IMPROVING QUALITY OF POST-CARDIAC ARREST CARE IN THE PEDIATRIC INTENSIVE CARE UNIT

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Learning Objectives: It is estimated that thousands of children will suffer a cardiac arrest each year in the United States. Data show that outcomes after these devastating events are improving, however, neurological sequelae remains common. Post-cardiac arrest syndrome (PCAS) is a complex pathophysiologic process responsible for a variety of morbidities, most notably neurologic injury. There is increasing evidence that modifiable variables in post-cardiac arrest care can affect neurologic outcome. In this quality improvement project, we aimed to improve post-resuscitation care by implementing a post-cardiac arrest bundle and an associated electronic medical record (EMR) order set.

Methods: To standardize post-cardiac arrest care in the Pediatric Intensive Care Unit (PICU) at Children’s Medical Center-Dallas, a post-cardiac arrest bundle was created. This bundle was adapted based on information from a multi-center cardiac arrest quality improvement project to address modifiable parameters in PCAS such as oxygen saturation goals, mean arterial blood pressure goals, and temperature control. Education was presented to PICU providers, the bundle was distributed via email and a standardized order set was created in the EMR. These interventions represent the first PDSA cycle that were implemented in January 2018. Patients who suffered in-hospital and out-of-hospital cardiac arrests were included. Twenty post-cardiac arrest variables were collected using orders entered into the EMR during a 6-month time period prior to implementation (n=14) and 5 months after implementation (n=12). Our primary outcome was percentage of orders placed in the EMR pre-implementation compared to post-implementation for each variable.

Results: There were significant improvements in the percentage of orders placed in the EMR according to the post-cardiac arrest bundle. A considerable percent increase was noted in 17 of the 20 variables. The most notable improvements in EMR orders were oxygen saturation goals (71% increase in order placement), continuous core temperature monitoring and temperature goals (49% increase), isotonic IV fluids (36% increase) and hourly neurologic checks (26% increase).

Conclusions: Implementing a post-cardiac arrest bundle and order set significantly improved consistency of order placement in this critical time period for post cardiac arrest patients in the PICU. Consistency in order placement is the first step to ensuring compliance for post-cardiac arrest care.

THE EFFECT OF RUDENESS ON CHALLENGING DIAGNOSTIC ERROR: A RANDOMIZED CONTROLLED SIMULATION TRIAL

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Learning Objectives: Exposing resident teams to rude behavior worsens diagnostic accuracy by inhibiting collaborative processes. The effect of rude behavior on diagnostic cognition is less studied at the individual code-team leader level and among experienced providers. We hypothesize that a rude physician-to-physician hand-off will inhibit Pediatric Critical Care Medicine (PCCM) physicians from overcoming diagnostic error, compared to a hand-off in a neutral, professional environment.

Methods: This was a simulation-based randomized control study among physicians in a tertiary care pediatric ICU. Pediatric resident, PCCM fellow, and PCCM attending physicians participated in one high-fidelity simulation where all clinical information was standardized using progressive reveal by confederate ancillary staff. The scenario was a post-operative cardiac tamponade that began with a hand-off by an operative team member who included an incorrect diagnosis of sepsis. The hand-off was randomized to neutral vs rude (condescending tone with dismissive non-medical commentary). Primary outcome was whether or not the hand-off diagnostic error was challenged; secondary question was whether or not experience level affected this relationship. Data were analyzed using Fisher’s Exact Test.

Results: In total, there were 35 simulations (13 resident, 12 fellow, and 10 attending). Among residents, 6 of 7 (86%) did not challenge the diagnostic error in the rude group compared to 4 of 6 (67%) in the neutral group. Among fellows, 1 of 6 (17%) did not challenge the diagnostic error in either group. Among attendings, 1 of 4 (25%) did not challenge the diagnostic error in the rude group compared to 1 of 6 (17%) in the neutral group. Overall, 47% of physicians with a rude hand-off did not challenge the diagnosis compared to 33% with a neutral hand-off (p = 0.4). Level of experience was associated with challenging diagnosis; 23% of residents, 83% of fellows, and 80% of attendings challenged regardless of their exposure to rudeness (p = 0.003).

Conclusions: Experience level had a far more significant effect than exposure to rudeness on whether or not PCCM physicians challenged diagnostic error. Unlike resident team focused studies, we did not find an effect of rudeness on diagnosis. This could be because novice trainees are more vulnerable to rudeness, or perhaps because rudeness has more of an effect on teams than individuals. More research should explore how experienced providers challenge diagnostic error.