Overview

In 2010, Children’s Hospital of Orange County (CHOC Children’s) developed a high-level goal to reduce serious harm utilizing a standardized scale and morphed this effort into an organizational strategic goal in 2012. Since inception, CHOC Children’s achieved a 900 percent reduction in serious harm events.

CHOC Children’s initially, and then in collaboration with a network of national children’s hospitals, also set out to reduce the occurrence of hospital-acquired conditions (HACs) utilizing the EHR and other information systems. One successful focus was on catheter associated urinary tract infections (CAUTI). Through education, a standardized care bundle and efforts to minimize urinary catheter use and duration, CHOC Children’s achieved meaningful improvements in CAUTIs, including an overall reduction in CAUTI rate with only one instance in 2016, an increase in months with zero cases of CAUTI, and a decrease in use of urinary catheters.

Situation

In 2012, documentation of urinary catheter insertion and maintenance was completed in the EHR via a module that tracked and mirrored patient vital signs and key assessment items in paper charting. With this functionality, nurses only documented the existence and size of a catheter upon insertion, and only noted that catheter care and maintenance was completed.

CHOC Children’s recognized the need for a more comprehensive approach to documentation and education of urinary catheter care and CAUTI prevention. They developed recommendations for CAUTI prevention based on published guidelines. A multidisciplinary team developed catheter insertion and maintenance documentation tools and workflows. Nurses from the clinical informatics group led the design of the overall workflow, as well as technical configuration of the orders, documentation tools and alerts. They involved representatives from the critical care, infectious disease, infection prevention and epidemiology, and quality departments.

Additionally, the team created and administered a staff education module which provided didactic knowledge around evidence-based practices for CAUTI prevention. CHOC Children’s implemented the documentation tools, workflows, staff education modules house-wide in 2013.

CAUTI rates and adherence to the clinical workflow were tracked in order to measure the effectiveness of CHOC Children’s efforts. As a result of tracking, in 2014, they revised catheter insertion and maintenance processes to reflect steps in evidence-based practices. In addition, daily inpatient culture results were reviewed by the infection prevention staff. If positive cultures were identified, the chart was reviewed to determine if it was a CAUTI. CAUTIs or other HACs were entered into the organization’s electronic safety reporting system.

Results

- Reduced hospital-wide CAUTI rates by 51.2% and achieved several time periods 0 CAUTIs and only 1 instance of CAUTI in 2016
- Reduced PICU catheter usage by 35% and experienced 0 CAUTIs in almost 2 years
- Maintained 90-100% hospital-wide compliance of documentation with the catheter insertion and/or care bundles
Outcomes

The implementation of care bundles and their integration into the nursing task list over the past four years drove significant progress toward meeting CHOC Children’s goals. The comprehensive documentation and embedded best practices were essential to the decline in CAUTI. Improvements included several significant time periods with zero CAUTIs and only one instance of CAUTI in 2016 (at time of case study submission). CAUTI rates dropped by 51.2 percent, from a mean pre-project rate of 1.86 per 1,000 catheter days to 0.9 per 1,000 catheter days in 2015.

In addition, the CHOC Children’s pediatric intensive care unit, the pilot unit for this project, reduced catheter usage by 35 percent and has had zero CAUTIs in almost two years.

Financial Considerations

Initial project costs, including training and labor, were $60,196. There was an estimated $7,200 per CAUTI in cost avoidance expenses. CHOC Children’s determined savings included three avoided CAUTIs in 2014, saving $21,600.

Lessons Learned

CHOC Children’s shared these lessons learned.

- The strategic focus on reduction and prevention of HACs at CHOC Children’s was key to stakeholder engagement. Buy-in from the top-down from leaders at all levels fostered a shared commitment to the CAUTI reduction project goals.

- The addition of anything to a clinician’s already lengthy list of protocols and action items is often viewed as a negative, unwarranted change. Leadership mitigated that negativity by transitioning the focus from the additional work to the challenge of hitting zero harm events and improving patient care. This motivated end users to embrace the training, technology and associated workflows.

- The build process proved to be both challenging and enlightening. In early 2014, an issue was identified in which the appropriate care tasks were not triggering to the nurse’s task list when the patient had a catheter. The team discovered that task list integration in the EHR was only tied to one type of Foley catheter order rather than to the multiple orders and orders embedded within order sets. The team removed duplicate or outdated orders, and integrated the remaining orders into the standardized catheter care process.

- This project resulted in technology driving an impactful change to culture. Having a descriptive follow-up for catheter necessity embedded within the catheter care bundle workflow prompts daily clinical discussion about the device. This conversation has been adopted as not only a task to complete within the EHR, but also as a necessary part of patient care. That shift has had a significant impact on decreasing the time a patient has a urinary catheter, and the same influence has spread to other invasive devices and technologies within the organization.

- In January 2016, the aggregation of catheter care and maintenance bundles compliance data was discontinued due to high bundle compliance. In hindsight, this wasn’t the right approach because there have been lapses in bundle compliance. Regular compilation and review of bundle compliance have been reinstated so all instances of noncompliance are addressed in a timely manner.

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