

Implementation of a Mock Code QI Project at a Children's Hospital in New Orleans

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Background

- More than 20,000 children have a cardiac arrest annually in the U.S.
- Approximately 15,000 of these occur in a hospital setting requiring cardiopulmonary resuscitation
- Survival to discharge for inpatient pediatric cardiac arrest is 40%
- In-hospital cardiac arrests occur 19 times more frequently in adults vs children
- Given these statistics, it is imperative to maintain healthcare team members' confidence and knowledge of Pediatric Advanced Life Support (PALS) and code scenarios

Aim

To increase healthcare team member knowledge of code blue team roles and confidence in the ability to participate on a code blue team by 20% over 18 months

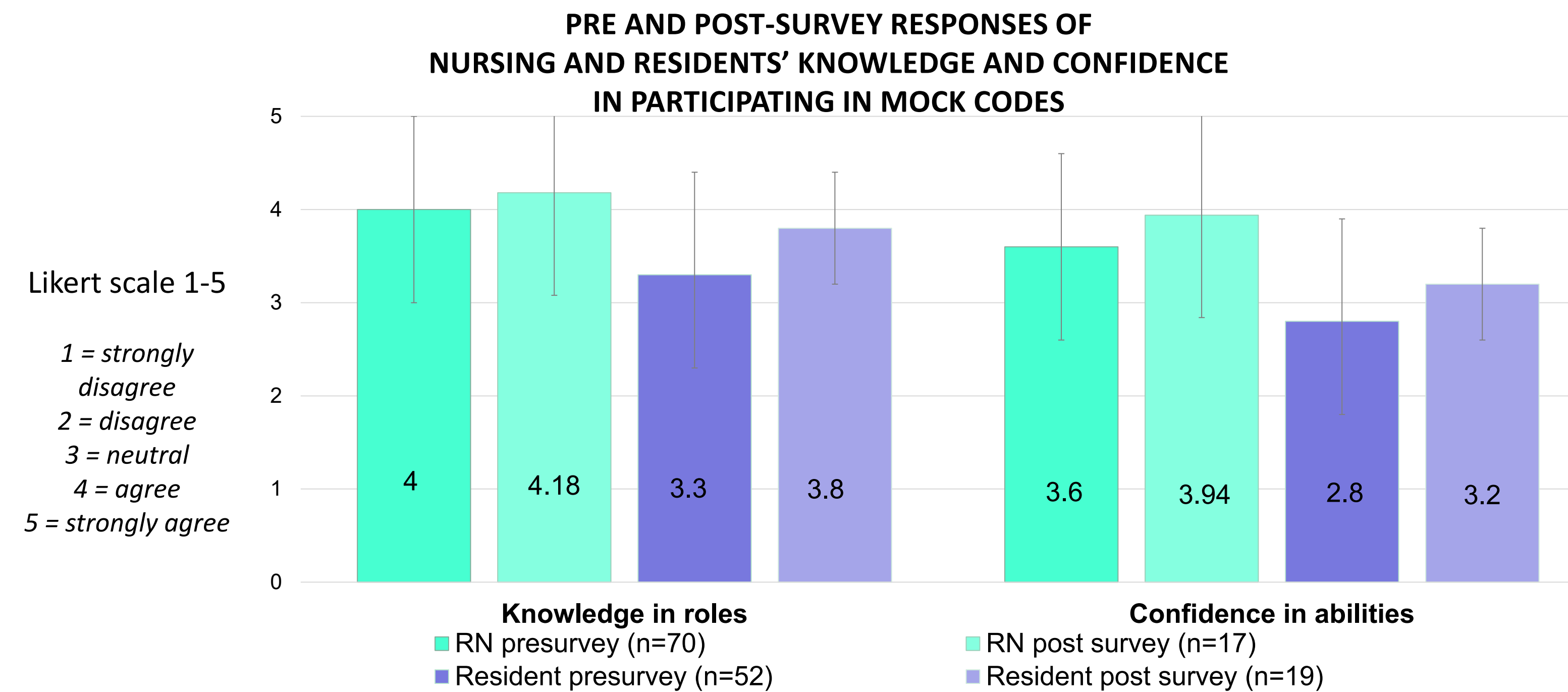
Methods

- Implemented a quality improvement (QI) project to lead mock code blue scenarios with high-fidelity simulation manikins on non-ICU inpatient units at Children's Hospital New Orleans (CHNO) with participation from multidisciplinary teams
- Completed six 30-minute mock codes over 18-month span
- Anonymous pre-survey distributed using a 5-point Likert scale (Strongly Disagree to Strongly Agree)
 - Knowledge of Code Blue Roles
 - Self-Confidence in Code Blue Scenario
- Anonymous post-survey distributed to mock code participants after a debriefing using same Likert Scale
- Post survey was collected from all members of team ranging from ICU trained RN, floor RN, residents and learners

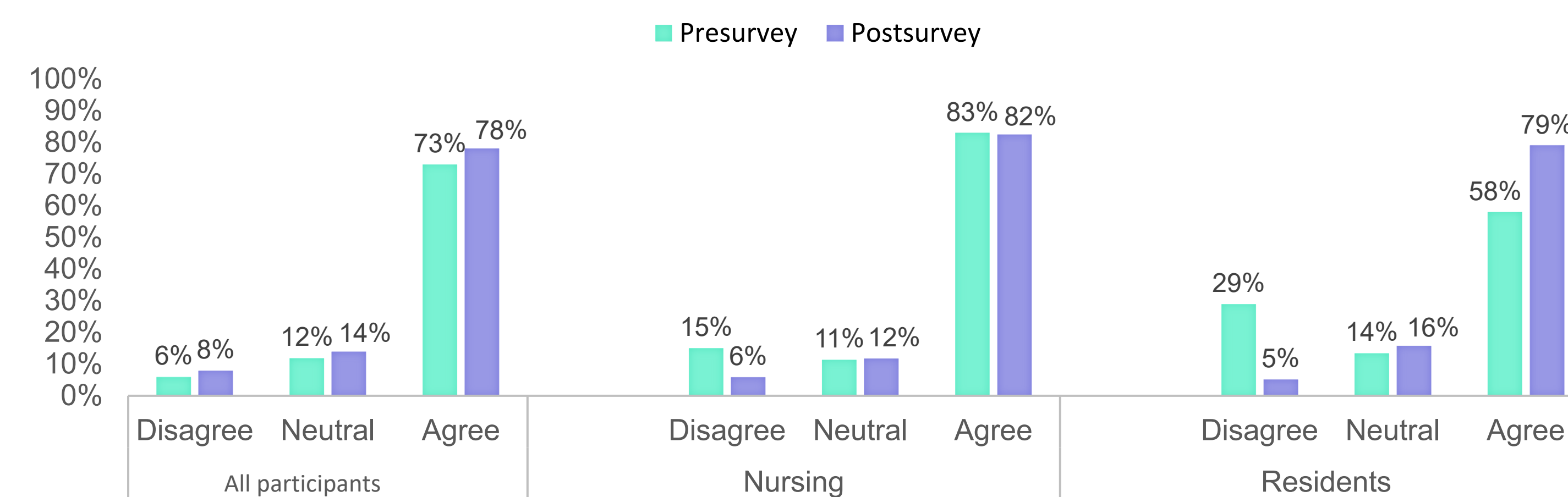
Measures

- **Primary Outcomes**
 - Self-reported knowledge of Code Blue team members and roles
 - Self-reported confidence in participating in Code Blue scenarios
- **Secondary Outcomes**
 - Benefit of debriefing post mock code
- **Balance Measures**
 - Limitations to hospital system run simulated and non-simulated codes:
 - Alert Systems
 - Patient census/Nursing shortage

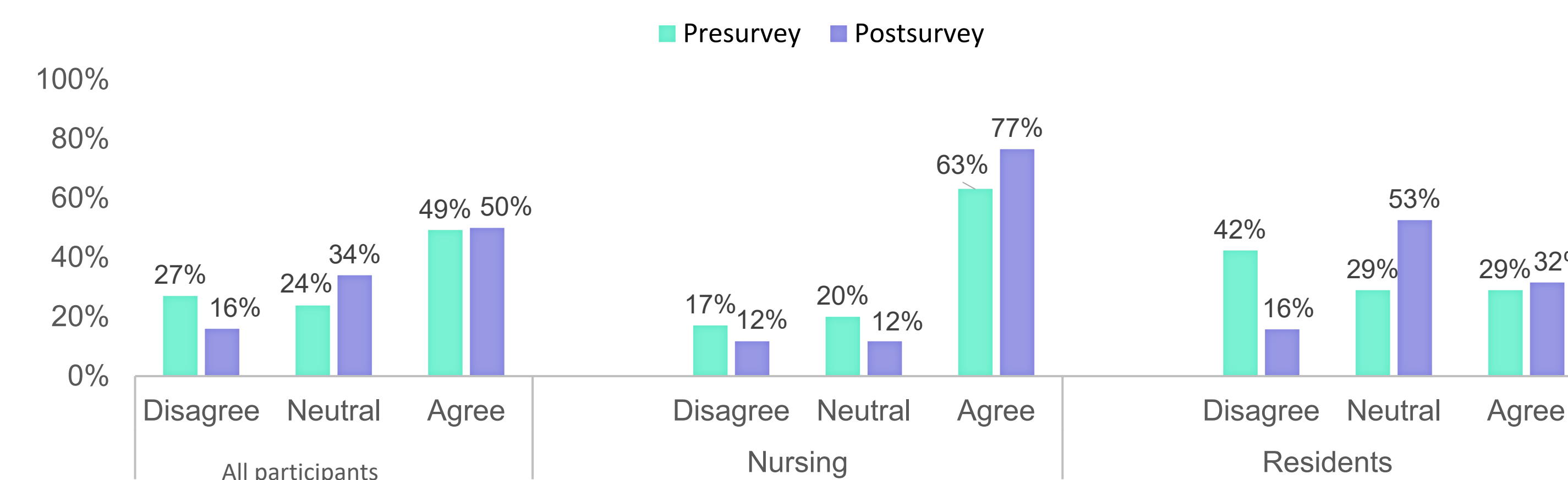
Results



KNOWLEDGE OF CODE BLUE TEAM ROLES



CONFIDENCE IN MOCK CODE PARTICIPATION



Results

All Participants: Multidisciplinary results

- 5% increase in subjective knowledge of code blue team roles
- 0.8% increase in confidence in participating in a code blue scenario while votes for disagree decreased by 11%.

Resident Data

- 21% increase in knowledge of code blue team roles
- Pre-survey disagree/strongly disagree votes in confidence in participation strongly predominated and improved in post-survey data to more neutral votes (27% less disagree votes; 24% more neutral votes)

Nursing Data

- No change in knowledge of code blue team roles
- 13.5% increase in confidence in participating in a code blue scenario

Conclusions

- Data does show a positive trend toward increased knowledge and confidence in all groups
- Compared to RNs, Residents judge their confidence in mock codes fairly low. This is likely due to difference in role structure and more formalized RN response to codes each shift.
- Continued implementation of mock codes and post-code debriefing for both residents and multidisciplinary teams may demonstrate continued valuable training and improvement in skills
- Limitations to hospital alert systems were identified and improved upon through simulation code events
- No statistical significance in change of knowledge or confidence pertaining to a mock code scenario after implementing the mock code QI, likely due to sample size

Future Directions

- Continued mock codes for both residents and multidisciplinary teams with goal to increase sample sizes
- Continued evaluation of code alert systems
- QI projects to focus on specific measures of mock code; such as monitoring for response times to code alert system, initiation of CPR, code cart arrival, and time to defibrillation if indicated

References

¹ Mir T, Shafi OM, Uddin M, Nadiger M, et al. Pediatric cardiac arrest outcomes in the United States: A nationwide database cohort study. *Cureus*. 2022. 14(7):e26505. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9339595/#:~:text=it%20is%20estimated%20that%20more,to%20poor%20perfusion%20%5B5%5D>.

² Holmberg MJ, Ross CE, Fitzmaurice GM, Chan PS, et al. Annual incidence of adult and pediatric in-hospital cardiac arrest in the United States. *Circulation: Cardiovascular quality and outcomes*. 2019;12:e005580. <https://doi.org/10.1161/CIRCOUTCOMES.119.005580>