A Mnemonic Device to Optimize Post ROSC Care for Neuroprotection

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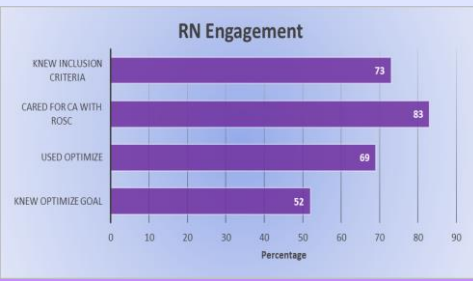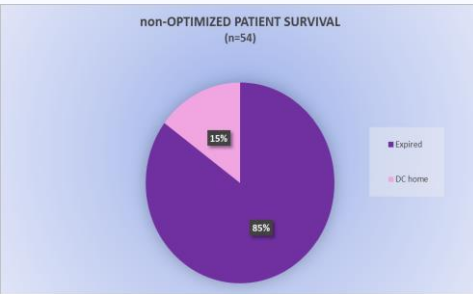LEGACY HEALTH | EMANUEL MEDICAL CENTER

Clinical Problem:
Patients presenting to the emergency department with cardiac arrest (CA) and return of spontaneous circulation (ROSC) have a high rate of brain damage leading to death. Nationally, only 15% of ROSC patients DC home alive.

Clinical Question:
Can an interactive mnemonic device (IMD) that identifies internationally recognized treatment goals and organizes tasks amongst resuscitation team members help improve the survival rate for CA arrest patients?

Implementation:
- Simulation exercise in native/lab environment
- Multimodal print information
- Multidisciplinary - Tech RN, MD, RT, PharmD, SW

non-OPTIMIZED PATIENT SURVIVAL (n=54)

- Expired: 85%
- DC home: 15%

OPTIMIZED PATIENT SURVIVAL (n=15)

- Expired: 53%
- DC home: 47%

O Oxygenation
P Blood Pressure
T Temperature
I Input / Output
M Metabolic
I IV Access
Z Unknowns
E Exit Plan

RN Engagement

- KNEW INCLUSION CRITERIA: 73
- CARED FOR CA WITH ROSC: 83
- USED OPTIMIZE: 69
- KNEW OPTIMIZE GOAL: 52

(Percentage)

RN Engagement Poll:
- 97% of ED RNs completed a nursing engagement poll
- A majority of the RNs knew inclusion criteria, cared for CA with ROSC pt and used the IMD
- Collaboration between the medical and nursing staff and willingness of the medical staff to use the IMD was identified as the most common barrier in the poll.
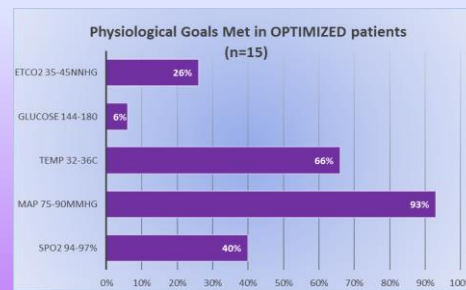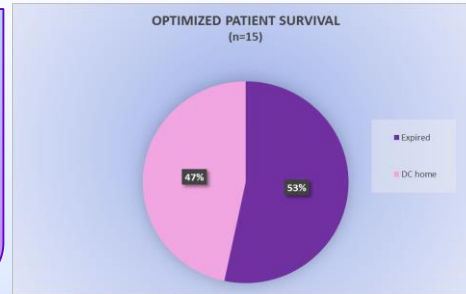
Description of EBP based interactive mnemonic device:
- 6ft tall x 1ft wide vertical banner
- Posted on the wall in resuscitation bays
- Written on with dry erase marker

Protocol:
- ROSC is achieved
- Assessment of ABCs by team
- 90 second time out for team to use device (OPTIMIZE)
- Team performs interventions
- Data collected and reported

Physiological Goals Met in OPTIMIZED patients (n=15)

- ETCO2 35-45NNHG: 26%
- GLUCOSE 144-180: 6%
- TEMP 32-36C: 66%
- MAP 75-90MMHG: 93%
- SPO2 94-97%: 40%

Observations and Discussion:
When the level of optimization (number of parameters in goal ranges) was compared to survival and DC to home, there was no direct correlation. There are many variable factors in this population of 15 patients including age, comorbidities and cause of CA. This finding suggests that it is not just meeting the treatment goals that increase survivability. Team organization and effectiveness is also an important factor. Given the encouraging results, it will be interesting to see if they stand the test of time and variability in this complex and diverse patient population.

Results:
- The IMD was used for 15 out of 69 CA ROSC patients over 11 months
- Survival rate for the OPTIMIZED patients was 3 times greater than the national rate
- A statistical analysis of the OPTIMIZED vs non-OPTIMIZED groups shows a $P\ value$ = 0.022

Next Steps:
- Update and refine IMD
- Develop and implement OPTIMIZE EMR order set
- Investigate measurement of team effectiveness
- Increase awareness of IMD amongst other disciplines besides nursing
- Study CPC score outcomes
- Organize research project to publish paper on future findings

Conclusions and Emergency Nursing Implications:
- Teams that are organized to achieve agreed upon goals benefit patient survival rates
- Use of an IMD has been shown to provide benefit to patient outcomes