

ACADEMY FOR EXCELLENCE IN HEALTHCARE

IMPACT ASSESSMENT PAPER

Executive Summary

Optimizing Operating Room Utilization and Improving Discharge Times at Instituto Modelo De Cardiología Privado SRL in Cordoba, Argentina

Instituto Modelo De Cardiología Privado SRL is a private-patient institution in Cordoba, Argentina, which is owned and managed by physicians and has a strong 40-year history of cardiovascular care. The institution now includes more than 40 specialties, and has sought to offer the best comprehensive medical care. Its leadership wants to see the institution become the benchmark healthcare provider in Argentina, attain international accreditations, and further develop a healthcare model of value inclusive of quality and cost. To achieve those objectives, leadership has been implementing lean practices across the care continuum. Initial improvements focused on processes such as pharmacy and facilities maintenance. The institution now is applying lean in patient-facing processes and engaging physicians in those changes. It has sought support from the Academy for Excellence in Healthcare (AEH) for two major projects.

Optimization of operating room (OR) utilization

The institution was not fully utilizing its OR, which also was delaying OR care for some patients. A multidisciplinary OR committee reviewed practices and performance in the OR in late 2014, initially believing the primary problem was flow within the OR. The committee realized that the extended process, from the moment a patient identifies the need for surgery, contributed to OR underutilization. The committee spent 18 months reengineering pre-surgical processes, then focused improvements on activities in the OR. A team of physicians mapped the overall OR process, identifying seven distinct steps prior to, during, and after surgery: patient called to wheels in; pre-anesthesia; induction; first incision to last stitch; anesthesia recovery; pre-wheels out; and wheels out. The committee took these findings to AEH, where the team continued to evaluate and improve the OR process by using the five stages of the DMAIC cycle:

Define: Physicians examined OR processes and used the Five Whys approach to get feedback from frontline OR staff and surgeons. The team found scheduling of surgeries, pre-work, and pre-surgical procedures were not standardized. They also identified times when either surgeons were not in the OR when needed or the OR was not available to them when they needed it.

Measure: The team began detailed measuring of OR-related metrics, including pre-surgical process times, OR availability, OR scheduling times, block assignments per surgical teams, utilization of assigned blocks, and patient flow prior to and within the OR.

Analyze: With an improved understanding of OR utilization, the team set goals to:

- Increase patient evaluation/administrative capacity and eliminate scheduling delays
- Increase surgeon OR availability
- Increase OR utilization to 75 percent
- Increase first-case on-time starts to greater than 90 percent
- Improve staff satisfaction.

Improve: Improvements to OR processes have included development of a brochure to address patients' frequently asked questions, which can minimize problems that prevent delays; a digital tool to pass patients instructions and requirements for OR supplies to an OR services secretary; and an electronic tool to log and measure patient flow for the seven OR steps, which has led to more refined data on OR block utilization. The team assessed OR preferences among surgeons and assigned 75 percent of available time to blocks and kept 25 percent for emergencies. If surgical teams fail to use their block times, they will relinquish them or have them reduced, and other teams will be assigned longer or more blocks of time.

Control: The team's initial collection of three-month data offered insights into where permanent changes eventually could be made. First-case on-time starts were 73 percent, resulting in 338 minutes of lost time for 108 surgeries. The OR utilization was only 32 percent, and block utilization was just 52 percent by day and 30 percent by hour. By tracking the seven steps in detail, the team also identified 24.3 minutes of average transport time to wheels in, and there was an OR turnover time of 143 minutes.

The improvement team collected more data through December prior to hardwiring changes. Of the 22 departments assigned block times, seven should lose their block times and others should have block times decreased or reassigned. The team also is examining ways to streamline pre-OR processes, such as patient registration and transport to inpatient. With higher OR optimization, the team believes it can decrease the time the OR is open and staffed and, thus, decrease OR costs without any negative impact to patients.

Improving the patient discharge process and the times to discharge

Efforts to optimize OR utilization identified causes beyond the OR, including patients not being discharged in a timely manner, which delayed surgeries because no bed was available prior to or after the surgery. A physician team mapped the discharge process — patient admissions; prior-day announcement of the discharge to patients, families, and administration; morning rounds; involvement of specialties; executing discharge orders; and actual discharges — and began tracking times for:

1. *Discharge order:* When the discharge order is decided, during the physicians' rounds.
2. *Administrative discharge:* An administrative employee registers the discharge in the system, which begins the process of the patient being cleared by the insurer.
3. *Patient communication:* The resident provides discharge instructions to the patient.
4. *Effective discharge time:* The patient exits the room, and the room is ready for another patient.

Rounding practices affected discharges. Morning rounds (8:00 am to 10:30 am) took place in group

meetings away from patients; afternoon rounds (5:00 pm to 7:00 pm) occurred at bedside. A round could involve up to 65 patients, and only when *all patients* were discussed would physicians begin discharge orders (i.e., batching). The team's analysis showed that from January-July 2016, only 45 percent of patients were discharged prior to 12:30 pm, and 57 percent were discharged prior to 2:30 pm. Discharge processes were not standardized, and some discharges were delayed by other specialties or lack of beds.

The improvement team recommended that morning rounds be divided into three groups, with each group checking on approximately 20 patients at bedside, and morning rounds would be completed by 9:00 am. This change helped the team meet most of its goals for the *effective* discharge time:

- *Before 10:30 am (goal 40 percent)*: 8 percent January-July to 35 percent October-December.
- *Before 12:30 pm (goal 60 percent)*: 45 percent January-July to 71 percent October-December
- *Before 2:30 pm (goal 80 percent)*: 57 percent January-July to 82 percent October-December.

The team's work effectively moved discharge times to earlier in the day. Importantly, increased physician interaction with patients also improved quality of care, such as reducing length of stay and complications and improving patient satisfaction because every patient is seen by a staff member by 9:00 am. The team has continued daily control of discharges, and in early 2017 was focused on:

- Ensuring data registration for all discharges that take place at the institution
- Exploring additional root causes, such as non-medical causes of discharge delays
- Implementing a high-quality improvement plan based on increasing patient information about pathology, treatment, and home care
- Creating standardized information to give to patients.

The team also reviewed discharge data relative to readmissions, and for January-July readmissions were 3.17 percent. After the discharge-process improvements were implemented, readmissions fell to 2.84 percent for September-December.

[Read the full study of the two Instituto Modelo De Cardiología Privado SLR projects](#), which illustrates the impact that engaged physicians can have on improving healthcare processes and the importance of leadership involvement when examining and solving healthcare problems, especially those that are interconnected — such as discharge delays impacting OR optimization. Without a high-level view of issues and the power to make changes across departments, improvements can run into roadblocks. The following individuals led the projects, developed the AEH publications, and can be reached for more information: [Javier Sala-Mercado](#), MD, PhD;¹ [Javier Blanco](#), MD;¹ [Walter Quiroga-Castro](#), MD;¹ [Felix Zelaya](#), MD;¹ [Sebastian Balestrini](#), MD;¹ and [Susan Moffatt-Bruce](#), MD, MBA, and PhD.³

[About the Academy for Excellence in Healthcare:](#) AEH 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. To learn more about AEH, contact [Margaret Pennington](#), Faculty Director, or [Beth Miller](#), Program Director.

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