



Quality Review of Mechanical Cardiopulmonary Resuscitation (mCPR) Devices in an Acute Care Hospital

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Introduction

Background

Expert Guidelines endorsed considering Mechanical Cardiopulmonary Resuscitation (mCPR) devices in response to the COVID-19 pandemic. In April, 2020, a regional 457-bed not-for-profit hospital in North Carolina received grant-funding for mCPR devices to reduce exposure during CPR events. We aimed to evaluate outcomes associated with this implementation.



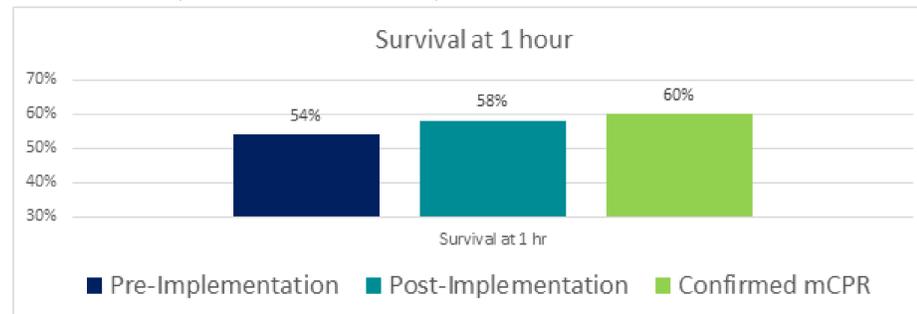
Methods

Existing inpatient resuscitation data from April through December of 2019 and 2020 were used for a pre/post comparison (excluding a brief timeframe where the mCPR device was not operational). CPR event documentation sheets were reviewed to identify CPR events where the mCPR device was documented as used to analyze events with confirmed mCPR. A survey was distributed to inpatient CPR event responders for feedback and perceptions. System IRB deemed the project quality improvement.

Results

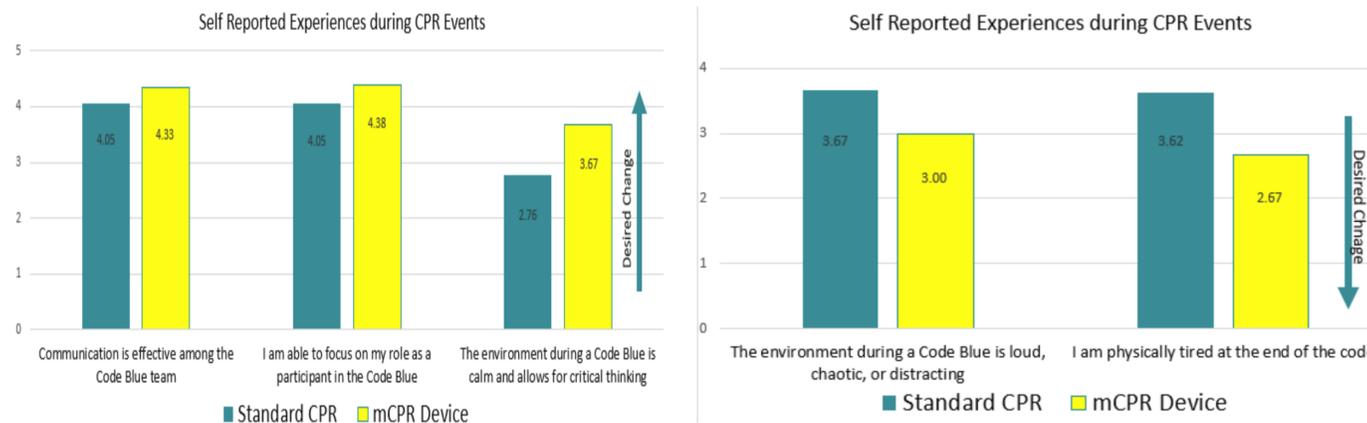
Resuscitation Quality

We defined event survival as return of spontaneous circulation (ROSC) plus survival >1 hour after the CPR event to align with existing resuscitation quality data. Event survival rates pre- (April-Dec 2019, n=125) and post- (April-Dec 2020, n=135) deployment were similar with slight improvement postimplementation (54% and 58% respectively), and in CPR events (n=25) where documentation confirmed use of mCPR device (60% event survival).



Teammate Perceptions

- Survey respondents (n=21) were primarily nurses (81%).
- A third self-reported using the mCPR device 60% or more of the time.
- Most (76%) “agreed” or “strongly agreed” that quality of CPR events was improved when mCPR was used.
- Results indicated reduction of teammates in the room during a CPR event.
- Likert scale (5-point) rankings of self-reported experiences during CPR events with/without mCPR showed improvement in environment and decreased physical fatigue when mCPR was used. Communication and ability to focus on team role showed slight improvement.



Summary

CPR events post-implementation and the subset with confirmed mCPR had comparable event survival to the timeframe pre-implementation. mCPR was documented in 19% of CPR events, which does not match self-reported utilization. Limited documentation of mCPR may impact data accuracy associated with mCPR, though rates are similar across populations. Most respondents report mCPR improved the quality and environment of CPR events and reduced physical fatigue.

Conclusion

- Event survival rates are similar, and slightly improved post- mCPR device implementation.
- Staff report benefits with mCPR.
- mCPR should be monitored as a variable in ongoing quality improvement.
- Further study of quantitative outcomes and staff perception of mCPR devices in inpatient CPR events is needed.

Resources

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