



stratified analysis of sepsis data (e.g. by admission source) identified clinical variation and helped prioritize process improvements

500

day reduction in knee surgery stays over 1 year, representing 1/3 day per case



development of customized benchmarks and stretch goals to optimize hip and knee surgery outcomes



SCL Health uses data and analytics from Kaufman Hall's Peak Software to improve clinical and financial performance

Challenges

SCL Health is a nine-hospital faith-based system, with three safety-net clinics, one children's mental health center, and approximately 200 ambulatory sites in three states—Colorado, Kansas, and Montana. Based in Broomfield, Colo., this not-for-profit health system has 15,000 full-time associates, more than 500 employed physicians, and annual revenues of \$2.4 billion.

SCL Health inpatient sites are diverse, ranging from a major academic medical center, to suburban hospitals, rural regional referral centers, smaller rural hospitals, and a critical access hospital.

SCL Health recognizes that data and analytics are not “nice-to-have” tools; rather, they underpin the organization's ability to achieve high-value care, defined as person-centric care with improved quality and outcomes at lower costs. With such tools, SCL Health can drive the performance improvement needed to succeed in a value-based environment.



Monitoring performance against relevant peer groups was deemed essential for determining the greatest clinical, financial, and/or operational improvement opportunities. “Organizations like to find ‘one source of credible data.’ They don’t want to have to consult 14 different portals to understand the breadth of a care delivery issue,” says Chris Bliersbach, Senior Director of Clinical Outcomes at SCL Health. “Our prior vendor did not offer the analytic flexibility, data integration, or wealth of benchmarking capabilities that we felt were necessary.”

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Solution

In the Summer of 2015, SCL Health selected Peak Software as its solution for benchmark data and advanced analytics. Thousands of benchmarks available on Peak’s cloud-based platform enable leadership and quality teams to quickly and easily compare performance using historical trends, and/or performance targets, and peer group data. Organizations then can identify areas of undesirable variation to target for improvement.

“The firm’s Peak Software enables us to integrate data sources, perform custom analytics, access a large library of benchmarks, and develop custom benchmarks,” comments Bliersbach. “The solution allows us to filter and adjust an analysis based on various criteria, such as a certain type of patient or a particular payer. We can integrate data sources, such as our ADT feed, EPIC, and Press Ganey to see the whole picture through volume, cost, charges, supplies, quality, patient experience, and many other metrics.”

Results

Addressing Unwarranted Clinical Variation

One of the first clinical areas of focus was sepsis, which is a potentially life-threatening infection. “We needed to understand how our care sites were performing on the specific outcomes and process performance measures in anticipation of CMS’ evidence-based measures, which became effective with discharges as of October 1, 2015,” says Bliersbach. “A systemwide approach would enable us to answer the question; Where are our opportunities to improve?”

An analysis using national Medicare benchmarks available through Peak Software indicated that SCL Health had a 17.4 percent mortality rate for patients with severe sepsis and septic shock, placing it favorably above the 50th percentile nationwide. Its length of stay (LOS) for these patients was 7.08 days—two days longer than average LOS, putting SCL Health performance at about the 25th percentile nationwide.

SCL convened a systemwide Sepsis Collaborative with representatives from its hospitals and system services including quality, information technology, and supply chain. The Collaborative set a first-year target of achieving the 75th percentile in mortality rate and 50th percentile in LOS. “The goals were to determine unwarranted variation in our care processes and outcomes and how we could standardize that care to meet the improvement targets,” explains Bliersbach.

Kaufman Hall’s Peak Software allowed SCL Health to stratify its sepsis data by a variety of factors. For example, analysis of the patient data by admission source showed that the majority of patients with severe sepsis or septic shock were “walk-ins” from home settings. For this population, the mortality rate was near top quartile performance at 15 percent.

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Importantly, for SCL Health care sites that serve as regional referral hospitals, patients with severe sepsis who were transferred to them from outlying hospitals had a much higher mortality rate of 35 percent. For these regional hospitals, the improvement opportunity was more about working with the referring hospitals to assure that early goal-directed care is delivered by the referring hospital or during transit prior to arrival at the referral hospital.

The first three to six hours of care is critical with sepsis patients. Timely administration of fluids and antibiotics can be the difference between a patient's survival or death. "The data showed that we had an opportunity to save lives by working with referral hospitals to ensure that treatment is started prior to patient transfer, during the transfer process, and in our units on admission," says Bliersbach.

Three subgroups of the Collaborative started to work on improvement initiatives. A tools and technology team addressed the order sets that would drive the care needed for patients with sepsis in the first few hours following admission. This team also developed a "best-practice alert" to identify potential patients with sepsis as soon as they "hit the door." A second subgroup addressed resources for staff and clinician education on use of order sets and the alert. The third subgroup on data analytics and reporting developed performance reports for the care sites using Peak Software.

"We now have a robust tool that lets us keep a pulse on how we're performing week-to-week and month-to-month," said Bliersbach. This is critical to the ability to make course corrections, as necessary. "The data analytics are totally integrated—used in the beginning to scan the environment of comparative benchmarks in order to identify key issues, in the middle to monitor progress in addressing those issues, and at the end to evaluate whether improvement targets have been met. While we're in the early stages of the sepsis initiative, we expect to meet our performance targets for Year 1," says Bliersbach.

Development of Custom Benchmarks

Another important collaboration between SCL Health and Kaufman Hall involved creating custom-made benchmarks that could spur performance improvement beyond usual benchmark performance levels.

Improvement in the outcomes of patients with hip and knee joint replacements is one area where many organizations are focusing their efforts due to the mandatory bundled payment program called Comprehensive Care for Joint Replacement, which was rolled out by the Centers for Medicare & Medicaid Services in April 2016.

Considerably before this program's implementation, two SCL Health care sites and a commercial payer already had been particularly interested in hip and knee surgery improvement. Both care sites had exemplary performance with LOS as measured against Medicare and all-payer benchmarks in the Peak database. But the sites wanted an even more ambitious target for LOS reduction—one that would not sacrifice quality, as measured by complication rates, for shorter LOS.

Customized benchmarks would provide a stretch goal appropriate to best-practice hip and knee surgery outcomes at the care sites. To develop the benchmarks, SCL Health and Kaufman Hall collected and analyzed data from Healthgrades on organizations that had 5-star ratings for hip and knee surgery. Importantly, eligibility as organizations that could offer stretch goals for the care sites also required appearance on the *U.S. News and World Report* Best Hospitals list, and a similar patient volume to the care sites. These three criteria became the criteria for qualification as an appropriate peer organization.

Eighty hospitals providing knee surgery and 56 providing hip surgery met the criteria for "best-practice" organizations with both low LOS and low complication rates. Data from those organizations were used to establish the tailor-made benchmarks.

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Benchmark	LOS Benchmarks for Hip			LOS Benchmarks for Knee		
	50th	75th	90th	50th	75th	90th
Medicare	3.12	3.02	3.01	3.19	3.01	2.18
All Payer	3.12	3.02	2.60	3.19	3.01	2.79
Best Practice	2.67	2.13	2.12	3.11	2.75	2.17
Care Site #1	2.99			2.81		
Care Site #2	2.44			2.88		

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The Table above illustrates the customized best-practice LOS targets and current LOS performance for care sites 1 and 2. For example, to achieve 50th percentile on LOS for hip surgery, care site #1 would need to lower LOS from 2.99 days to 2.67 days. Care site #2, which already was achieving LOS results better than 2.67 days could use the 75th percentile of 2.13 days or the 90th percentile of 2.12 days as its goal. “We worked closely with Kaufman Hall to develop just the right benchmarks that would enable us to set stretch goals, the progress towards which we then could monitor regularly,” says Bliersbach.

Again , this initiative to improve outcomes is in the early stages, but both care sites have improved their knee-LOS substantially year-to-date compared to 2015. LOS has decreased nearly one-third of a day across all knee cases representing nearly 500 saved days. Through development and implementation of customized stretch benchmarks, SCL Health is positioning its care sites to better achieve the goal of being a best-practice organization in hip and knee surgery.