Continuing Education of Malignant Hyperthermia

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Introduction

- Malignant Hyperthermia (MH) mortality has consequently decreased from 70% to 80% in the 1970s to approximately 1.4% to 10% in recent years" (Bin et al., 2022)
- Autosomal dominant disorder creates "hotspots" or regions that increase the frequency of MH
- Malignant Hyperthermia Association of the Unites States (MHAUS) and American Society of Anesthesiologists (ASA) both stress the importance of early training and management of resources
- Due to the low-frequency and high-risk nature of a MH emergency, staff do not routinely practice necessary skills

Problem Statement

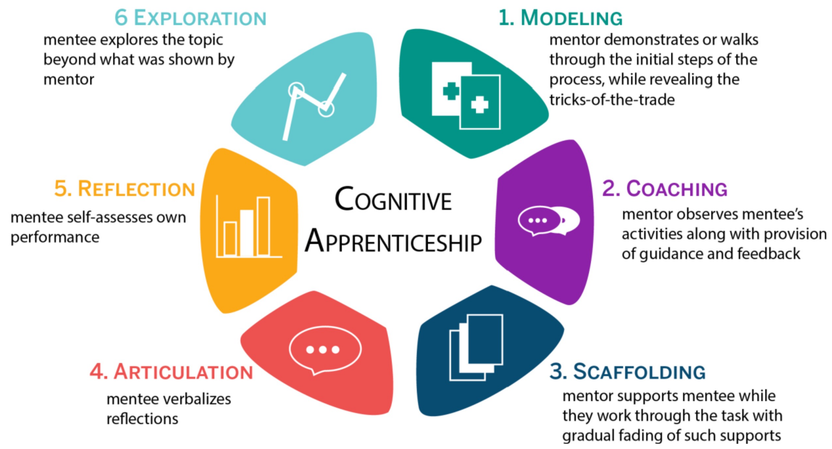
- Population- Perioperative staff at a Wisconsin critical access hospital
- Intervention- Quarterly education of MH via mock drills and PowerPoint teaching
- Control- Current annual training composed of computer modules
- Outcome- Performance in mock MH scenario via self evaluations
- Time frame- Initial teaching and self-assessment, reoccurring at three and six months

Review of Literature

- Research identified the degradation of skills and knowledge over a period of non-use times (Halm and Crespo 2018)
- Low-frequency events such as medical emergencies lead to loss of associated skills and knowledge
- Implementation of regular simulations or mock scenarios increases skills, knowledge, and confidence (Hazwani et al. 2020)
- Cognitive aids or checklists during simulations improve participants overall scores (Hardy et al. (2018)
- High acceptance and utilization of cognitive aids

Design and Methods

- Quality improvement project, focused on the cognitive apprenticeship model (Collins et. Al, 1991)
- Basic pathophysiology and management of MH will be taught with PowerPoint
- Hands-on mock scenario allows for familiarization of equipment and necessary steps
- All perioperative staff (Registered Nurses, Surgical Technicians, Certified Registered Nurse Anesthetists) may participate
- Hospital may choose to adopt framework which includes more frequent teachings and simulation if proven to be beneficial
- Pre/post-intervention self assessment utilizing 5-point Likert scale



Implementation

- Day chosen based upon operating room schedule, allowing for maximal participation amongst staff
- Initial teaching and assessment occurred in June, subsequent teaching and assessments will occur during September and December 2023
- Updated MH cart, supplies found to be missing and outdated
- Implemented a weekly checkoff to ensure all supplies are present and up to date

Results

- ***The listed results are from the first round of implementation; this project requires a three and six month follow up to be complete.
- Initial session had 11 participants: seven registered nurses, two CRNAs, and two surgical technicians
- Average pre-intervention score= 28.4/35
- Average post-intervention score= 34.2/35
- P-value of 0.00007 indicates that there was a statistical significance between the self-assessment score before and after teaching occurred

Outcomes Analysis

- Quantitative descriptive data points from pre- and post-intervention Likert scales evaluating effectiveness of ongoing MH training
- Utilizing SPSS, the mean, range, and standard deviation of all results will be shown
- Paired (dependent) T-test will be performed to evaluate data and indicate whether there is statistical significance

References

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