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IMPACT ASSESSMENT PAPER

Reducing Surgery Wait Times At Covenant Children's

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Reducing Surgery Wait Times

Improved scheduling minimizes batching and reduces patient waiting

Why should a child and his or her family spend the better part of a day waiting for their “scheduled” day surgery to take place? When this occurred at Covenant Children’s, a full-service pediatric hospital in Lubbock, Texas, families were justifiably angry, patient satisfaction plummeted, and staff would issue service recovery tickets — gift cards given to patients to ease the dissatisfaction.

Emily Stephens, RN manager, says, “When our patient satisfaction scores were not very high, we would get voice complaints: ‘The wait times were too long. Why did we get there so early?’ It just wasn’t a good situation.” Approximately 225 pediatric surgeries are conducted at Covenant Children’s monthly by six physicians in 11 operating rooms (ORs), and many patients experienced excessive waits. “When we looked at our times, we realized that some had been waiting from three to four hours or more.”

The long wait times were occurring around the time that CEO Chris Dougherty told leadership that Covenant Children’s needed to emulate the high-quality processes and patient care seen at leading healthcare organizations across the country. Dr. James Gutheil, surgeon in chief, suggested perioperative services be the organization’s initial focus of improvement because it was “the central driver of the hospital.” Development of a preliminary process map for those services and review of wait times indicated that the day-surgery unit would be a good place to start — if for no other reason than the high chance for improvement and success.

The day-surgery process begins when a patient’s physician determines the need for surgery. The physician’s office then informs Covenant Children’s scheduling to make the surgery appointment. Ideally, all surgeries are coordinated by Surgical Assessment Services (SAS), which undertakes a range of pre-surgery activities: pre-registration; obtain consent to treat; issue patient rights information; share patient portal instructions; and conduct an RN pre-operative assessment (inclusive of lab work, EKG, complete medication reconciliation, etc.). Many of the SAS tasks can be done up to 30 days prior to the surgery date. On the day of surgery, the patient arrives at the admitting office for a brief check-in (confirm birthday, address, etc.) and then on to day surgery where the patient is evaluated for surgery readiness, medications are reconciled, and any pre-op medications begun before moving the patient to an OR. After surgery, there is a brief period in recovery, back to day surgery for a short stay, and then typically the patient goes home

Covenant Children’s

Located in Lubbock, Texas, Covenant Children’s is the only licensed, full-service pediatric hospital in the region and only one of eight in Texas. It also has the only children’s emergency center in the region. Covenant Children’s is a member of St. Joseph Health System in Orange County and serves a 62-county area that spans West Texas and eastern New Mexico and holds a population in excess of 1.2 million.

Covenant Children’s is a unit of Covenant Health, which includes:

- More than 1,000 licensed beds
- More than 5,000 employees
- Medical staff of more than 600 physicians.

that day (a few patients stay for 24-hour observation). This process has resulted in quality surgery outcomes at Covenant Children's, but efficiently getting patients to OR and to those outcomes rarely occurred.

Working with AEH

Covenant Children's became aware of the Academy for Excellence in Healthcare (AEH) at The Ohio State University from one of its process improvement staff members, who was earning a Masters of Business Operational Excellence (MBOE) at OSU. The hospital submitted a project to improve day-surgery wait times to AEH, formed a cross-functional improvement team, and began training in March 2015.

The team that attended AEH training learned about lean tools and techniques that could positively impact surgery scheduling, including A3 thinking and analysis; standard work; time studies; value-stream mapping; and pull, flow, and level-scheduling concepts.

Covenant Children's Improvement Team

- Dr. James Gutheil, Surgeon in Chief
- Emily Stephens, RN Manager
- Ben Keck, Charge Nurse
- Sheree Corbin, Staff RN
- Brian Meadows, Internal Sensei Regional Director
- Gary Pilacinski, PI Lead Facilitator

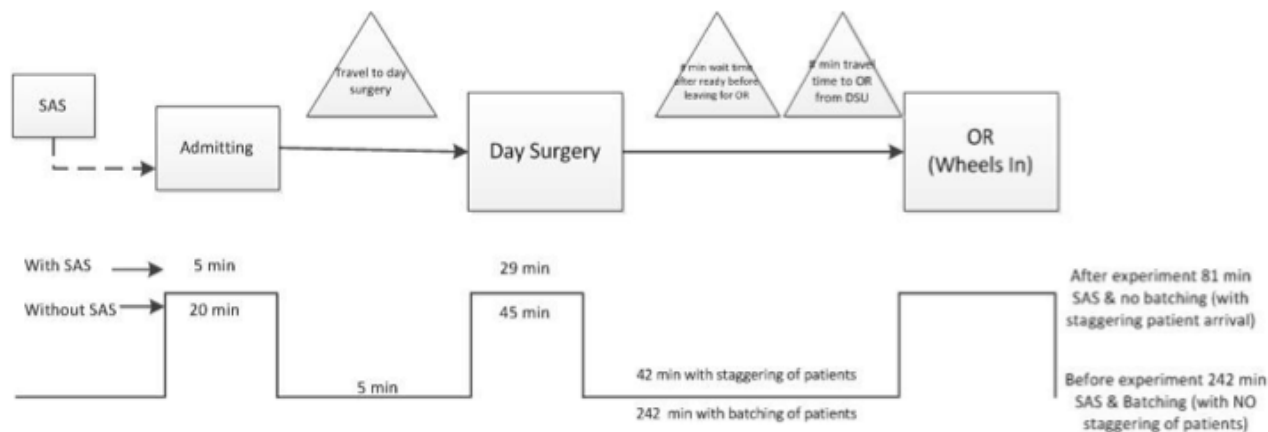
Dr. Gutheil says the first, important takeaway from AEH was to not jump to conclusions, which the team adhered to when they got back to Covenant Children's: "As opposed to just launching into different countermeasures, we met with SAS, met with admitting, and gathered all this data. And then, as we put our current process state together, we were able to identify gaps and really kind of brainstorm some solutions [by using] the A3 process that we had learned."

Ben Keck, charge nurse, says that the improvement team believed they understood the problems with SAS and admitting and knew what was supposed to occur in those functions, but gemba walks got them focused on how work actually got accomplished and illustrated the issues that staff faced. "There was a lot of eye opening with those gemba walks for all of us," adds Stephens.

The team documented their gemba knowledge in a process-flow map, analyzed the issues, and was able to identify in greater detail what contributed to long wait times:

- *Batching of patients at the start of each day:* Many surgeons scheduled all of their patients for a day to arrive first thing in the morning. Some patients had as much as six hours of batching built into their surgery appointment. "We had a big, big problem with batching patients — physicians just sending all their patients," reports Stephens. "They may have six or seven surgeries that day, and they'd send everybody between 6 and 6:30 in the morning, and that led to huge wait times during the day. And through time studies, we had the data to prove to them that that was not efficient."

Day-Surgery Process-Flow Map



Source: Covenant Children's

- Underutilization of SAS:* A majority of surgeries were scheduled without SAS, which if used could streamline the scheduling process and, ultimately, improve patient satisfaction. Some physicians were unaware of SAS or had misinformation about the department and its interactions with patients. Others did not want their patients traveling from office to office (some surgeon offices are not located in the same building as SAS), even though some SAS work could be done by phone. And still others believed that all the SAS activities could be done in the hospital the day of the surgery, so their offices would schedule patients to arrive exceptionally early: patients would arrive at 5 am, when no one from SAS was available to assist them. Some patients would then have their surgeries cancelled due to insurance or lab-work issues that were not detected until the day of surgery.

“There was a lot of misinformation out there coming from all different angles,” adds Keck. The gemba walks brought these ideas to the surface, allowing the team to develop ways to counter SAS misconceptions with communication and education.

The team’s process-flow map (see *Day-Surgery Process-Flow Map*) compared surgery wait times when SAS was used to those when SAS was not used: admitting time was 5 minutes and wait times were 42 minutes with SAS, vs. 20 minutes for admitting and 242 minutes of wait time without SAS.

- Non-standardized pre-operative medication process:* Many different anesthesiologists service the hospital, and they each have preferences for the sedative that they give to patients. There is no standard dose for every child, nor is the timing of the dose prior to surgery consistent. “It’s a challenge to get [anesthesia] ordered and delivered to the floor or available to us to give in a timely fashion,” explains Stephens.

Ways to Reduce Wait Times

Based on the team's analysis, they identified countermeasures that could be implemented and piloted with a control group of Dr. Gutheil patients. "My service was more or less the guinea pig for all of our experiments," says Dr. Gutheil. He also led the improvement team meetings and, as leader of the OR committee, worked with the other physicians to gain acceptance into the proposed processes and objectives the team developed. These included:

- *Improve start times for the first surgeries of the day:* Starting each day on time would minimize initial delays that rolled up throughout the day.
- *Implement scheduling worksheet and stagger surgery patients:* Since many surgery times are fairly standard, the team would create a schedule in which physicians and their office staff could approximate durations of surgeries and automatically calculate start times throughout the day.
- *Commit to SAS for all surgery patients:* The team would address this requirement with individual physician office managers and allow for some walk-in capability, which physicians had requested.
- *Reconfigure patient movement from waiting to the day-surgery area and ORs:* The location where patients and families waited prior to OR was an unnecessarily long distance from day surgery.
- *Standardize pre-op medication process:* The team would examine ways to consolidate to a smaller, full-time anesthesiologist staff and evaluate standard medications and discharge times for those activities.
- *Better use of healthcare information technologies:* The team came back from AEH and initially wanted to work around the hospital's EMR — not an option — but they would try to minimize the number of computer screens needed to admit and document patients.

Goals were set for the Dr. Gutheil control group to reduce patient wait times from an average of 242 minutes to 60 minutes and to improve first case on-time start (FCOTS) rates from 38 percent to 80 percent. Other new practices, such as use of SAS and on-time starts for first surgeries, were encouraged of all surgeons. The metrics tracked by the team were:

- Number of patients utilizing SAS in the Dr. Gutheil control group
- Number of patients utilizing SAS in a non-control group of Dr. Donald Gifford patients
- Delays in FCOTS
- Number of minutes from day-surgery unit (DSU) to OR (pre-relocation of waiting room vs. post relocation of waiting room)
- Number of service recovery tickets provided to patients/family members due to excessive wait times.

Implementation, Progress, and Next Steps

Given that Dr. Gutheil led the improvement team, the pilot with his patients was implemented quickly and with good results. All of his patients were soon being coordinated by SAS and scheduled on a staggered system, rather than batching. This resulted in significantly lower wait times for patients: 217 average minutes of wait time (from arrival to the pre-op waiting area to leaving for the OR) was reduced to *115 minutes*; the first cases of the day get to the OR in as few as 69 minutes. And since implementation of the staggered scheduled, no service-recovery tickets have been needed for Dr. Gutheil's patients.

“From a nursing standpoint, if you can get a physician champion that is respected and can take some of what you're saying forward, it's huge,” notes Stephens. “And when they're first looking at their problems and they involve other departments — key people in other departments that can help make a difference — that's also very important. Then you have buy in from everybody, and everybody wants to win. It makes the battle a lot easier.”

“For years, I thought that what we were supposed to do is send everybody to admitting at 6 am in the morning because we wanted all our patients there and to make sure that the ORs will run continuously and the surgeon is continuously busy,” says Dr. Gutheil. “When I saw the numbers that one of my patients waited six hours to get a surgery, I just felt horrible.” He knows how long most surgeries will last and budgets this time on his smartphone, so he reasoned that he could apply that same scheduling for the benefit of patients. “We decided to make the cultural switch from not trusting patients and families [to show up on time] to actually respecting patients' and families' time. We decided we'll give it a shot, we did, and it worked... The two things that I think really helped these families were that we tell them a specific time and we tell them a specific place.”

Further facilitating the new scheduling process, Dr. Gutheil's office calls the patient the day before surgery to confirm the surgery time and place and the patient's NPO (eating and drinking) instructions. Dr. Gutheil says the new approach has other benefits as well: Staggering patients throughout the day offers families some scheduling options and it also allows patients scheduled later in the day to enjoy a more normal eating regimen — as opposed to missing breakfast and lunch because of batching.

“The surgeons that haven't taken to this process still have a mindset that's surgeon-centric: ‘We don't trust these families, they never do what we ask them to do, etc.,’” says Dr. Gutheil. “And as we're trying to make the hospital a family-, patient-, child-centered place for care, there's a paradigm shift we have to make. Instead of making sure the surgeon's time is never wasted, we're trying to be respectful of the family's time.”

Dr. Gifford, a dentist, also was involved in the project and his patients were monitored as the non-control group. He, too, tried some facets of the new process, but his office experienced early miscommunications with SAS and initially stopped using the function. It also was a challenge for him to give up batching, in part due to the nature of his patients (many are non-English-speaking, travel long distances, and late additions to his schedule) and his own travel schedule (he commutes from Utah to Lubbock once a week).

Nonetheless, Dr. Gifford’s office gradually became more receptive to the use of SAS and more willing to stagger patient appointments using a spreadsheet tool created by the team (see *Day-surgery Scheduling Assistant*).

“We developed a spreadsheet where you could kind of plug and chug,” says Dr. Gutheil. “You say, ‘This surgery is going to take so long and we pretty much have a standard turnover time.’ And then [the spreadsheet] would spit out a number and tell you when they should arrive at the hospital. That was a very helpful tool for our offices to use.”

Dr. Gutheil adds that Dr. Gifford is now putting an estimate of surgery durations on his orders, which helps office staff use the scheduling spreadsheet, and wait times for his patients have fallen from 190 minutes to 57 minutes. As with Dr. Gutheil’s patients, no service recovery tickets have been used.

Stephens says there has been an increase in SAS utilization among all day surgeons. The team is enlisting other surgeons to follow the gamut of new scheduling practices and looking for another surgeon “champion” to step up and keep the momentum. There remains some resistant and distrust of the overall patient-centric process, but, she adds, “I think we’ve figured out what needed to be fixed, and it’s just a matter of continuing to roll it out to different physicians. Once we hit all of them, I think we’ll be in good shape.” Even without active engagement by all surgeons, the percentage of first surgeries that start on time rose from 58.5 percent in April to 72.7 percent in July.

Other team actions that have improved the process and reduced patient wait times include:

- **Waiting room location:** The waiting area after pre-op medication for patients and families had been located down a long hallway from day surgery and the ORs. A surgeon would leave an OR

Day Surgery Scheduling Assistant

Patient #	Patient Arrival Time	Surgery Start Time	Surgery Length (WI - WO)	Surgery End Time
1	6:15 AM	7:30 AM	0:45	8:15 AM
2	7:30 AM	8:45 AM	0:30	9:15 AM
3	8:30 AM	9:45 AM	0:45	10:30 AM
4	9:45 AM	11:00 AM	1:00	12:00 PM
5				
6				
7				
8				
9				
10				

Arrival Before Surgery
1:15

OR Room Turnover Time
0:30

Enter Into Yellow Box
Case Length Per Patient

Source: Covenant Children’s

after completing a surgery, walk down the hall, retrieve the next patient, and then be delayed while families said long goodbyes all the way down the hall.

The team's gemba study revealed this process to be a "time swallower," says Stephens. A team kaizen event quickly changed locations for the waiting room, taking over what had been a storage room next to day surgery. The surgeon now moves from a just-completed surgery a short distance to retrieve their next patient, saving time both coming and going, without negatively impacting the patient experience. Stephens says the change wasn't easy and required some capital input from hospital leadership, but it "made a huge difference."

- **Standardization and 5S:** The improvement team took what they learned at AEH regarding standardization and standard work and applied it to a range of activities and work areas:

Storage — Moving the storage room to accommodate the new waiting room presented an opportunity to 5S the new storage location (5S is a workplace organization methodology). The kaizen team also involved central supply and identified items that staff had previously ordered independently, and put them on periodic automated replenishment (PAR), which will minimize inventory and space and be more cost-efficient.

Recovery area — A 5S activity standardized and labeled all the work sessions in the recovery area that used identical equipment. Keck says this standardization allows staff pulled from other areas to more easily assist, cutting down on wasted job time. The recovery areas similarly worked with central supply and added orders to PAR. "We have the inventory as we need it and not a backlog of inventory," adds Keck.

Operating room — Dr. Gutheil was involved with a 5S activity in his operating room: "We now have splints, sutures, catheter padding, and other materials that are easily visible in glass-fronted cabinets. We don't have to go hunting and searching for things during surgery... We are better utilizing the resources we have in our room to minimize the time the nurse has to leave the room to find stuff." Stephens adds that day-surgery standardization and stocking on a daily basis from central supply will help Covenant Children's financially because it eliminates overordering and expired items.

- **Anesthesia medication process and IT changes:** The improvement team continues to study standardization of the anesthesia pre-operative medication process and the potential to staff a core group of anesthesiologists. A recent upgrade to the hospital's Meditech EMR has complicated this change, as well as delayed the team's progress in simplifying IT procedures for admitting and documenting patients.

Dr. Gutheil says the improvements in day surgery will continue, and believes the new scheduling approach can be rolled out to other areas, such as endoscopy and MRI. He has reported on the improvement team's progress to the medical center's Safety Operations Group, Medical Executive

Committee, and regional CEO, all of whom have been surprised at the amount of progress obtained from a one-week “crash course.”

An ongoing challenge, Dr. Gutheil adds, will be estimating surgery duration, especially for unique cases. Yet even in those instances where surgery durations are less predictable, the team has tried to put in countermeasures indicative of a patient-centric culture, such as calling patients that may be delayed and telling them to come to the hospital later in the day. He says that because of the importance of surgery times in driving wait times, another project in 2015 may be to examine OR processes, surgical time, PACU time, and block utilization. As chief surgical officer he will oversee these improvement efforts via a new Operational Excellence Team, but, importantly, he has found another physician to lead that project. “We’re getting more physician leadership and more nursing leadership involved and really developing all of it. We’re trying to develop the stuff from scratch, because we don’t have a lot of physician leaders or nursing leaders that are actively engaged in this kind of thing.”

“It’s the paradigm shift,” Gutheil adds. “The culture change is the most challenging thing to do. For other hospitals going through this, it’s just a matter of finding a physician, a surgeon, a *somebody* to get the ball rolling and then prove it. We had a hypothesis and we proved it, and then it’s really hard to dispute the proof... Going to a family/patient-centered model is the opposite of what we’ve been trained to do, and yet that’s the value and the quality that’s going to get paid for. It’s just one small step in that direction for us.”

AEH Commentary

The project to reduce day-surgery wait times at Covenant Children’s illustrates that changing a major process involving a critical healthcare role — surgeon — requires a highly visible and engaged individual in that role who will use new practices and demonstrate the new process. Even then, improvement initiatives in which nurses and physicians have core roles will still run into resistors and barriers, requiring ongoing communication and education. Two things helped to break down resistance and build buy-in at Covenant Children’s: First, sound data provided proof of shorter wait times when the new process was used (i.e., staggered scheduling and use of the hospital’s SAS function). Second, a simple spreadsheet for calculating surgery schedules removed a burden on surgeon office staff.

The improvement team’s work also reveals the difficulties in changing healthcare culture today. Learned behaviors that are decades old, such as a physician-focused mindset that seeks high OR utilization, take time to break down in favor of patient-centric processes.

Lastly, the Covenant Children’s improvement project shows how much can be accomplished when lean practices are understood, embraced, and deployed by those doing the work. Many on the cross-functional improvement team had little experience with lean tools and concepts prior to AEH, but they were, nonetheless, able to go back to their organization armed with the knowledge that would enable them to make substantial change.

About AEH

The Academy for Excellence in Healthcare blends in-person class time with hands-on project work, interactive simulations, and recurrent coaching, all aimed at helping healthcare teams spark actionable change at their organization. At the heart of this program is a real-world workplace problem each participant team selects and commits to solving through five intensive days on campus, followed several weeks later by two days of project report-outs and lean leadership training. This project-based approach pays immediate dividends and lays the groundwork for transformational change.



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