

Paediatric ‘Broselow Cart’ compared with Standard Paediatric Resuscitation Cart: An Evidence Snapshot

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Introduction

This review was conducted to identify and synthesise the evidence around the use of ‘Broselow Cart’ compared with Standard Paediatric Resuscitation Carts in hospital settings.

Search

A systematic search of articles in English using Medline, CINAHL, Embase and Google was conducted. Search terms included: resuscitation and cart or trolley. Paediatric populations and the Broselow Cart were used for inclusion criteria. Any study that did not compare a Broselow Cart to a standard paediatric resuscitation cart was excluded (Table 1).

Table 1. Inclusion/Exclusion Criteria

Patient	Inclusion: Paediatric patients Exclusion: Adult patients
Intervention	Inclusion: Paediatric Resuscitation Cart based on Broselow Tape (each draw is colour coded and organised by length and weight ranges) Exclusion: All other resuscitation carts
Comparison	Inclusion: Standard paediatric Resuscitation Cart (drawers organised by intervention eg intubation module, intravenous module) Exclusion: All other resuscitation carts
Outcomes	Inclusion: Faster access to equipment, more accurate selection or appropriately sized equipment, better user satisfaction Exclusion: All other outcomes
Study type	
<i>Design</i>	Inclusion: All treatment and observational study designs. Exclusion: Commentaries, letters to the editor, opinion pieces.
<i>Date</i>	Not limited to date.
<i>Language</i>	Inclusion: English Exclusion: Non-English

Table 2. Search terms

Search Terms in Medline*	
#	Terms
1	exp Resuscitation/
2	exp Cardiopulmonary Resuscitation/
3	1 or 2
4	(cart* or trolley*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier]
5	3 and 4
6	limit 5 to (english language and humans)

* Similar searches used in CINAHL and EMBASE

Internet search strategy and search terms

An internet search strategy was conducted using the Google 'Advanced Search' function. The search string was limited to documents in English. The search details are outlined below.

- (Resuscitation) AND (cart or trolley) AND (Broselow)

Results

The search of the databases identified 467 papers and google identified 150 results. Inclusion/Exclusion criteria was applied by one reviewer. A total of 2 papers have been included. The abstracts of the original papers are included. Full text has been provided to the requestor.

Summary:

1. Agarwal, S., et al. (2005). "**Comparing the utility of a standard pediatric resuscitation cart with a pediatric resuscitation cart based on the Broselow tape: a randomized, controlled, crossover trial involving simulated resuscitation scenarios.**" *Pediatrics* 116(3): e326-333.

BACKGROUND: Access to resuscitation equipment is a critical component in delivering optimal care in pediatric arrest situations. Historically, children's hospitals and clinics have used a standard pediatric resuscitation cart ("standard cart") in which drawers are organized by intervention (eg, intubation module, intravenous module), requiring multiple drawers to be opened during a code. Many emergency departments, however, use a pediatric resuscitation cart based on the Broselow tape ("Broselow cart") in which each drawer is color coded and organized by patient length and weight ranges; each drawer contains all necessary equipment for resuscitation of a patient in that specific length/weight range. A literature review has revealed no studies examining the utility of either cart.

OBJECTIVES: To compare which resuscitation cart organization (standard versus Broselow) allows for faster access to equipment, more accurate selection of appropriately sized equipment, and better user satisfaction. **Methodology.** We performed a prospective, randomized, controlled, crossover trial in which 21 pediatric health care providers were assigned the role of obtaining the appropriate equipment during 2 standardized, simulated codes alternately using either a standard or Broselow cart. Time to and accuracy of the selection of appropriate medical equipment along with posttesting satisfaction were measured. All simulations were performed in the Center for Advanced Pediatric Education at Stanford University Medical Center (Stanford, CA), a training facility designed to replicate the real medical environment with the technology to allow for videotaping of scenarios.

RESULTS: Of the 21 subjects, 62% found the Broselow cart "easy" or "very easy" to use versus 33% for the standard cart. Of the 21 subjects, 67% preferred the Broselow cart, 10% preferred the standard cart, and 23% indicated no preference. Intubation supplies and nasogastric tubes were found significantly faster when using the Broselow cart (mean time: 29.1 and 20 seconds, respectively) versus the standard cart (mean time: 38.7 and 38.2 seconds, respectively). Correct equipment was provided a statistically significant 99% of the time with the Broselow cart versus 83% of the time with the standard cart. Ten percent of the subjects had prior experience with the Broselow cart versus 62% having experience with the standard cart.

CONCLUSIONS: Despite less prior experience with the Broselow cart, subjects in this study found it easier to use and preferred it over the standard cart. In addition, subjects located intubation equipment and nasogastric tubes

significantly faster when using the Broselow cart, and correct equipment was provided significantly more often with the Broselow cart. These data suggest that sites caring for pediatric patients should consider modeling their resuscitation carts after the Broselow cart to enhance provider confidence and patient safety.

2. Lancaster, L. (2005). "**Mission impossible: Minimising the terror of paediatric resuscitation for staff in the ED.**" *Accident and Emergency Nursing* 13(1): 24-28.

Resuscitation situations within the emergency department are stressful at the best of times. However, when children are involved, emotions tend to escalate. Often those professionals involved can find themselves in a situation where logic and procedures which are usually second nature are completely foreign. Campbelltown Emergency Department in the south west of Sydney cares for approximately 12,000 paediatric presentations annually (30-40 children/day). Multiple paediatric resuscitation situations occurring within the department are not uncommon. In an attempt to decrease the stress experienced by staff in such situations, a quality project was undertaken to improve the response time and availability of essential equipment. The aim of this paper is to report the outcomes of the project, which was carried out whilst the author was employed in the capacity of Clinical Nurse Educator in the Emergency Department of Campbelltown Hospital.

Conclusion

In addition to the article already identified by the requestors, the search of the databases and google did not include any additional articles that compared a Paediatric 'Broselow Cart' with a Standard Paediatric Resuscitation Cart. For the interest of the requestors we have included one other article which describes the implementation of a Broselow style resuscitation cart.