In a Level II Trauma Center, pediatric cases are reviewed during Performance Improvement and Patient Safety committee. It was identified that active warming measures were implemented on a normothermic trauma patient. There were no current standards for measurement, remeasurement, assessment of temperature, and warming interventions with trauma patients in Emergency Department (ED). Through multidisciplinary collaboration and review of current evidence, need for a standardized pediatric trauma thermometry decision-making algorithm was determined; gaps in best-practice knowledge were identified. Further discussion identified needs to review patient temperatures and implement warming measures. Trauma Registry identified that some trauma patients were transferred significantly hypothermic without supporting temperature documentation. Inadequate documentation did not support if staff were obtaining temperatures, reassessing patients after warming measure implementation, or if interventions were effective in trauma patient management.

In this quality improvement project, a question was formulated: In pediatric ED nurses caring for trauma patients, does use of a standardized thermometry algorithm for monitoring and documenting body temperature compared to no standard care process, improve temperature monitoring and documentation as well as nurse knowledge? The aim was to improve temperature monitoring and documentation in trauma patients by: (1) facilitating critical thinking in ED nurses during the assessment phase through a decision-making algorithm and (2) evaluating initial and ongoing temperature monitoring and documentation.

The trauma registry was utilized to review aggregate data to identify opportunities for system improvement or refinement of quality indicators. Multiple resources were utilized: electronic health record, trauma nurse manager, ED clinical educator, medical directors from Pediatric Intensive Care Unit and Trauma, trauma registry, and Trauma process improvement coordinator. Data from October 2014 through February 2016 were abstracted from 3350 trauma patients with an average temperature of 36.8°C. Warming measures were identified as: warm blanket, forced-air rewarming, and warm fluids. Out of 894 activations, 78% had documented warming measures. Post survey records through December 2016, reported that number of patients receiving warming measures when not warranted decreased from 85% to 63%.

To assess project effectiveness, a survey was developed to assess critical thinking and core knowledge of pediatric trauma thermometry. This survey was distributed to ED nursing staff prior to and after implementation of education on the trauma patient thermometry decision-making algorithm to assess impact on knowledge and critical thinking. Also, evaluation of normothermic patients receiving warming measures was completed through retrospective and current chart reviews.

Use of registry data to increase awareness of quality indicators/trends and real-time trauma chart audits by Trauma Nurse Leaders on temperature monitoring, documentation, and interventions led to project success. One limitation was that only 35% ED nurses (45/127) responded to survey. Lessons learned include the need for strategies to engage nurses in survey completion and provide staff members the opportunity to explore the rationale behind the quality initiative.

All ED nurses were educated on thermometry algorithm impacting improved trauma patient management. ED nurses are now proactive in temperature management with a goal of normothermia for every trauma patient. Future actions include a new quality indicator for nurses to monitor patients with warming measures every 30 minutes based on thermometry algorithm; assessed through chart review and registry data.