

Patient-Centered Emergency Care

Avera McKennan takes a
LEAN approach

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Already ranking in the top decile nationally for short length of stay, the staff in the Emergency Department (ED) at Avera McKennan Hospital & University Health Center felt confident in the quality of services offered to the community of Sioux Falls, a city of 145,000 in eastern South Dakota.

As one of two major hospitals in the city, the competitive market kept us on our toes. While we had room for improvement, we didn't know where to start until we began to implement LEAN principles through our hospital's Process Excellence initiative.

During the implementation process, we asked and answered a pivotal question: "What would be the epitome of great patient care in our ED?"

The term LEAN was popularized in manufacturing in 1991 with the publication of *The Machine that Changed the World: The Story of Lean Production*. In more recent years, LEAN has entered the realm of health care to streamline processes, reduce waste, and, at the same time, improve customer service.

Our busy ED was identified for LEAN improvements early in 2005 for a number of reasons. First, we were treating an

average of 25,000 patients a year, with an expected volume increase of 10 percent per year. Our cramped space of just under 10,000 square feet created a very crowded working environment.

With our existing area worn to the point of falling apart, construction of a new facility was on the horizon. Could we build the new addition around LEAN principles rather than creating another traditional ED?

A year earlier, we had laid important groundwork by changing our physician structure. After 22 years, we changed from a contractual arrangement with a physicians' group to employing our own physicians—all residency trained in emergency medicine and board certified or board eligible.

These new physicians were invaluable, not only in implementing LEAN efficiencies and improving customer service, but also in designing our new patient-centered ED that opened in December 2007.

With an exceptional medical team on board, we felt assured of our clinical quality. It was time to tackle the issues of service and process so we could begin providing emergency care at a new elevated standard of excellence.

BEGINNING THE JOURNEY

As with any project promising to bring about major change, there was push-back and skepticism among some staff members. We began by educating our staff about the need, which was based on patient satisfaction scores that hovered around the 50th percentile.

We assigned front-line staff to a LEAN team for sixteen weeks, away from their regular duties. Since they are responsible for doing the work, frontline employees are vital members of a LEAN team.

Formal channels of communication included email updates, bulletin board postings, and mandatory staff briefings. In addition, peer-to-peer communication and feedback took place informally.

LEAN views all processes from the patient's perspective, placing the patient at the center for a seamless patient experience.



Avera McKennan's new ED features a Medical Staff Core that is separate from patient areas. Even on the busiest days, patients do not experience the hustle and bustle of emergency care.

TRY-STORMING

The team began its work by gathering data—videotaping and analyzing processes to find opportunities for improvement. When the team identified waste, such as waiting and transporting or handling inventory, they engaged in problem-solving sessions to find ways to be more patient-centered and efficient.

Teams “try-stormed” ideas—implementing them on a trial basis and documenting results. When that “one best way” was identified, frontline team members walked their peers through the new steps of each improved process. Once in place, new processes were videotaped to make sure things were running smoothly. The team then built a best-practice document to detail the new processes.

We communicated our progress at weekly ESP (Excellence in Service and Process) meetings, sharing challenges and successes and gaining new motivation for the next week's tasks.

Departmental leadership participated in the planning, problem-solving, and try-storming. Leaders also supported the frontline LEAN team members since they often became a target for push-back from the few employees who had difficulty accepting the change.

Support from senior and organizational leadership was phenomenal. Even though we planned to move to a

newly-constructed department, we were allowed leeway to make expenditures needed to implement new processes. We also experienced exceptional support from other departments, such as maintenance which finished projects quickly to fit our 16-week timeframe.

From a patient-centered perspective, we learned that patients want to get in, get the care needed, and get out as soon as possible. This “ah-ha” moment became a driving force for our project. One patient communicated it best by saying, “I just want to see the doctor.” Our analysis revealed several inefficiencies in patient flow. As a result, we set goals to reduce initial wait time, maximize physician-to-patient time, and improve physician efficiency.

Our pre-LEAN patient experience in the ED was very linear. It began with triage, followed by registration, an RN assessment, a physician assessment, orders for treatment, and then a long wait time.

There were a number of problems with this flow. First, the official identification of the patient took place at registration. If patients were critical, they often went directly from triage to assessment, putting them in the system without identification bands. Samples arriving in the laboratory without proper identification were rejected, creating obvious problems for patient care and interdepartmental relationships.

Patients were being asked the same questions at triage, again during the RN assessment, and yet a third time by the physician—“Why are you here? How long have you felt this way?”. After all this activity, lab orders were placed, automatically creating another 30-minute wait.

IMPROVING PATIENT FLOW

We implemented a concurrent patient care flow process that was inspired by a NASCAR® pit crew. Our patients are surrounded by a flurry of care when they arrive at our ED, just as the crew surrounds the race car when it enters the pit.

Departmental leadership participated in the planning, problem-solving, and try-storming. Support from senior and organizational leadership was phenomenal.

After a brief triage and patient identification process, patients are roomed where the RN and MD do a joint assessment. It is only after the patient’s pain has been controlled, blood has been drawn, and tests have been ordered that a registration staff member goes to the

bedside to collect personal data and insurance information during what was previously wait time for the patient. Bedside registration eliminates unnecessary movement of the patient, uses portable technology to gain efficiency, and conveys to patients that their care is more important than payment for services.

Inpatient units are notified of pending admissions so that an inpatient bed is made available within 20 minutes, creating a pull-versus-push process from ED to hospital admissions.

In our LEAN analysis, we generated “spaghetti maps” that showed that

nurses were going to three or four different supply areas just to start an IV. Spaghetti maps trace traffic patterns over time, and when those tracings are placed on a map they often resemble a plate of spaghetti.

We also realized that some patients had to wait for the right room to become available causing them to have to be moved twice.



Average “door-to-doctor” time has been trimmed to about 20 minutes thanks to understanding patient perceptions and implementing LEAN principles in Avera McKennan’s Emergency Department.



The concept of specialized bedside carts minimizes the unnecessary movement of patients and reduces wait time. Everything a nurse or physician needs for common care procedures is right at their fingertips.

Our solution was to standardize care rooms and create specialized bedside carts, which are brought to the patient rather than the patient being taken to a specific room. This minimized unnecessary movement for patients reduced wait time, and improved patient privacy and confidentiality.

The use of specialized carts means that everything an ED nurse or physician needs for common care procedures is right at their fingertips. A double-bin supply system ensures that supplies are always available so nurses don't have to leave the patient's bedside to run after supplies. Not only were patients more satisfied, our employees were too because the number of miles run in a given shift was dramatically reduced.

SERVICE EXCELLENCE

With new excellence in our ED operations, we needed a boost in Service Excellence to make the patient experience the best it could be. Customer satisfaction is particularly challenging for an ED because visits are mostly unplanned. People feel particularly anxious because of the acute illness or injury that brought them to the ED and fear the expense.

LEAN's patient-centered approach creates an excellent bridge between process and service excellence.

We decentralized our service recovery system giving frontline staff the tools needed to make appropriate amends for failing to meet expectations.

Along with the entire hospital, we began to emphasize CARE—Communication, Attitude, Responsiveness, and Engagement—a shared set of values for relating to patients, families, and one another.

We post weekly “dashboard” patient satisfaction scores, and use scripts to address privacy concerns, inform patients and families of expected wait times, and provide comfort. Staff members are publicly recognized for their service excellence accomplishments through a “wall of fame” and handwritten notes.

NEW PATIENT-CENTERED DESIGN

With these improvements in place, we began to focus our attention on the design of our new facility. Initially, we believed we needed a 24-room ED to handle current volume and allow for growth.

Through LEAN, we improved our average length of stay by twenty-five minutes to just under two hours. This had such a dramatic impact that we were able to reduce the size of our new ED to twenty rooms, saving \$1.25 million in construction costs.

Emergency physicians and staff played a key role in designing the new facility with patient care as a top priority. This resulted in many unique features.

Private patient rooms are accessed by a perimeter track hallway reserved primarily for patient and family member use. Physicians and nurses operate in and out of a central Medical Staff Core. Each patient room has two doors, one from the patient hallway and one from the Medical Staff Core. This allows patients to experience privacy away from the busyness of emergency care.

What a difference from our former department in which patient care areas were separated by curtains. Any child crying after a blood draw or angry patient yelling drew the attention and stares of everyone. It was chaotic with very little privacy or confidentiality.

Family-friendly features include consultation rooms, a meditation room, and large waiting room—with a special area just for families with children.

While three rooms have special features for extensive critical care and trauma resuscitation, rooms are largely universal in design. Each room has a double-bin system cabinet with two doors, one inside the patient room and one that can be accessed from the Medical Staff Core side. This allows restocking of cabinets with no interruption to patients.

OUR SUCCESSES

Throughout our Service and Process Excellence project, we have experienced many measurable successes and achievements.

IMPROVED PATIENT SATISFACTION—The success our staff is most proud of is improved customer service. Monthly Press Ganey satisfaction surveys showed improved satisfaction from a low ranking below the 30th percentile in January 2005 to well above the 90th percentile by December 2005. The ED holds the hospital record for the most months at the 90th percentile and above—18 months since November of 2005.

IMPROVED PATIENT SATISFACTION WITH NURSES AND PHYSICIANS—Scores in both categories rose markedly from below the 30th percentile in January 2005 to consistent rankings in the 80th and 90th percentiles from December 2005 through January 2008.

IMPROVED NURSE TURNOVER RATE—Our nurse turnover rate in the ED has remained substantially lower than the hospital's rate of approximately ten percent. It is estimated that reduced nurse turnover in the ED has resulted in a cost savings of \$162,000.

IMPROVED EFFICIENCY—Before implementation of our action plans, Avera McKennan's ED ranked in the top 5 to 7 percent in the nation for patient length of stay. Between January 2005 and June 2006, the average patient length of stay decreased from 140 minutes to 115 minutes, a decrease of 25 minutes or nearly 18 percent. On average, patients see a physician within 20 minutes of arriving at the ED. It has been estimated that

thousands of dollars have been saved by streamlining inventory and through efficiencies gained in repositioning supplies or equipment. All of these factors—a short “door-to-doctor” time, early initiation of the treatment plan, and reduced length of stay—are consistent with a satisfying patient care experience and cost savings.

INNOVATIVE DESIGN—Through the construction of our new center, patients now have a new, compelling reason to have a “very good” experience in the Avera McKennan ED. This \$8 million project increased our square footage from 9,250 to 15,000. After Phase 2 is completed this year, our size will expand to 19,700 square feet.

In planning our center, we visited many EDs and believe ours is very unique in the Midwest with its outbound track hallway design, universal rooms, and pass-through cupboards. Patients love it and often comment that they feel they are the only ones here. Staff love it because they feel less fatigued and stressed at the end of a shift.

In terms of clinical excellence, service excellence, efficiency, patient-friendliness, and staffing with all emergency trained and all board-certified physicians, our new state-of-the-art ED is simply unmatched in our region.

We can only expect our emergency care to further improve—once LEAN begins it sets up a continual cycle of improvement. LEAN never ends. It has become a part of our everyday work and we're constantly looking at how we can improve care for our patients. 🏆



The entrance to the newly-constructed Emergency Department at Avera McKennan Hospital & University Health Center in Sioux Falls.

About Avera McKennan

Avera McKennan is an integrated delivery network that includes Avera McKennan and University Health Center in Sioux Falls, SD, a 545-bed tertiary care facility with a medical staff of 540. Our facility places an emphasis on teaching and medical research, and has long-standing kidney, pancreas, and bone marrow transplant programs. Within the city of Sioux Falls there are 30 primary and specialty care clinics, the Avera Heart Hospital of South Dakota and the Avera Behavioral Health Center. The Avera McKennan network also includes 14 community hospitals, clinics, and other services in 50 communities throughout our three-state region. Avera McKennan is a member of Avera Health, comprised of well over 200 care locations in 80 communities in five states.