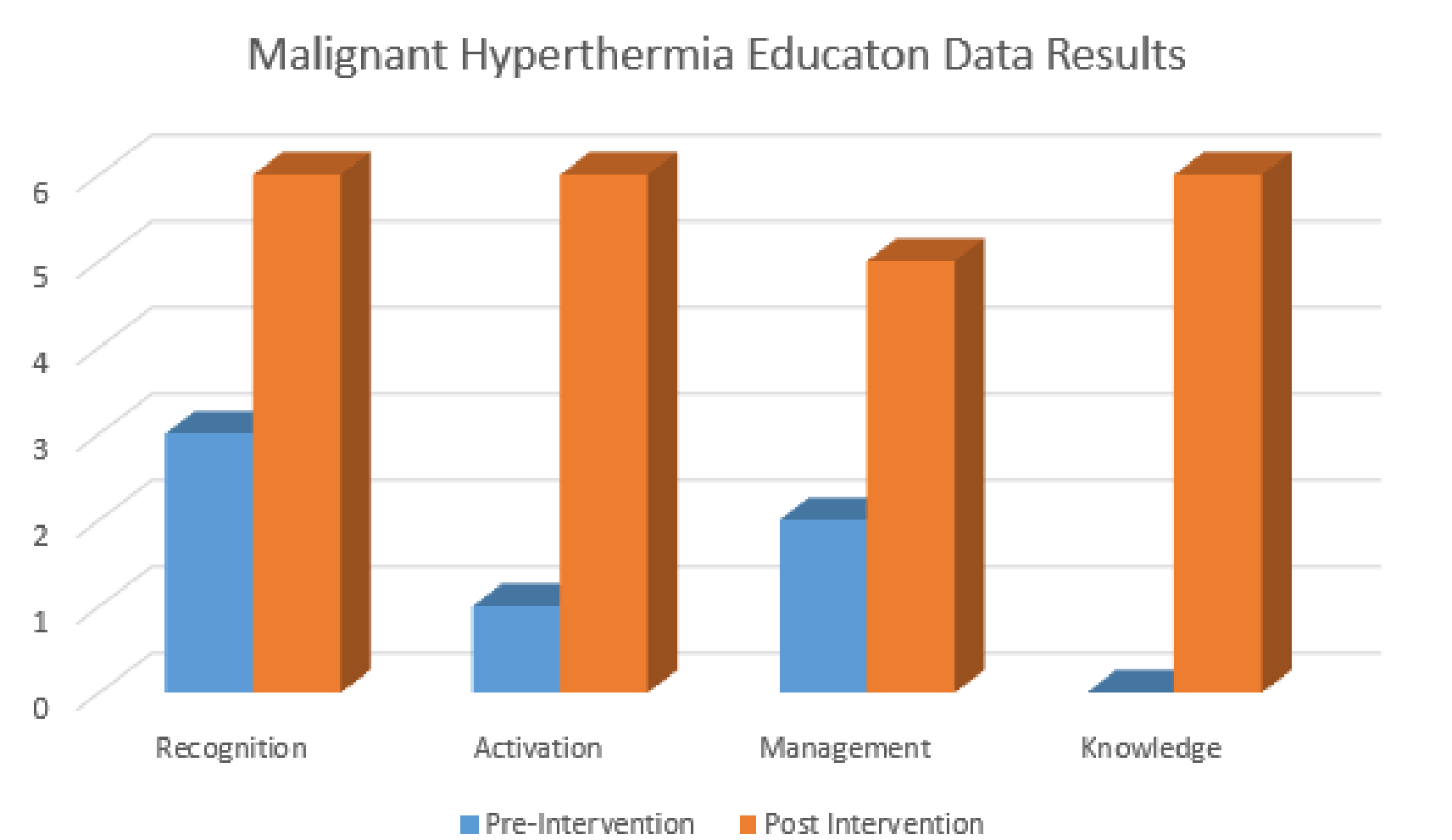


- **Malignant Hyperthermia (MH) is a rare but serious and potentially fatal perioperative complication resulting from inhaled volatile anesthetics**

Purpose

A misdiagnosis in the hypermetabolic state of MH may lead to fatal complications of the anesthetized patient if signs and symptoms are not recognized for early diagnosis and treatment. The virtual simulation platform offers a safe environment for critical thinking, prompts in worst-case-scenarios, where a sequence of interventions can be followed in the management of MH in specialized perioperative nursing.



Results

Pre-education:

- **Staff survey** - Revealed knowledge gaps regarding the identification, disease process and appropriate interventions for MH management.
- **Content expert lecture** -Anesthesia partner offered educational lecture catered to various perioperative phases of care. Highlighting key features of MH crisis in different settings created a controlled global approach.
- **Case study** - Reinforcement of response process was executed with case study following the lecture content. Communication of team roles and responsibilities solidified the problem, approach and solution of MH crisis.

Virtual escape room:

- With content base from lecture and case study, nursing participated in a virtual escape room. The escape room offered a series of subtle prompts which subconsciously created a nursing response process for MH crisis. Professional development specialists optimized the MH response through confidence building with virtual escape room tactics.

Post-education:

- Survey revealed increase knowledge in the management of MH in perioperative areas. Learners were able to quickly identify the treatment pathway for patients experiencing MH crisis.

Significance

Early detection in intraoperative and perianesthesia care units is crucial to patient survival. Preparation for the rare occurrence of MH is imperative to the care of the anesthetized patient, nurses must be aware of the processes and early interventions. Rare occurrence diagnosis', such as MH, that lack require protocolized treatment plan have identified a high incidence for: misdiagnosis, lack of defined team roles, ineffective communication and delay in treatment. Virtual education escape rooms offer employee engagement and optimize critical thinking skills in a safe environment.

Methods

- **Setting-** Yale New Haven Hospital Post-Anesthesia Care Unit (PACU) and Operating Room (OR).
- **Participant-** Perioperative Department nursing staff
- **Intervention-** Education series consisting of content expert lecture, case study, simulation, virtual escape room.

Implementation: This evidence-based multidisciplinary project aimed to improve recognition and intervention of MH protocol. Utilizing virtual escape rooms allows for subtle prompts in critical reasoning for the learner to protocolize the treatment plan for MH. The treatment of MH requires a series of steps to achieve stabilization of the perioperative patient. Identifying clear roles and responsibilities in a virtual space creates effective team building, clear communication and ultimately improves patient outcomes as identified by pre and post intervention survey.



Fig. 1 Perianesthesia virtual escape room



Fig. 2 Perioperative virtual escape room

Recommendations or Conclusions

Utilization of escape room simulation increases confidence in nursing process. It allows for safe learning with key drivers in critical thinking. Any nursing process can be optimized with interactive education. Providing a base knowledge on MH content was applied more effectively in an innovative learning space. Professional Development Specialists (PDS) saw a positive impact in MH activation time as well as increased knowledge of perioperative staff, evidence by survey data.

Pre-Education MH Cart retrieval Drill Times ■
Post-Education MH Cart retrieval Drill Times ■



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References upon request.