Cardiac Surgery Unit Advanced Life Support

The Problem

Cardiac Surgery patients have unique risks and opportunities related to standard cardiopulmonary resuscitation. The risks include life-threatening damage, such as right ventricular tear and bypass graft dehiscence, which can be caused by external compressions. Conversely, internal cardiac massage can be performed relatively easily in a post-sternotomy patient and the literature suggests improved outcomes using this technique. One published study reports 48% survival rate in patients that were re-opened <10 minutes versus 12% survival in those that took >10 minutes in a review of 79 re-openings (Mackay JH, et al. (EJCTS 2002).

Additionally, the U.S, has historically lacked a standardized approach to training CVICU staff how to perform in open-chest emergencies. This has left staff with a general lack of confidence in their ability to participate was a clear gap in education.

Aim/Goal

The goal of this project was to apply the tools and training described by Joel Dunning, MD, et al and published in the European Journal of Cardio-thoracic Surgery (2009) in an effort to improve staff confidence in participating in open chest arrests.

The Team

A small group of CVICU staff nurses attended training and served as champions/educators to their peers

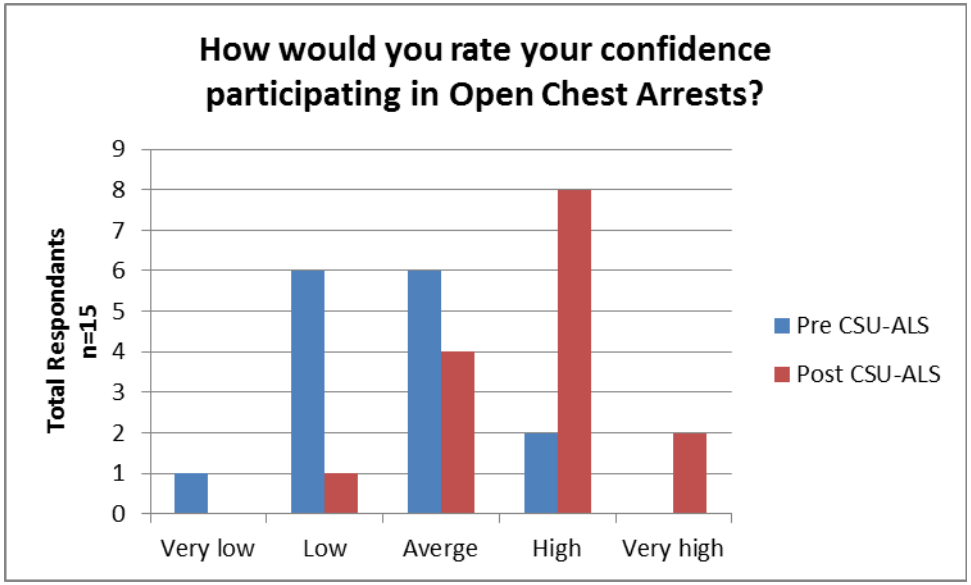
- Margie Serrano, RN, MS; *Nurse Manager, CVICU*
- John Whitlock, RN, MS; *Clinical Nurse Specialist, CVICU*
- Barbara Regan, RN; *Unit Based Educator, CVICU*
- Carol Kilday, RN; *Staff Nurse, CVICU*
- Jamie Weinstock, RN, BSN; *Staff Nurse, CVICU*
- Michelle Doherty, RN, BSN; *Staff Nurse, CVICU*
- Angela Hindery, RN, BSN; *Staff Nurse, CVICU*
- Kamal Khabbaz, MD*; Chief of Cardiothoracic Surgery*
- Mark, Courtney, PA-C; *Director of Cardiothoracic Surgery*

The Interventions

- Training classes that consisted of 8 hours of combined didactic and hands-on practice and included multiple disciplines
- Mock open chest arrests performed twice monthly in CVICU
- Redesign of open chest carts
  - Non-essential equipment placed on separate cart
  - Items placed in logical sequence top to bottom of cart
  - Carts labeled clearly
  - Standardized checklist created
  - Pertinent emergency phone numbers and paperwork were placed on top of cart to be readily available

The Results/Progress to Date

- The percentage of respondents that reported a high or very high level of confidence participating in open chest arrests improved from 13% to 66%
- The overall percentage of respondents that felt at least average confidence participating in open chest arrests improved from 53% to 93%
- 2/5 patients that required open chest resuscitation since training began were extubated the next day and did not experience an appreciable change in hospital LOS



Lessons Learned

- Applying a validated method to training significantly enhances probability of success and reduces time spent on "learning curve."
- A systematic approach to emergency procedure training significantly improves staff confidence performing in open chest arrests

Next Steps/What Should Happen Next

- Continued multidisciplinary mock open chest arrests in the CVICU
- Continued surveillance of outcomes experienced by patients requiring open chest resuscitation

For more information, contact:

Margie Serrano, RN, MS/John Whitlock RN, MS

jwhitlo@bidmc.harvard.edu

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