Texas Children's Hospital

HOUSTON, TX

Saving children's lives with data

Texas Children's Hospital uses EPSi™ in many ways to analyze patient data and track clinical results. For example, an initiative to alert renal clinician experts to real-time trends in children on Continuous Renal Replacement Therapy (CRRT) helped inform performance initiatives that improved survival rates from 38.8% to 62.7%. Similar programs help identify children facing malnutrition and swallowing difficulty, with the goal of improving care for vulnerable, critically ill patients.

Experience

Texas Children's is a nonprofit organization consistently ranked as one of the best children's hospitals in the United States. The organization has the largest pediatric primary care network in the country and sees patients from approximately 60 countries each year. Texas Children's is known for its success using innovative medical procedures. Like many healthcare organizations, Texas Children's must continuously search for ways to reduce costs while maintaining the highest quality of care. "We're facing the same financial pressures all hospitals are facing today," Carolyn Smith, assistant director of decision support, said. "Reimbursements are declining and we still need to grow to meet our patients' needs while containing cost."

> "EPSi reports have made all the difference in terms of assessing quality of care in this fragile population...It got us started on the macro-view, which has allowed for a more recent micro-assessment of quality in this population."
>
> **Helen Currier,** *Director of Renal and Pheresis Services*

CLIENT PROFILE:

Top-ranked
children's hospital

40
pediatric subspecialties

650 beds

117,000 emergency visits annually

32,000
admissions annually

27,000
surgeries annually

10,700
employees

EPSi SOLUTIONS:

- Budget Manager
- Cost Manager
- Product Line Analyst
- Strategic Product Budgeting

> The EPSi reporting system has allowed us to have a snapshot of the current and recent patients… duration of treatment, location of patients and some treatment details such as primary diagnosis… This was the genesis of our quality improvement effort in renal extracorporeal therapies, which has since flourished.
>
> **Dr. Ayse Arikan,** *Attending Physician Renal and Critical Care*

Solutions

Texas Children's is a long-standing Allscripts client and used a legacy solution for 15 years prior to making the switch to EPSi in 2011.

"It took a collective effort to make a change this significant, and we've learned a lot along the way," Smith said. "I have to give kudos to the Allscripts implementation team. Whether they were here on site, or answering emails, they supported us through the whole process. They were extremely helpful."

Senior Decision Support Analyst Mary Watson agrees the implementation team helped smooth a challenging transition. "Our Allscripts implementation expert could translate the ways we worked in our previous solution into EPSi. She understood, and that was a big help," she said.

Best EPSi feature: reporting capabilities

Smith and Watson agree that EPSi offers significantly better reporting options. "In the EPSi portal I can pull data from different files into one report," Watson said. "In the old solution these reporting options either weren't available or would have taken more effort."

"The reports in EPSi are both logical and visually appealing," Smith said. "They make it easy to follow progression over time." She also appreciates the ability to easily load data and the ability to customize it with conversion tables and other tools EPSi provides.

While Texas Children's has applied most of this patient-level analysis reporting to financial reporting and for assisting clinicians, it has unexpected additional benefits, too. "Our development team at Texas Children's uses EPSi reports to help secure major gift funding from individuals, corporations and foundations for capital initiatives, programs, research protocols and charity care," Watson said. "Major gift officers use EPSi report data in funding proposals. Geographical statistics, underfunding and charity rates, patient volumes and summarized service line data can prove important to a donor's decision to make a gift."

Consistent monitoring of malnutrition cases

Smith notes some of the ad hoc report requests become a more focused initiative, such as the work Texas Children's is doing to identify and treat malnutrition cases. The team uses EPSi to identify patients that have malnutrition diagnoses.

"Nutrition can impact outcomes in children with acute and chronic diseases," Director of Clinical Nutrition Services Claudia Conkin said. "Reports were created in EPSi to monitor the incidence and severity of malnutrition in our

OUTCOMES:

- **Over two years, a 38.8% to 62.7% improvement in the survival rate** for children with acute kidney injury requiring Continuous Renal Replacement Therapy (CRRT) by transforming data into meaningful information for performance improvement
- Better evaluation of babies with swallowing difficulty, to reduce risk of aspiration
- Improved processes for identifying risk for malnutrition
- Improved processes for pediatric patients transitioning to adult care providers

> We have a lot of patients who have been with us since they were tiny babies. They have lifelong conditions that require special care as they grow… EPSi runs a report of inpatients who are over the age of 17, so we can build relationships with clinicians who will care for them when they go out into the community."
>
> **Mary Watson,** *Senior Decision Support Analyst*

patient population. It also provides us with data to ensure we are allocating clinical resources to implement optimal interventions effectively."

Transition medicine program enables better patient care

Because EPSi can help efficiently extract and analyze data about specific patient populations, it makes it easier to address specific care needs for these groups. For example, Texas Children's developed a transition medicine program to help the population find appropriate care providers when they become adults.

"We care for a lot of patients who have been with us since they were tiny babies. They have lifelong conditions that require special care as they grow," Watson said. "EPSi runs a report of inpatients who are over the age of 17, so we can build relationships with clinicians who will provide care for them when they go out into the community."

Outcomes

Improving survival rates for patients on Continuous Renal Replacement Tharapy (CRRT)

Some critically ill children in the hospital may develop acute kidney injury (AKI), which is an abrupt decrease in kidney function. Patients who receive CRRT and develop AKI have a higher mortality rate.

For certain underlying causes, intervening with CRRT can prolong and often saves lives. CRRT is a mode for renal replacement therapy for unstable, fluid-overloaded, septic patients in acute renal failure, especially in the intensive care unit setting.

For quality monitoring, Texas Children's renal doctors wanted more efficient ways to identify these patients. They asked for reporting that could alert them when an attending physician ordered CRRT for a patient within the hospital's critical care system.

"The EPSi reporting system has allowed us to have a snapshot of the current and recent patients…duration of treatment, location of patients and some treatment details such as primary diagnosis. It is accessible anytime we want," said Dr. Ayse Arikan, attending physician in renal and critical care. "This was the genesis of our quality improvement effort in renal extracorporeal therapies, which has since flourished."

In 2013, the survival rate for CRRT patients at Texas Children's at discharge was 38.8%. After providing these timely EPSi reports with relevant information to the clinicians, to both act and effect change, the survival rate jumped to 62.7% in 2015.

"EPSi reports have made all the difference in terms of assessing quality of care in this fragile population," Helen Currier, director of renal and pheresis services, said. "These reports got us started on the macro-view, which has allowed for a more recent microassessment of quality in this population."

Evaluating neonatal patients with swallowing difficulty

Children who do not swallow safely are at risk for feeding and respiratory problems. Unfortunately, the primary tool to assess swallowing disorders is invasive and its radiation may have long-term negative effects.

Occupational therapists approached Watson with a request to develop a way to identify infants at risk for aspiration. Using EPSi, Watson could identify NICU patients who were:

1. less than six months old,
2. had a swallow study, and
3. had occupational therapy evaluations.

"Texas Children's is looking for the best and most appropriate intervention for these babies," Watson said. Data from this initiative is having a direct clinical impact, according to occupational therapist Rose Toruno. "Knowing what clinical signs to watch for at each age helps me determine what will work best to prevent aspiration for each infant," said Toruno. "The results of the study have changed the way we practice at the bedside."

What's next for Texas Children's Hospital

Addressing malnutrition, swallowing difficulty and renal therapy are just a few examples of how Texas Children's is using EPSi and other data to save children's lives. Smith and Watson anticipate EPSi will continue to help Texas Children's identify opportunities to improve care and reduce costs for its patients while supporting leading-edge initiatives.

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