

Treating the entire person

A critical case from a Portuguese hospital reveals how the ultimate healthcare customer, the patient, is a complete system, not a jumble of parts

By Anabela Carvalho Alves

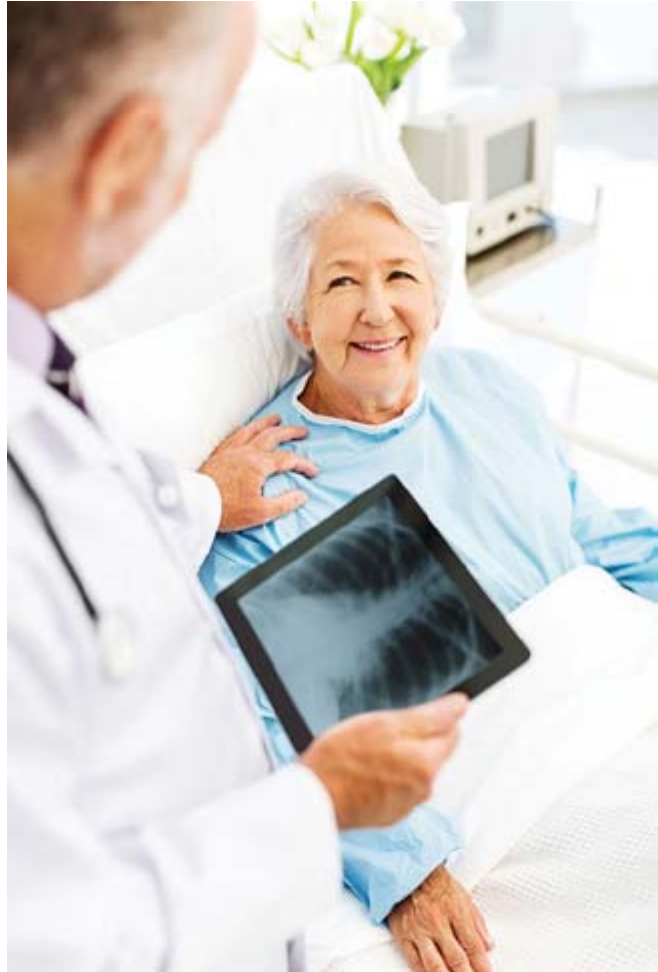
The lean production philosophy has made inroads into service sectors, including medical care in the United Kingdom and the United States. Unfortunately, numerous medical organizations in those two countries and the rest of the world treat patients like they are made up of parts, not as a whole system. This leads to disjointed handoffs, bottlenecks in information flow that delay treatment, and sending the patient back and forth from department to department.

The following case in Portugal shows how most of the world's health systems still suffer from functional silos and how waste is all over the place. In this case, the missing links in communication between doctors, nurses, auxiliary staff, the patient and her family led to the patient's death. Adopting lean healthcare with its proven tools would be a solution to many of the problems described.

When a patient dies in a hospital, the family often is told that the doctors did everything they could. Normally, that is the case, as healthcare providers – doctors, nurses, auxiliary staff, therapists – do their best with the system they have.

Often, the problem resides in the system, not with the medical service providers. This system is a remnant of a paradigm that existed before lean, a system that doesn't work anymore because the healthcare system no longer has a patient-provider relationship. These days, there is more technology, more complementary means of diagnosis, more care providers with different skills, more drugs with unidentified interactions, more diseases, more knowledge and more space (large hospitals have replaced smaller units).

Although this system has become infinitely more complex, it retains the same functional structure that confines every department in its silo. This complexity takes away the relationship between healthcare providers and their patients, lessening the time and care put into observation, dialogue, the feel, the smell, all activities that add value to the customer, which, in healthcare, is the patient.



These are replaced by moving activities, overprocessing, waiting, transporting, stocking, entering and consulting of data in computers, and the accompanied consultation that can lead to errors and defects.

Industrial engineering has been applied for a long time to hospital management but without the emphasis on the patient as a client of the service. So lean healthcare appears to be a breath of fresh air that could return quality services to the one component that necessitates the existence of the healthcare system – the patients.

Case Study

The author observed this relative's medical care and hospital visits during and after the inpatient period, which involved preparation (pre-operative), inpatient and the discharge phase. Later on we'll discuss the repair surgery, a process that should have taken three days but instead took the patient's life.

The diagnosis was intestinal cancer. An operation was prescribed, but before that the patient needed to undergo five weeks of radiotherapy followed by six weeks of preparation for the surgery.

Then came a bottleneck, the first symptom of systematic problems. Four months passed, and because the patient was not experiencing any pain or symptoms, the family hoped that radiotherapy had taken care of the disease. When the patient's family members called the hospital to double check, they were hit with a shock: Although the hospital couldn't explain what had happened, the patient was scheduled for surgery on the inappropriate day of Christmas Eve.

Before that fateful date, the medical system prepared the patient and conducted clinical and other supplementary tests that required the patient to answer a number of questions asked by a young doctor, who then requested the tests. Another week goes by before it is time to visit the anesthetist. Despite the previous battery of clinical exams and questions, the anesthetist concluded that important exams were missing. The anesthetist blamed this on the “young intern doctor.”

The missing exams were urgent, but according to the hospital, it was the patient’s responsibility to ask for them to be conducted. So much later than 1 p.m., despite having no lunch, the patient walked to the other end of the hospital to ask for the exam. After all, the surgery was scheduled for the next day. The auxiliary staff asked the doctor to conduct the exam. The patient was told to return at 2 p.m.

As fast as she could, the patient went to the ground floor, swallowed a sandwich and returned by 2 p.m. Needless to say, the specialist still was not there by 3:30 p.m. Moreover, it was discovered that another clinical analysis was missing. That test also could not be performed because the hospital’s analysis service only works in the morning.

The explanation? That is just how the hospital’s system is set up. Getting the necessary analyses conducted would require another trip to the hospital’s central services unit the morning of the surgery.

On the day of the surgery, the patient, accompanied by other family members, was at the hospital at 8 a.m. to do the missing analyses. However, hospital regulations required the patient to wait because for surgery purposes central services did not start performing the necessary analyses until 10:30 a.m.

Finally, the time comes for the patient to be admitted. But before that, because of poor signage and nonexistent directions, the patient and her relatives made three trips to different locations. And upon admission, there is no receptionist to explain what will happen next. Instead of relying on information from the hospital staff, patients had to be lucky enough to have knowledgeable “roommates” who were willing to explain what they had been told (or already had suffered through).

Such lack of direction and poor information flow engenders all sorts of distrust, bitterness and insecurity for the patient as well as for the family members who had to leave her side as she prepared for surgery.

The operation seemed to have gone well. The word “seemed” is appropriate because there was no formal communication from the medical personnel. Once again, the system seemed to work only through the “back door” of going to the recovery room, visiting the patient and discovering that the patient was still there and recognized her family.

Awakening in this recovery room from anesthesia was a bleak experience. Naturally, the patient was thirsty. But none of the medical personnel in the recovery room seemed to find that important. The responsible physician did not feel like talking. Finally, he said that the patient was well and then dashed off.

The next morning, the patient’s roommate helped the relatives again, warning them by phone that the patient needed her usual medication, which the hospital had not given her.

Over the weekend, there seemed to be some improvement, but the patient was constantly thirsty. The nurses gave contradictory information, with some saying the patient could drink and some saying she could not. The same confusion attended the question of whether the patient could go for a walk.

Needless to say, such continuing contradictions were increasing insecurity and mistrust in the system. Although the patient’s malaise worsened, everything was fine according to a brief consultation with a young doctor and another specialist.

However, the various specialists did not coordinate with and talk with each other. It seemed as if the specialists were so concerned about their own “part” of the patient that they forgot that a person is an integrated and interrelated system, not a bunch of organs.

An appointment with one doctor revealed that the patient was taking more thyroid medication than she needed. However, the doctor said this as if it was the patient’s fault. If thyroid medication was a problem before the surgery, then the doctor needed to convey this information to the patient’s endocrinologist, as both of them worked in the same hospital. Instead, the patient then was sent to intermediate care because, once again, the “parts” were not right. Again, information was scarce and was only given when requested.

The next day, the family had to phone the doctor to ask questions because it was Christmas. He said the patient’s medication accelerated her heart rate. So why not talk to her cardiologist, who worked in the same hospital? The doctor replied that there was no such need.

A different doctor in intermediate care revealed that fluid had been taken from the patient’s lungs. This was, depending upon the source, a result of the medication – or the lack of medication. In addition, the family found out that the patient was scheduled to undergo a computerized axial tomography scan with contrast. The patient’s relatives warned the doctor that the patient became sick when she received such a procedure previously.

Thus, due to the family's diligence, another shock was avoided. The doctor thanked them and reassured the family that it wouldn't happen again. But once again, this information already had been given several times to different doctors. It seemed like nobody had bothered to put this in the patient's clinical history, or perhaps nobody had bothered to check before prescribing further tests.

After this episode, the patient was taken to an infirmary ward in another wing of the hospital. The two systems clearly were not equal, as the staff's friendliness changed for the better and employees seemed to know and share more information with the patient's family. Whether this change came about because of the family's previous negative episodes is not known.

Despite this change, the relatives had little trust in hospital staff because they had to pay attention at all times and warn about potential medications that could interact with the drugs the patient already was taking.

After 11 days of hospitalization, it was time for the patient's discharge. Although the announcement was made in the morning, the patient would have to wait to leave that night. The entire day was spent waiting for formal communication from the doctor, who arrived late. And when discharge came, it was a good thing the patient's family was around to handle the volume of instructions and information, which would have been difficult for her to receive and remember.

MIND THE LIFT

A new 1 billion pound (\$1.56 billion) hospital in Glasgow, Scotland, is billed as bringing healthcare into the 21st century with self-service check-in machines and a fleet of robots that deliver linen and other goods via a network of underground tunnels.

But a little human factors ingenuity – or boondoggle, depending upon your point of view – is leaving staff and patients stuck in the elevators for interminable periods, according to the *London Daily Mail*. The new hospital's 34 elevators are known as "Miconic 10" lifts, according to the *International Business Times*, and they only travel to pre-selected floors to get passengers to their destinations faster.

Visitors can select a floor number on the access panel in the lobby before entering the elevators. But since the lifts have no buttons inside, passengers who don't preselect a destination could go on a lengthy journey.

"It's an amazing building, but I've spent the majority of my time in the lift so far – as have a lot of people," one worker told the *Daily Mail*. "If you jump in without thinking, or if you're chatting and not concentrating, you can find yourself – for what seems like hours – zooming from floor to floor."

Staff members are getting used to the new system, but visitors and patients repeatedly get caught unawares.

A spokeswoman for NHS Greater Glasgow and Clyde said the lifts may take some getting used to, but they're the best way to get patients to the right place quickly. The hospital is using staff and volunteers to help users find their way around and deal with the new technologies. The health center also has developed short animated films available online and on hospital TV screens, the *Daily Mail* reported.

infusions were necessary. Then the patient was sent to intensive care, where she caught a hospital infection. After this, everything went wrong and the patient's health deteriorated immensely. The pain and fever were constant. At least three visits to intermediate care occurred, along with a return to the infirmary ward, before the patient lost her life.

The doctors said that they did all they could. And that is likely true for each of the parts that they were responsible for.

Of course, another doctor came by and said that, at least on his part, everything with the patient was "all right." Needless to say, the relatives felt the need to ask whether the "whole" patient was "all right," not just one "part" of the system.

A few days later, the patient had multiple questions. Instead of getting simple answers via telephone, officials required a patient who recently went through an operation and a grueling recovery, a patient who was physically and psychologically weakened, to leave home and return to the medical center.

A group consultation was recommended. But in reality, there was no group consultation. Instead, two specialized doctors, one by one, came, stood against the wall, and explained that the patient would not undergo chemotherapy because the risks would outweigh the benefits. They seemed to know little about the patient's medical history because they had to leave the room continually to check out the documentation.

The patient's relatives barely had time to ask the questions that worried them. For example, one of the issues was the small "bag" the patient had to use because of the ileostomy that was performed. Numbly, the doctors replied that the patient would have to use the bag for life – even though nurses previously had said that would not be the case.

The story repeated itself the following year when it came time to remove the bag. Even though the previous team had been replaced (with no explanation given), nonstandardized procedures were followed, and the family and patient faced the same lack of communication and the same contradictions. What's more, the surgery that should have been scheduled in a month was delayed by three months.

According to the new team of doctors, the surgery to repair the intestine was a success. But two days later, while she was still in the infirmary, the patient had an internal hemorrhage that required a second surgery. Three blood

But from a systems standpoint, much more could have been done. Treatment needs to respect the patient's health conditions because each patient is different and requires different care, diet, medication and attention. Instead, the system turned what would have been a hospital experience of three days into an ordeal that had the patient in the medical center for 50 days, ending in the worst case scenario.

Advised solutions

Implementing lean in healthcare services will have to follow the principles of lean thinking and use lean tools.

In healthcare, the value should be centered on the patient's health, and care should be effective, safe and completed on time. The same tools applied in manufacturing can be adapted to provide value to the health system's ultimate customer – the patient. To use them in the case described above would require a deep analysis of each phase using the proper set of lean manufacturing tools. This analysis should begin with observing all activities, connections, flows and behaviors, measuring performance indicators (waiting times, transportation times, stock times and changeover times, among others), and training people before applying the tools referred. This will allow health systems engineers to identify the reasons behind the disconnected activities, confused flows and nonstandardized behaviors that the patient suffered from.

Most important, of course, is finding the appropriate training for the care providers. This training must be customized for doctors, nurses and auxiliary staff. For example, the staff needs to learn to respect patient privacy, talk lower and be nice and polite. While performing their tasks, they do not need to make the patient feel like a burden.

The doctors need to learn to communicate with each other. It is important that they are excellent in their specialization, but they must remember that the patient is more than the "part" the doctor specializes in. The patient is a "whole" system," and communicating with the patient, families, other care providers and other professional colleagues will help them recapture healthcare's patient-focused perspective. This patient-focused perspective will help the healthcare system structure each activity, clearly connect every customer (patient) supplier, specify every flow path and continuously improve.

This case study shows a real description of what happens in many hospitals – in Portugal and elsewhere – when a person is diagnosed. This person becomes a customer of a functionally organized silo system, a system that is accustomed to treating all customers in the same way without regard for their differences. In other words, this is a system that doesn't have a patient-focused perspective.

Recurrent symptoms are the successive visits to the hospital, the systematic failure of communication between healthcare providers, the lack of standardized procedures, the lack of prior knowledge of the patient's health problems, the repetitive waiting and transportation and the "war" between service doctors to move patients between beds in different care units.

In addition, the lack of communication and information transmission often requires patients and their family members to seek out auxiliary staff who often don't have the training to give appropriate answers with the necessary sensitivity. Add in medication errors, the lack of medication in some instances, long delays and waiting times, and it's no wonder that healthcare stories sometimes end in tragedy.

Much can be done in hospitals using lean approaches. The same argument that some use to deny the applicability of lean in healthcare – "every patient is different, so we cannot apply the same procedures" – also could be used to advocate lean healthcare. By using the concept of part and product families, it is possible to form families of clinical processes and procedures and standardize each procedure. This will help attend to family requests and needs like diets, medication and care by allocating the right and truly multidisciplinary teams of doctors with different specializations, along with the supporting nurses, therapists and auxiliary staff.

With lean healthcare, hospitals will learn to respect the patient as a client, leading to better results for the entire system.

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