Does Mandatory Nursing Education on Malignant Hyperthermia Enhance Nursing Knowledge and Lead to Positive Patient Outcomes?
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**OBJECTIVES**

Provide Nursing staff with the knowledge and skills to respond collaboratively and efficiently when managing a patient experiencing a Malignant Hyperthermia (MH) crisis.

**BACKGROUND**

- Malignant Hyperthermia is a rare, potentially lethal metabolic emergency precipitated by the administration of depolarizing muscle relaxants or volatile inhalation anesthetic agents used for general anesthesia.
- Incidence is ~1: 50,000-100,000 surgeries in adults and 1:15,000-30,000 surgeries for children.
- Immediate treatment with Dantrolene is required to prevent the high risk of patient death.
- Without treatment the mortality rate for MH is 80% versus 5-10% with treatment with Dantrolene.
- Staff education and preparation for this rare event is essential for optimal patient outcomes.


**SETTING/PARTICIPANTS**

- Education and simulation drills for this crisis have occurred yearly in the perioperative arena but not necessarily in all other procedural areas within the institution.
- The Nursing Educational Council (NEC) recognized that education should occur for all nurses that care for patients in areas that administer the triggering anesthetic agents.
- A sub-committee from NEC was formed consisting of service educators from pediatrics, critical care, psychiatry, emergency, and perioperative areas to develop education.

**METHODS OF IMPLEMENTATION**

- A Self Learning Education Module was developed by the sub-council members and placed on our Learning Management System (LMS).
- Education strategies included a PowerPoint presentation, a “How to Mix Dantrolene” video and a news clip of a teenage girl who died from MH because of an inadequate supply of Dantrolene.
- Education was mandatory for all procedural areas that administer any of the triggering anesthetic agents.
- Contact hours were awarded for education completion. The course was available for a 14 month period.

**EVALUATION OF EDUCATION**

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<tbody>
<tr>
<td>Number of Participants Completing Education</td>
<td>866</td>
<td>333</td>
<td>117</td>
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<tr>
<td>Participants who rated achievement of education as good or excellent</td>
<td>92%</td>
<td>92%</td>
<td>93%</td>
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<td>Participants who rated effectiveness of education as good or excellent</td>
<td>91%</td>
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**OUTCOMES**

- Patient Survival from MH
- Prompt Dantrolene Administration
- Education Completed
- Education would prepare me for an MH patient

**DISCUSSION OF SUCCESSFUL PRACTICE**

- Shortly after the rollout of the MH education there was a 16 year old patient that was diagnosed and treated for MH in an ambulatory surgery setting, transferred to the Emergency Department and then to the Pediatric ICU.
- The patient was successfully discharged to home after 48 hours.
- Positive comments from nursing staff followed that the education prepared them for caring for this MH patient in crisis.
- Interdisciplinary debriefing occurred at multiple levels after the event to review patient care, enhance learning and make process improvements.

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Monica Seaman, MS, RN, CPAN, Emergency Department

**ADVANCING PERIANESTHESIA NURSING PRACTICE**

New Knowledge and Skills: Translation of MH Education to Clinical Practice