

# Innovations in Emergency Care: Nursing Perspectives on Code Cart Operation

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## Background/Significance

- Each minute delay in resuscitation during cardiac arrest leads to a 7-10% decrease in success<sup>1</sup>
- Code carts need to be equipped and organized in a way that affords easy and quick access for care providers
- Code carts should be designed with human factors in mind so that healthcare workers are supported during critical patient care scenarios<sup>2</sup>

## Code Cart History

- First code cart, then called “crisis cart” was developed by Anita Dorr, RN in the 1960s<sup>3</sup> but she did not receive a patent
- Dr. Nobel invented a similar concept around the same time, received a patent, and is often credited as the inventor of the crash cart
- Since then, the code cart has become invaluable to emergency care
- While incremental improvements in the code cart have been made over time, the fundamental design and usability has remained largely unchanged



Wikipedia.com

## Study Purpose

Describe code cart mobility and safety from the perspective of experienced acute care nurses.

## Methods & Results

Variables (Frequency)	N	%
<b>Primary Shift</b>		
Days	30	73.2%
Nights	4	9.8%
Evenings	1	2.4%
Variable	6	14.6%
<b>Travel Nurse</b>		
Yes	3	7.3%
No	41	92.7%
<b>Patient Population</b>		
Adult	40	97.6%
Pediatric	1	2.4%
<b>Clinical Area</b>		
Med-surg	4	9.8%
Critical Care	17	41.5%
Step-down/PCU	8	19.5%
Operating Room	3	7.3%
Emergency Department	3	7.3%
Other	6	14.6%

- Social media and direct recruitment
- Data collected using an anonymous 25-item online survey
- Acute care nurses (N=41)
- Descriptive data analysis

	Mean (SD)	Range
Age (Years)	33.7 (9.4)	23-66
Nursing Experience (Years)	8.5 (7.6)	2.5-35
Number of codes in past 12 months	15.9 (23)	1-100

## Relevance to Nursing

- Code carts should be designed with end user nurse engagement and human factors design
- This is an opportunity for nurse led innovation to improve a piece of equipment vital to patient care and most intimately understood by nurses
- Improvements come with significant safety implications for both patients and clinicians

Variables (Frequency)	N	%
<b>Which of the following items must be unplugged from the wall outlet before mobilizing the cart to the code (please check all that apply)?</b>		
Defibrillator	40	97.6%
Suction	9	22.0%
Other	2	4.9%
<b>The code carts I am familiar with require the following prior to mobilization</b>		
Unplug 3+ cords from the wall outlet	1	2.4%
Unplug 1 equipment cord or master cord from wall outlet	24	58.5%
Unplug 2 cords from the wall outlet	15	36.6%
No unplugging of cords is required	1	2.4%
<b>Have you ever forgotten to unplug the code cart power cord(s) when responding to a code?</b>		
Yes	12	29.3%
No	29	70.7%
<b>I have personally witnessed equipment falling onto the floor during emergency response to cardiac arrest because it was not unplugged before mobilization.</b>		
Yes	6	14.6%
No	35	85.4%

## Conclusion

- An experienced group of nurses participated in this survey, the majority of whom cared for adult populations and experienced an average of 15 codes per year
- Respondents felt safety would be improved by improving cart mobility and quick-release power disconnect

### References:

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- 3: Emergency Nurses Association Collection. (2017). Retrieved from <https://nursing.uic.edu/nursing-research/centers-labs-interest-groups/midwest-nursing-history-research-center/collections/organizations/emergency-nurses-association-collection/>