

MHAUS EDUCATION COMMITTEE REPORT TO APRIL 2021 PLANNING MEETING

Committee Chair: Darlene Mashman, MD

Committee Members: Terri Passig, Jackie Sumanis, Julie Cahn, Tina Roalef, Dianne Daugherty, Teeda Pinyard

Committee Meetings 2021: 2/1/21

2020: 6/30/20, 7/21/20, 9/22/20 & 12/1/20

COMMITTEE GOALS AND OBJECTIVES:

Goals: Advance knowledge of malignant hyperthermia and associated conditions for healthcare providers.

Objectives:

- (1) Review methods of sharing knowledge with healthcare providers
- (2) Revise or create tools to support understanding and implementation of the MHAUS recommendations for prevention and care of MH patients
- (3) Discuss new initiatives and identify Committee Member Lead for those that project

(I) CURRENT PROJECTS—(Microsoft Teams Platform).

Project #1:

Review the Healthcare Professionals Tab on MHAUS.org

- Continuation of committee work from meetings

Objectives:

- (1) Review information for evidence-based educational value, timeliness, relevance & accessibility.
- (2) Identify material to be updated/revise “in house” and areas that require referral to Website Developer.

Actions

- Entire website reviewed, concluding that MHAUS.org is the “Face” of MHAUS All materials need to be timely, evidence-based, and easily navigated.
- Committee began website evaluation, focusing on the Healthcare Provider tab which supports most “hits”. Healthcare Professionals Tab accessed approximately 47,000 times in 2020.

Progress Made:

Committee members picked Healthcare Professional Tab Sections for in-depth review:

MHAUS.org-Health Prof. Tab	Education Committee Submitted	Education Committee Approved	PAC Submitted	PAC Approved	MHAUS Board Submitted	MHAUS Board Approved
How To Be Prepared (Jackie)	X					
Manage A Crisis (Teeda)	X	X	X	X	X Attachment A	
After A Crisis (Terry)	X					
MHAUS Recs (Julie)	X					
Professional Dev. (Darlene)	X					
MH Prep Report Table (review'd 6/30 & 7/21/20 meetings) (Tina & Darlene)	Will be advanced pending review of Prof Dev Tab					

Challenges/Obstacles to Address:

MHAUS Education is a large and complex. Committee member analysis and consensus is that MHAUS.org educational sections need to be updated. Some sections can be modified “in house” but others may need to be addressed by a Website developer. May be expensive and require Board approval.

An in-dept look at Healthcare Provider Tab (approx. 47,000 visits in 2020) is underway. The focus is on streamlining, defining objectives and improving utility for the user.

Timeline to Completion: Discussed at February 1, 2021 Ed Meeting—Lofty project hope to complete by 1/2022.

Project #2:

Create healthcare provider focused questions for MHAUS.org Trivia Tuesday

Objectives: (1) Diversify MHAUS.org Trivia Tuesday question pool

Challenges/Obstacles to Address: Questions are needed to diversify Trivia Tuesday question pool. Consider asking other MHAUS healthcare provider affiliates to send questions to Ed Committee; thereby, ensuring diversity and perspective of the questions. **Timeline to Completion:** Ongoing.

(2) UPDATE ON JANUARY 2021 REPORT TO THE BOARD-

Project #1 Title: Review the Healthcare Professionals Tab on MHAUS.org. **Progress made:** This project is ongoing as described above.

Project #2 Title: MHAUS Ed Committee Project Evaluation Tool to standardize MHAUS Ed Committee Process for reviewing new and existing educational offerings (attachment B). **Progress made:** Approved.

Project #3 Title: MH Teaching Tool (submitted 9/22/20) for MH In Service quick reference. **Progress Made:** Reviewed then dismissed by Ed committee on 12/1/20. See Jan 2021 Report to Board for details.

(3) FUTURE PROJECTS:

1. 30-Minute CME-accredited Lecture Series (8-9/year) for Institution Level Members of MHAUS and for individual purchase. Idea submitted by Dr. Ron Litman and endorsed by Dr. Rosenberg

Possible lectures--

Great Cases from the MH Hotline

Ten Myths about Malignant Hyperthermia

Transfer Plans (ASC and Office-based Surgery Center)

(4) NEXT MHAUS EDUCATION COMMITTEE DATE: May 3, 2021

Agenda Items:

1. Healthcare Professional Tab
 - a. Discuss assigned sections of MHAUS.org
2. Future Project

ATTACHMENT A:

MHAUS EDUCATION COMMITTEE RECOMMENDATIONS FOR MHAUS.ORG WEBSITE

HEALTHCARE PROFESSIONAL TAB

"MANAGING A CRISIS" - Committee Lead: Teeda Pinyavat

	SUBMISSION DATE	APPROVAL OF CHANGE
MHAUS EDUCATION COMMITTEE	2/1/21	2/1/21
MHAUS PAC	2/18/21	3/6/21
MHAUS BOARD	TBD	

PROPOSED CHANGES TO "MANAGING A CRISIS" ARE IN RED:

OVERALL DESIGN-- CHECKLIST DESIGN (EASY REFERENCE)

**Delete the big clock picture

**Change Box Name -- "Treating A MH Crisis"

Emergency Treatment for An Acute MH Event

1) Declare an "MH Emergency"

- Notify surgeon, stop procedure.
- Call for help, Call 911 if no help available
- **Get dantrolene/MH cart**
- Call **MH Hotline (1-800-644-9737)**

2) Eliminate Triggers

- Discontinue volatile agents and succinylcholine
- If surgery must be continued, maintain general anesthesia with IV non-triggering anesthetics
- Intubate and **hyperventilate** -100% oxygen at flows of 10L/min or higher
- Do not replace anesthesia machine
- Insert **activated charcoal filters** if available, inspiratory and expiratory limbs, substituted after each hour of use (Add picture)

3) Give Dantrolene

Loading dose IV Dantrolene = 2.5 mg/kg

Reconstitution:

DANTRIUM®/REVONTO®

Add **60 mL sterile water** / 20 mg vial = 0.33mg/mL

70kg patient = 175mg = 530mL (9 vials) (Add picture)

RYANODEX®

Add **5 ml sterile water**/ 250 mg vial = 50mg/mL

70kg patient = 175mg = 3.5mL (1 vial) (Add picture)

Administration:

- Bolus through largest available IV, ensure no infiltration
- **Repeat 2.5mg/kg q5-10min** until improvement (decrease ETCO₂, decreased muscle rigidity, decrease temp and/or lowered heart rate)
- Upper limit dosing: **>10mg/kg may be required** for patients with persistent contractures or rigidity. If giving large doses without symptom resolution, consider alternative diagnoses.

4) Access and Monitors:

- Follow: HR, BP, EKG, ET CO₂, Core temperature
- 2 large bore IVs (consider central access)
- Consider arterial line (Arterial or venous blood gas)
- Urinary catheter

5) Symptomatic Treatment

HYPERTHERMIA:

- Monitor core temperature (esophageal usually most accessible).
- **Active cooling if core temperature is >39°C** (or less if rapidly rising)
 - Surface cool - cooling blanket, ice packs to bilateral groins, axilla
 - If necessary, bolus **20mL/kg refrigerated normal saline**
 - Undrape patient
- Stop cooling at temperature 38°C

ACIDOSIS:

- Obtain blood gas (venous or arterial)
- **Mixed respiratory and metabolic acidosis** is consistent with MH
- Administer **sodium bicarbonate**, 1-2 mEq/kg dose, for base excess greater than -8 (maximum dose 50 mEq).

ARRHYTHMIA:

- High suspicion for **hyperkalemia**. If K > 5.9 or ECG changes, treat with:
 - **Calcium** chloride 10 mg/kg (maximum dose 2gm) or
 - Calcium gluconate 30 mg/kg (maximum dose 3gm)
 - **Sodium bicarbonate** 1-2 mEq/kg IV (maximum dose 50 mEq)
 - **Glucose/regular insulin:**
 - Pediatric dose: 0.1 units /kg IV with 0.5 grams/kg dextrose
 - Adult dose: 10 units IV and 50 ml 50% dextrose
- For refractory hyperkalemia: albuterol (or other beta-agonist), kayexelate, dialysis, or ECMO if patient is in cardiac arrest.
- **Avoid calcium channel blockers**

6) Renal Protection

- Diuresis to **urine output >1ml/kg/hr**
 - If urine pink or K+ elevated, assume myoglobinuria: alkalinize urine with sodium bicarbonate infusion (1 mEq/kg/hr)

7) Laboratory Studies

- Blood gas
- CK
- K+
- Urine myoglobin
- Coagulation studies (severe cases can result in DIC)

8) Assess Stability

Key indicators of stability for transfer:

- ETCO₂ declining or normal
- Heart rate stable or decreasing
- No signs of ominous dysrhythmia
- Hyperthermia resolving
- Generalized muscular rigidity resolved

9) Transfer to ICU for 24 hours

- Transfer of care including total dose and timing of dantrolene
- Continue Dantrolene 1mg/kg q 6hours
- See Post Crisis Management

You can copy/paste the link below to see document for tracking changes:

<https://drive.google.com/file/d/1zsLLAJ09d2GDwa5LbBhivo1yIRR16Tx4/view?usp=sharing>

Attachment B:

MHAUS EDUCATION COMMITTEE PROJECT EVALUATION:

New Project? Yes No

SUBMISSION DATE:

REVISION DATE(s):

COMMITTEE APPROVAL DATE:

(1) TITLE:

(2) AUTHOR(S):

(3) NEEDS STATEMENT:

(4) HOW IS THIS PROPOSAL UNIQUE? LIST SIMILAR OFFEERINGS.

(5) GOAL(S) & OBJECTIVES STATEMENT: (Should meet the need(s) identified in (1))

(6) TARGETTED AUDIENCE/USERS:

(7) TIMELINE FOR PROJECT DEVELOPMENT (as appropriate. Include time for PAC review if evidence-based materials are proposed):

(8) BUDGET FOR DEVELOPMENT:

(9) PRODUCTION COST:

(10) WILL THIS EDUCATIONAL MATERIAL BE SOLD, COMPLEMENTARY OR PART OF MEMBERSHIP PACKAGE?

(11) MARKETING/ADVERTIZING STRATEGY: