

Emergency Cart Scavenger Hunt Part II Results

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1 Background

This work builds on previous findings from an ongoing institutional comprehensive unit-based safety (CUSP¹) quality improvement and culture change program. The Emergency Cart Scavenger Hunt project began with a pilot study to evaluate performance and perceptions of nurses using three different pediatric code carts. Individual participants took part in a simulation-based “scavenger hunt” activity during which they were asked to locate and retrieve code cart items. Questionnaires regarding ease of locating, organization, and appropriateness of items, preference, and educational burden were completed by the participants. Participants performed better when using the commercial compared to the standard hospital cart, as well as preferring the commercial cart over the standard one.²

2 Objectives

Emergency carts should be user-friendly, that is, intuitive and uncomplicated, because the stress and activity on the unit during a code can be greatly increased. However, our previous pilot work measured variably poor performance and perceived complexity of the current cart. These characteristics have been shown to impede efforts to resuscitate the patient by slowing performance and negatively impacting provider confidence.^{3,4} Leveraging findings from our pilot, a new cart was designed intended to meet the needs of providers in both adult and pediatric emergency response settings. Our objective was to compare performance and perceptions between the newly designed emergency cart (REDESIGN), a commercially available weight-based emergency cart (COMM), and the standard emergency cart (STND).

3 Methods

A total of 48 nurses participated in our simulation-based scavenger hunt as well as completed a questionnaire. The scavenger hunt consisted of each participant locating 10 items, in random order for each of the 3 carts. Time to locating and retrieving each item was measured by 2 independent observers. Time to find all items, and averages for each item were calculated and compared. Questionnaires consisted of 5 items regarding ease of use, organization, relevance, preference, educational burden.

4 Results

The {STND} cart took the longest time for participants to locate all 10 items, followed by the {COMM} cart, with the {REDESIGN} cart having the fastest average time. Comparisons of median time to find all items across cart designs were made for each location and the entire cohort. The data were not normally distributed so the Wilcoxon rank-sum test was used to evaluate the REDESIGN against the COMM and the REDSIGN against the STND. Participants found the NEW cart easier to use, better organized, contained more relevant items, preferred and required less education than the COMM and STND carts.



Figure 1. Phase 2 Carts

	STND	COMM	REDESIGN	REDESIGN < COMM	REDESIGN N < STND
Locations	median (IQR)	median (IQR)	median (IQR)	p	p
Adult PACU	471 (372 - 632)	162 (133 - 241)	130 (112 - 210)	0.248	0.021
Adult PCCU	197 (143 - 231)	233 (155 - 277)	81 (76 - 155)	0.001	0.001
Adult WICU	191 (141 - 233)	235 (155 - 240)	67 (65 - 73)	0.001	0.002
Pediatric 10S	293 (267 - 435)	168 (133 - 260)	147 (122 - 165)	0.249	0.000
Pediatric PACU	254 (210 - 298)	129 (107 - 143)	113 (86 - 136)	0.225	0.000
All	252 (191 - 353)	164 (133 - 240)	113 (79 - 148)	0.000	0.000

*Comparisons made using Wilcoxon rank-sum test

Table 1. Performance Results by Location Across Carts

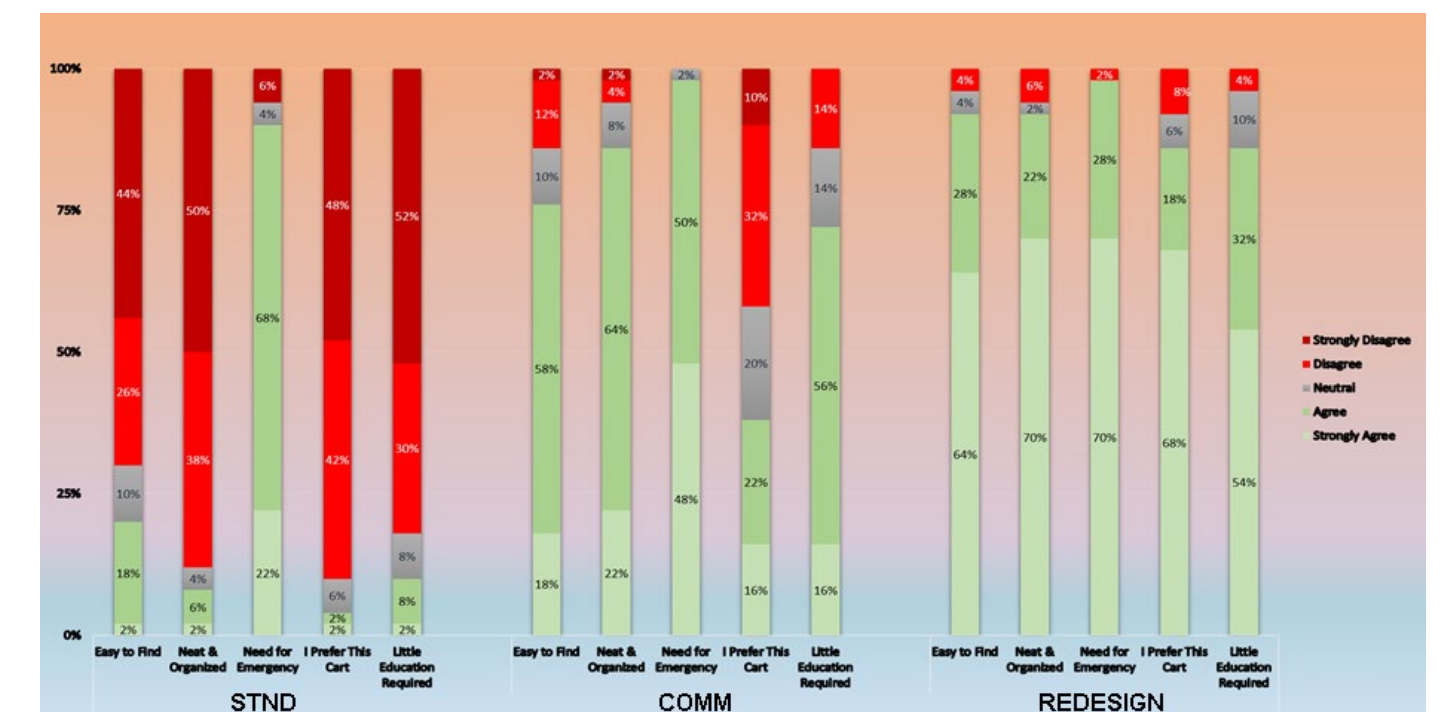


Figure 2. Cart Preference

5 Conclusions

Utilizing results and observations from a pilot study of performance and perceptions while using 3 different emergency carts, we designed a new emergency cart suitable for both pediatric and adult emergency situations. We compared usage of this cart against a commercially available cart and our hospital standard cart. Preliminary review of the data suggests that providers performed better and preferred this newly designed cart over others.

6 Future Directions

We would like to utilize one company to provide customized carts and another to provide pre-made inserts which can be exchanged for replacements. Some items within the inserts can be reused and/or traded for credit to save on costs per some of the companies we researched.

7 References

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