Submission Guidelines

Your submission must include the following information in order to be considered. In addition, the submission must be in Times New Roman, 12 pt font with standard margins. Word is the preferred format for all solution submissions. Solutions must be submitted via email to Lorie Catsos, at lcatsos@marylandpatientsafety.org by November 9, 2015.

Organization: Johns Hopkins Medicine (JHM)
Adam Dodson – Johns Hopkins Medicine Simulation Center
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Solution Title: Pediatric Crash Cart Scavenger Hunt – A pilot study of performance and perceptions using three different pediatric emergency equipment carts.

Program/Project Description, including Goals: What was the problem to be solved? How was it identified? What baseline data existed? What were the goals—how would you know if you were successful?

Use of emergency equipment carts is a common practice during in-hospital cardiac arrest. Compared to adult carts, pediatric carts contain multiple weight/age-based items. The degree of cart complexity and variability may negatively impact performance during a resuscitation, which is directly related to delivering high-quality care. Despite standardization of item placement and type, difficulty in locating and retrieving carts items by providers across our institution’s pediatric hospital emerged. As part of an institutional comprehensive unit-based safety (CUSP) quality improvement and culture change program, we sought to obtain pilot data for use in future research and to inform systems integration work. Our objective was to compare performance and perceptions between our standard pediatric emergency cart (STND), a modified version of our standard emergency cart (MOD-STND) and a commercially available weight-based pediatric emergency cart (COMM), i.e. Broselow™ ColorCode cart.

Process: What methodology or process was used to develop the Solution?

As part of our pediatric Post Anesthesia Care Unit (PACU) CUSP initiative, a quasi-experimental approach was taken to make performance measurements. Available PACU nurses participated in one of three sessions over the course of a day; each session consisted of three activities. Individual participants took part in a simulation-based “scavenger hunt” activity during which they were asked to locate and retrieve 12 standardized crash cart items. A member of the project measured duration of time to locate each item by each participant, for each of the carts; total time to complete each “hunt” was determined by adding the individual times. In order to provide further exposure to each of the three carts, participants then were grouped into 3-4 person teams and performed an additional scavenger hunt,
followed by a 3 minute “mini mock code” for each of the carts. Participants completed a 5-item survey regarding perceived ease of use and organization of each cart.

Solution: What Solution was developed? How was it implemented?
Simulation has been a valuable tool both in the redesign and assessment process. Using the quantitative performance and qualitative survey data identified in this pilot, further refinements to the modified cart will be made. These refinements will then be compared to the commercially available cart using a larger sample size. Results from this future research will be utilized to inform institutional capital purchase planning in the context of cost-benefit analysis and systems integration efforts.

Measurable Outcomes:
Performance and perception data from twelve nurse participants was collected. Total time to complete the scavenger hunt activity were analyzed using the Wilcoxon Rank-sum test, and reported as median and interquartile range in seconds. The standard cart took the longest median time for participants to locate all 12 items, followed by the modified cart, with the COMM cart being associated with the fastest times (STND: 162s [151-174]; MOD-STND: 135s [101-141]; COMM: 101s [87-126]). There were no statistically significant differences between the COMM and MOD-STND groups (p=0.54), nor between the MOD-STND and STND groups (p=0.07), however there was a significant difference between the COMM and STND groups (p=0.01). Questionnaire data has been abstracted; both likert-scale data and thematic analysis of free-text comments (n=48), regarding ease of locating, organization, and appropriateness of items, provider preference, and educational burden is in progress.

Sustainability: What measures are being taken to ensure that results can be sustained and spread?
This pilot project suggests that a commercially available weight-based pediatric emergency cart may allow for faster location and retrieval of contents by nurse providers than the currently deployed institutional cart. On the contrary, recent efforts to modify the currently deployed cart have only resulted in marginal performance improvements. Additional simulations will be conducted and data will be collected to support the optimal pediatric code cart design.

Role of Collaboration and Leadership: What role did teamwork and collaboration play in the Solution? What partners and participants were involved? Was the organization’s leadership engaged and did they share the vision for success? How was leadership support demonstrated?
Leadership is seeking to develop a robust cart for optimal outcomes during pediatric emergency situations. Leadership not only supported the plan, but also participated in the activities.

Innovation: What makes this Solution innovative? What are its unique attributes?
The solution is unique because there are currently a variety of code cart choices commercially available, and variable choices made by pediatric organizations. This effort is intended to create a cart that would optimize outcomes for pediatric patients at Johns Hopkins Hospital and establish evidence for a “gold standard” cart for pediatrics in general and/or one cart that serves pediatric to adult patients.

Related Tools and Resources:
The Simulation Center at Johns Hopkins Hospital

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The Solutions selected to receive the Minogue Award for Patient Safety Innovation will reflect the following Award criteria:
• Be innovative
• Demonstrate measurable change
• Exhibit strong collaboration
• Exhibit strong leadership
• Advance the culture of patient safety
• Constitute a best practice with the ability to spread

SUBMISSION AND APPLICATION FORMS ARE DUE BY FRIDAY, NOVEMBER 9, 2015. Faxed or Mailed Solutions will not be considered. All Solutions must be received electronically.