RTLS MEANS BUSINESS (INTELLIGENCE)

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The US ranks as the top nation in the world when it comes to healthcare expenditures, reaching $9,403 per capita in 2015 (source: Worldbank.org data).

With these costs expected to continue to rise, it is becoming more and more apparent that data analytics and business intelligence (BI) can play a role in understanding the drivers behind rising healthcare costs while also providing the necessary insights to implement business process improvement initiatives. The goal of any business process improvement initiative is typically to identify productivity challenges, initiate positive change and make meaningful enhancements that improve the overall results in a measureable way. The insights derived from data analytics and BI makes process improvement smarter helping to reduce costs, increase revenue, improve patient safety and outcomes while, at the same time, helping facilities comply with regulations and standards.

Real time Business Intelligence

At the Altru Advanced Orthopedics clinic, part of the Grand Forks, North Dakota-based Altru Health System, the use of a real-time location system (RTLS) revealed productivity obstacles clinic administrators needed to address. The RTLS-derived insights did not completely surprise the site's clinicians, in fact, they confirmed precisely what many Altru caregivers already knew and provided the necessary data to convey the knowledge and enable targeted corrective and continuous improvement actions. Real-time data offered the opportunity to see variations as they were occurring. To help the team with its analysis of those variations, Eide Bailly, a consultancy focused on healthcare process improvement, system design and implementation, analyzed a multitude of data and prepared presentations so they and Altru could identify, understand and ask relevant questions to uncover areas of opportunity and reduce variation of the care process.

Areas that were evaluated included patient wait times, patient cycle times, staff workflow and staff productivity. Instead of launching another well-intentioned initiative around these areas based on a hunch that inefficiencies existed, Altru leadership consumed real-time data to make precise, focused observations that would help them develop a meaningful and sustainable improvements.

RTLS-derived operational data

One of Altru's goals was to optimize processes to ensure optimal and efficient utilization of resources. Typically, RTLS has been used to locate missing or hoarded equipment like wheelchairs or IV pumps. However, more advanced use cases include observing and analyzing caregivers' movement, and/or their time through the use of RTLS, leading to optimal and efficient utilization of resources. To achieve this, Altru determined they needed the most accurate and reliable RTLS platform to fully understand if process optimization was being impacted or was being achieved.

Altru chose to partner with Sonitor and by partnering with Sonitor and deploying their ultrasound-based RTLS, Altru was confident that they would get the accuracy and reliability they needed to evaluate "value added time" (VAT) and "non-value added time" (NVAT), for all providers. To establish a baseline, Altru launched an initial survey period. This showed that the VAT, which is the time that the provider spends face-to-face with the patient, was relatively low. Further, the survey revealed that providers were spending upwards of 50% of their time on administrative tasks away from patients – considered NVAT. This finding validated providers' concerns and brought administrators into the conversation about how to improve provider time utilization.

With the RTLS-derived data analytics and BI on the table, the question became: Where are the inefficiencies and what actions do we need to take to increase providers' VAT? That line of questioning led to a review of the amount of time that the patient was spending in each phase of care during a clinic visit. By reviewing past data against real-time patient flow information now available through RTLS, bottlenecks could be identified and addressed. Drilling down further, those bottlenecks could be distinguished from unexpected blockages or intermittent delays, both of which called for nimble responses.

The results of this exercise over a five-month period were dramatic. Altru successfully reduced the average cycle time per patient by 25%, increasing patient satisfaction. They converted over 4,500 minutes each week of NVAT to VAT which allowed them to add more patient visits resulting in additional surgical cases, having a direct impact on the budget. Nursing hours were also dramatically reduced allowing nursing staff to be reallocated to other lines of service, maximizing utilization and optimizing resource capacity needs. Altru capitalized on all of these improvements to ultimately drive a 24% increase in annual net revenue demonstrating a rapid and impressive return-on-investment.

Provider time vs. administrator time

Altru leveraged this knowledge to help expand providers' VAT. To find out where providers' time was being wasted, the next question was: What are the tertiary processes around patient care consuming providers' time? With RTLS, the caregiver's time could be correlated to various phases in the patient's cycle time. The trends and the outliers could be analyzed and adjusted on a real-time basis.

The real-time aspect was important because it closed a perennial gap between providers' and administrators' understanding of workflow and performance. Providers work at the speed of care, while administrative teams work at the speed of the information coming to them. When the administrative team is working in the past and the provider team is working in the present, the gap can

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cause frustration, miscommunication, and potential mistrust. By giving the administrative team access to real-time operational intelligence, they could start diagnosing and addressing issues immediately, thereby winning over clinicians who could see the beneficial effects of those focused initiatives.

Seeing the big picture

By many accounts, healthcare has devolved into a system poorly suited for the smooth flow of information and patient experiences. Specialization, functional silos and disparate billing practices as well as a myriad of other forces tend to result in rewarding the accomplishment of individual tasks rather than patient-based outcomes. Accountability is often limited to the individual rather than to the team or the system.

As illustrated by the outcomes at Altru, it is clear that RTLS can be instrumental in getting a care delivery team on the same page creating new conversations that are data driven and fuels innovation. This will not always be a comfortable process, but the dramatic picture that RTLS data reveals forces people out of their silos and into a big-picture vision of the total continuum of care.

When RTLS data is used to connect different spheres of work, it can help create a real-time representation of patient care that makes sense to both administrative and clinical leaders alike. Operational data that was unavailable just years ago is proving to be highly effective. That representation ultimately reveals challenges as well as opportunities but the shared vision is crucial to foster an effective culture of continuous improvement. Results like Altru's, which were achieved after putting RTLS-driven business intelligence to work, illustrate the practical and strategic value of how better information drives better decisions and design of care services. Becoming operationally intelligent releases innovation that is needed in today's care environment.