience of their care while in hospital 90 percent of the time instead of 68 percent, and they are staying in hospital about three days instead of nearly four, on average. Overall, patients are receiving better medical outcomes in shorter stays.

Because the original Collaborative Care design team worked hard to remove wasted time, resources, and energy from work sequences – and every improvement project cuts out more waste – cost of care in a Collaborative unit is now 30 percent less than a traditional unit. When ThedaCare board members were presented with this data, they decided to convert all hospital beds to Collaborative Care. This decision was projected to improve the buildings’ net present value by 63 percent, or more than \$25 million.¹² That means if there were two hospital towers built side-by-side, the Collaborative Care tower would be 63 percent more profitable than the traditional one. A new eight-story hospital tower, opening in mid-summer 2010, at Appleton Medical Center has been designed from the beginning as a Collaborative Care facility.

A second Collaborative Care unit has recently opened at Theda Clark Medical Center and there is an aggressive plan to convert all ThedaCare hospital beds to Collaborative Care by the end of 2011.

¹² Net present value is a mechanism for looking at financial performance of an investment over time. It takes into account the cost of money, based on a projected interest rate for that money, and then factors in cash flow and operating margin of the investment. If the net present value is positive it means the investment did better financially than if the money was simply kept in an investment vehicle at a fixed rate of return.

Better Care for Myrtle

A consultation with the doctor, nurse, and pharmacist assigned to her case within 90 minutes of Myrtle Bellis' admission to the medical unit would have done wonders for her care. If Myrtle's caregivers could have heard, all at once, from Myrtle's daughter that she had already suffered pneumonia 10 times and the current symptoms looked the same, it would have had a much larger impact.

If they had all decided together on the plan of care, Cindy could have rested easy, without worrying about what medications were being delivered to her mother. And if everyone from the orderlies to the surgeons knew that their primary job was to care for Myrtle and other patients like her – not transport her or give her tests or stop in and check her chart – then nobody would be left in a hallway with soiled pants.

This is the real benefit of Collaborative Care: communication between caregivers focused on the patient's well being. Lower-cost healthcare is great, but medicine that puts the patient first is the goal.

Finding Value

Providing excellent, waste-free healthcare is about more than teamwork and better communication, of course. It's about delivering only what is of value, quickly, by removing the many wasteful activities surrounding patients on their journey through diagnosis and treatment.

Medicine has become such a complicated maze of processes, paperwork, therapies, and specialties, however, that leaders and staff can easily lose sight of the definition of "value." Strip away layers of accumulated stuff – assumptions and policies and roles – and somewhere in there, you will find the real value being provided to the patient.

Most of the time, teams need to begin their search for true value with the most elementary of questions: What is "value" anyway?

For more information:

onthemendbook.com

This excerpt is Chapter 2 of the forthcoming book *On the Mend: Revolutionizing Healthcare to Save Lives and Transform the Industry*. The book will be coming out this summer from the Lean Enterprise Institute.

On the Mend tells the story of ThedaCare's lean journey and how they discovered that a different kind of healthcare is possible – care that is patient-focused, with less waste and cost, and better medical outcomes. Using the improvement model popularized by the Toyota Production System, they arrived at *lean healthcare* and three organizing principles – focus on patients, value, and time – that are built upon a foundation of continuous improvement and respect for people. By starting with the value being delivered to patients and thinking carefully about the delivery process for creating this value, they proved it is possible to enhance patient experiences while dramatically improving medical outcomes and lowering costs. The book tells this story and lays out an action plan that the senior management team of any healthcare organization can follow to achieve similar results.