Objectives

This stand-alone urban children’s hospital ED aims to improve team-based care, situational awareness, and patient outcomes through team huddles and associated interventions (figure 1).

Methods

Development of the CAHR-AT utilized vital signs data of >1 × 10^6 patients to derive standards. Logistic regression and ‘machine-learning(AI)’ identified factors showing the highest association with gold-standard sepsis cases and applied weights to each factor for optimum sensitivity. A nursing assessment form was added to the dyad assessment process and visual redesign of the tool interface went into effect using a stoplight approach with red, yellow, and green lights indicating patient acuity and resources needed (figure 2).

Results

It has been over 239 days (934 alerts) since the last unanswered alert by the provider/nurse dyad (figure 3). The average percent of CAHR patients with a completed initial huddle increased from 9.3% to 45.3% (figure 4). Higher CAHR-AT scores were associated with higher severity-of-index (SOI) and acute kidney injury (AKI) within 48 hrs of arrival (figures 5 and 6). Preliminary data show CAHR-AT patients with a score ≥8 who received the bundle (IV-fluid bolus and IV-antibiotics) significantly shorter length of stays (figure 7).

Conclusions

CAHR-AT predicts physiologic decompensation and AKI. Its processes promote team-based critical thinking and improve patient outcomes. Next steps include prescriptive order sets for both red/yellow stoplight activations and spread to inpatient units.

Abstract 1 Figure 5 Association of CAHR-AT score and severity of illness

Abstract 1 Figure 6 Association of CAHR-AT score with incidence of acute kidney injury (AKI) among admitted patients within 48 hrs of arrival

Abstract 1 Figure 7 Differences in length of stay (LOS in days) between CAHR+ patients who received the bundle (IVF and IV antibiotics) vs. those who did not

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2 IMPROVING THE TIMELINESS OF CARE FOR CHILDREN WITH TESTICULAR TORSION IN THE PEDIATRIC EMERGENCY DEPARTMENT

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Background

Early diagnosis and timely surgery are critical to treat children with testicular torsion. Only 33% of patients met the hospital goal of ‘critical diagnosis to operating room time of 60 minutes or less [CDOR60]’ prior to starting the QI project.
Abstract 2 Figure 1

Testicular Pain evaluation Simplified Failure Mode Effects Analysis (sFMEA®)

Interventions
- Nurse education to alert providers
  - Providers education to evaluate patients in the triage
  - 3 weekly emails to providers about compliance

Current Process
- Triage and physician alert
- TWIST score
  - US communication of result
  - Shortened pre-op checklist and IV
  - Urology eval and case request
  - Proceed to OR
  - Discharge patient

Failure Modes
- Could not identify the problem in triage
  - Physician not available for evaluation
  - TWIST score not done
  - TWIST score not documented
  - Not able to do TWIST score due to patient condition or difficult exam
  - Provider did not act on TWIST score
  - Delay in communication of study result
  - Delays in IV placement
  - Delays due to checklist
  - Delay in responding to page
  - Delay to alert and initiate OR- anesthesia, OR staff
  - OR not available
  - Physician ordering additional tests
  - Delay in creating discharge document

Abstract 2 Figure 2

Improving the Care of Children With Testicular Pain
Key Driver Diagram (KDD)

Project Leader(s): Sri S Chinta

Global Aim
- To provide timely and efficient care for children presenting to the EDTC

SMART Aim
- To implement and increase the utilization of TWIST scores for 100% of children presenting to the ED with testicular pain with a concern for testicular torsion

Population
- Children presenting to CHW emergency department

Key Drivers
- Increase provider knowledge about TWIST score
  - Create a tab in EPIC for documentation [LOR #]
  - Review and disseminate TWIST score guideline [LOR #]
  - Educate triage nurses to alert providers if a patient with testicular pain checks in [LOR #]
  - Educate trainees [LOR #]
  - Tag TWIST score to US order [LOR #]
  - Make it easy to document TWIST score
  - Create order panels in EPIC [LOR #]

Legend
- Potential intervention
- Active intervention
- Adopted/Randomized intervention

Revision Date: 5/13/2019 (v4)

Interventions (LOR #)
- TWIST score documentation champions in the ED-APPA [LOR #]
- Periodically email providers about their TWIST score documentation compliance [LOR #]
- Collaborate with urology to include TWIST score in the initial communication [LOR #]
Abstract 2 Figure 3

Abstract 2 Figure 4
Objectives The objective of the quality improvement project was to increase the utilization of TWIST score, a validated clinical scoring system from 0% to 80% over 12 months period for children evaluated for testicular torsion, as a means of increasing the number of patients with CDOR60.

Methods Deploying the Institute for Healthcare Improvement Model for Improvement, we formulated an aim statement and identified key drivers. Of our interventions, successful implementation of the TWIST score in the emergency department (ED), with a guideline to support earlier notification of urology for high-risk patients with testicular pain, was determined to be the highest impact intervention. We educated providers and gave biweekly feedback about guideline adherence, created order panels and documentation tabs in our electronic medical record to encourage documentation.

Results Between September 2018 and April 2019, TWIST score documentation improved to >80% and was sustained at that rate for 4 months. After implementation of the guideline, the critical diagnosis to OR time of 60 minutes or less was achieved in 12 out of 16 patients diagnosed with testicular torsion in the ED [75%] compared to our baseline of 33%.

Conclusions A quality improvement project to improve the timeliness of care for children with testicular torsion resulted in delivery of expedited surgical care for these patients.

Abstract 3 Figure 1