

Improving Pediatric Code Cart Usability with Standardized Approach

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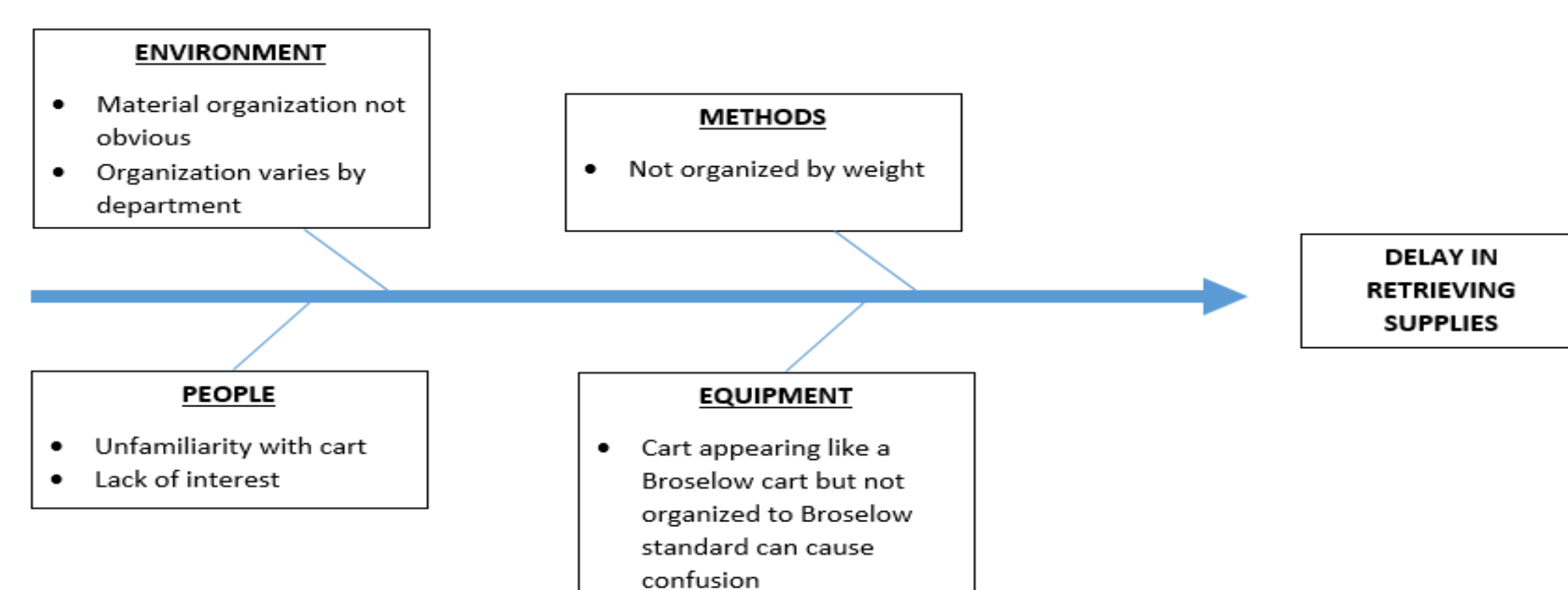
BACKGROUND

- Emergency management of pediatric patients is unique, as clinicians must consider the patient's weight to select equipment of the appropriate size.
- It is an evidence-based practice to use a color-coded system in emergencies to estimate a child's weight to select appropriate size equipment and supplies (Agarwal, et. al., 2005).
- Adapting a color-coded system for organizing supplies in the code cart is proven to decrease cost and improve quality of care (Frazier, et. al., 2023; Mamaril, et. al., 2016).
- The Broselow Cart is a nationally recognized standard which incorporates all weight-based items needed in a resuscitation into one drawer per weight category.
- Currently, UMC lacks a standardized approach to pediatric code cart organization, making it time-consuming to find the appropriately sized equipment in emergencies, causing delays in life-saving interventions.
- Due to a lack of standardization, different pediatric code carts throughout the hospital may contain different materials and items may be stored in different placed. Items are also not categorized by patient weight.
- The Interprofessional Pediatric Code Blue Committee worked on gathering evidence-based data and organizing supplies according to the standardized color-coded weight-based system.

PURPOSE

- The purpose of the project is to implement a standardized color-coded weight based system for supply storage in pediatric code carts across UMC Children's Hospital.
- We aim to increase efficiency of code cart use by December 2025 by:
 1. Reducing the time it takes to retrieve appropriate equipment in an emergency by 25%
 2. Reduce costs of emergency supplies needed to stock carts by 5%

FISHBONE GRAPH



COLOR-CODED SYSTEM USE

The Broselow tape is a color-coded measuring tape used to estimate a child's weight by the length of their body. The color on the tape that is even with their heels corresponds to their estimated weight for emergency medications and emergency medical equipment used.

OLD CODE CART DRAWBACKS



- Color-coded drawers do not correspond to a color-coded weight-based system (Broselow chart), making it confusing for the staff.
- Equipment is grouped by function (airway, IV, suction), meaning multiple drawers need to be opened for the same patient needing multiple interventions.
- Non-standardized supplies such as oxygen flowmeters, central line kits, and chest tube vacuum systems are taking up valuable space and increasing the cost of replacing expired supplies for the hospital
- Lack of staff input on supplies selection and organization

NEW CODE CART IMPROVEMENTS



- Color-coded drawers correspond to the color-coded weight-based system (Broselow tape)
- Equipment is grouped by patient's weight, making it easier to find right the appropriate size supplies with improved response times for life-saving interventions.
- All equipment and supplies are standardized per color-coded Broselow system
- Staff had input on new organization and selection of supplies

METHODS

- The team will perform 5 scavenger hunt activities, asking staff to retrieve appropriate size supplies from the current crash cart while setting a timer to track how long it takes to complete the task.
- Once the new code carts become available, the team will repeat scavenger hunt activities using new carts.
- The team will then compare the time and accuracy of appropriate supplies retrieval from the old cart versus new cart.
- The participants will also receive post-activity survey regarding perceived ease of use of new code carts compared with the old system.
- The experiment will be repeated at 3 months and 6 months post-implementation of the new code carts, evaluating usability and sustainability of the project.
- In addition, the team will obtain supply cost analysis from the materials management team to see if using standardized code carts reduces overall cost of supplies.

RESULTS

The quality improvement project has received approval from the UMC Pediatric Administration and is expected to go live in October of 2024. The data collection on the current code carts already began, and the new code carts will be tested upon initial go-live, then at 3 and 6 months post-implementation.

CONCLUSIONS

By adapting to the standardized approach of organizing emergency supplies, our clinical team is expecting to increase the efficiency of pediatric code cart use, facilitating better emergency response and improving overall patient outcomes.

REFERENCES

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