Preparedness for Malignant Hyperthermia Can Be Survey Stumbling Block

by Kate Traynor

BETHESDA, MD — The inability of hospitals to meet expectations for responding to malignant hyperthermia (MH) is an occasional but persistent problem, recently released data from the Centers for Medicare and Medicaid Services (CMS) show.

From 2011 through 2015, inspection findings at eight hospitals and health systems revealed “deficiencies” related to MH preparedness, according to CMS.

Most of the problems cited by inspectors involved having an inadequate supply of dantrolene or failing to train staff to obtain and administer the drug in time to avert a potentially deadly outcome in a patient with MH. I.V. dantrolene is the only FDA-approved drug indicated for the treatment of MH, a life-threatening rise in body temperature that can be triggered by exposure to succinylcholine or certain other drugs. In MH-susceptible patients, the condition results from a cascade of biochemical events that first affect skeletal muscles and can progress to cardiovascular collapse and death.

The Malignant Hyperthermia Association of the United States (MHAUS), an advocacy and education group that provides evidence-based advice for preventing and managing MH, recommends that dantrolene be accessible within 10 minutes after a decision is made to treat a patient for MH.

Rita Shane, chief pharmacy officer at Cedars-Sinai Medical Center in Los Angeles, recalled that surveyors have long taken that recommendation seriously.

During a 2008 California Department of Public Health survey, she stated, a surveyor surprised the staff by actually timing whether a mock MH case could be treated in the time frame recommended by MHAUS. More recently, a Joint Commission Resources mock survey recommended that all healthcare providers involved in the care of patients exposed to anesthetizing agents conduct drills to ensure the institution can meet MHAUS guidelines.

The lesson learned from these visits, she said, is that it’s necessary to have “an ongoing process for MH readiness, which includes periodic review of the MHAUS guidelines.”

She said this is necessary “to ensure that necessary medications are readily available in the potential areas where we could see an MH case—and that staff, including nurses, have a working knowledge and can respond per guidelines.”

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Knowledge has to be improved, challenged, and increased constantly, or it vanishes.
– Peter Drucker (1909-2005), considered the top management thinker of his time

Malignant Hyperthermia (MH) is an inherited muscle disorder which, when triggered by potent inhalation anesthetics and succinylcholine, may cause a life-threatening crisis. The incidence of MH is low, but, if untreated, the mortality rate is high. Since the advent of the antidote drug, dantrolene sodium, and with greater awareness of the syndrome, the mortality rate has decreased. Great advances in our understanding of MH have been made since it was first recognized in the early 1960s, but the nature of the fundamental defect(s) is still unknown.

MHAUS advocates that all surgical patients undergoing general anesthesia should receive continuous temperature monitoring, that adequate supplies of dantrolene be stocked near the OR and that thorough family histories be obtained.

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Executive’s Corner ...

Diane Daugherty
MHAUS Executive Director

I thought I would share my thoughts in this issue on a number of “Did You Know” items. Consider the positive impact you may have experienced as an MHAUS member. Here we go:

DID YOU KNOW there are Partner Memberships available to you, your friends and coworkers?

Active members of AANA, ASPAN, AAAA, SAMBA, or AORN have the option to choose a yearly “partner membership” at MHAUS for only $20! That is a 60% discount off the normal cost. By letting them know about this option, you provide them access to most of our MH preparedness materials at 30% off, as well as regular quarterly updates via our newsletter, The Communicator. They will thank you!

DID YOU KNOW we are revamping our website to highlight new products and programs?

Several “slides” will rotate and change as the information evolves. For instance, you will see a frame that shares relevant information about MH and MHAUS, another that highlights either a recent blog submission or an event that relates to MH and/or MHAUS. We also will use this medium to share new products in the marketplace that we anticipate will be a valuable resource for you when considering how to assure your facility is prepared for MH. This will be regularly changing from month to month, as the information comes into MHAUS from our sources, so keep tabs on the site to be sure you are aware of the latest!

DID YOU KNOW that we are encouraging patients and their family members to share personal experiences with MH and how they dealt with an unforeseen malignant hyperthermia event?

We often hear about the help received from the patient’s healthcare providers and insight and direction they obtained when talking with the MHAUS organization. There is a wealth of support to be gained from reading these stories, and if you are willing, share your own story on the Faces of MHAUS.

DID YOU KNOW we would love to hear why you are a member of MHAUS and the benefits of membership?

We realize the 30% discount on products is a nice benefit, but we would like to hear your thoughts as to what we have done to help your personal situation. Has the fact that our MH preparedness materials (already developed with MH expert oversight) saved you revenue in the long run? How, you may ask? Consider that you have not had to take your own time to develop them and/or hire someone else to assure they are in alignment with patient safety guidelines. Remember, the MH information we provide has been designed with patient safety in mind for over 30 years. When you use it on a regular basis to remind yourself of the steps to manage an MH event, it may be the deciding factor in saving your patient’s life and keeping them safe.

DID YOU KNOW the various regulatory agencies are using MHAUS’ guidelines as a checklist for surveyors.

continued on page 7
Kathy Doub, senior director of pharmacy operations for Novant Health, an integrated health system serving patients in Georgia, North Carolina, South Carolina, and Virginia, said she’s unaware of state inspectors using a timer during a survey. But she said inspectors have paced out the distance between an MH cart and an area where succinylcholine is administered to ensure that they weren’t too far apart.

“It’s not a written rule—it’s surveyor specific,” Daub said of the expectation regarding the proximity of MH carts to areas where MH may occur.

About 1 in 500 people are genetically predisposed to MH, and the condition is thought to occur during about 1 in 100,000 surgical procedures in adults and 1 in 30,000 surgical procedures in children, according to MHAUS. During 2014, 2015, and the first three months of this year, the MH Hotline fielded 164 calls from healthcare providers responding to a presumed MH crisis.

Doub said she’s seen perhaps two or three cases of MH during her career. She said healthcare providers must be regularly trained to recognize and respond to MH, in part because they may be unfamiliar with the illness but need to act quickly if they encounter it.

“Know what drugs can trigger malignant hyperthermia,” Doub advised pharmacists. “If you have those drugs in an area, then you have to make sure that you have the MH cart. And people need to be educated on MH and know where the closest cart is.”

36 vials of dantrolene. MHAUS recommends that at least 700 mg of dantrolene sodium—enough to treat a 70-kg patient—be available in or near operating rooms and other areas where an MH-triggering event may occur; according to MHAUS, that means keeping 36 20-mg vials or 3 250-mg vials of dantrolene close at hand.

CMS doesn’t have a detailed policy on how surveyors should assess a facility’s preparedness to manage MH. But the agency has stated that it expects facilities to follow “current accepted standards of practice” for MH preparedness.

In practice, that appears to mean that CMS and state surveyors expect healthcare facilities to follow MHAUS recommendations.

Hospitals must also comply with their own written policies and procedures for MH preparedness as well as applicable state rules and regulations, and inspectors can cite facilities that fail to do so.

Inspection findings. The CMS data describe problems in California and Virginia hospitals that were cited for inadequacies in their ability to respond to MH.

Among other things, the inspectors found mismatches between the quantities of dantrolene and associated supplies stocked in MH carts and the quantities stated in policies and procedures. In some cases, MH carts or kits contained

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MHAUS’ Membership Campaign
Refer a friend, win prizes!

Now through September 30, 2016

Invite everyone you know to become a member of MHAUS. As a thank you for your hard work, MHAUS will enter your name in a drawing to earn prizes. The more people you recruit, the more chances you have to win!

With every paid membership referral who enters your member number during registration, you will be entered into the quarterly drawing. If you recruit five or more paid memberships, your name will be entered into the annual drawing. That’s right! You could win more than once!

The drawings will be for patient/family memberships as well as all healthcare professional memberships, including students and our partner memberships.

Here are the rules:

✓ To participate, you must have an annual paid membership.
✓ The person you refer must sign up for an annual paid membership with MHAUS to qualify.
✓ The person you refer must enter your member number in the appropriate section upon registration.
✓ 2016 quarterly drawings will occur on January 4, April 1, July 1, and October 3. The annual drawing will be done on October 3, 2016.
quantities different from those stated in cart or kit inventories. Also common were inadequacies in staff training and the failure of staff to find dantrolene in a reasonable amount of time.

One medical center was also out of compliance with a state law related to the storage of emergency drugs.

The Virginia Department of Health in 2013 released a memo calling the failure to have dantrolene on hand for use as a reversal agent “a growing problem” in the commonwealth. According to the memo, which was directed to hospital administrators, if inspectors find that dantrolene is needed but the drug is unavailable or has expired, they will cite the facility for an “Immediate Jeopardy” situation and inform CMS of the citation.

CMS defines immediate jeopardy as a situation “in which the provider’s noncompliance with one or more requirements of participation has caused, or is likely to cause, serious injury, harm, impairment, or death” to a patient. A finding of immediate jeopardy can occur during any survey or investigation of any certified Medicare or Medicaid entity other than a clinical laboratory.

Doub said any finding of immediate jeopardy by any regulatory agency is a serious situation.

“In any immediate jeopardy situation, you have to have a plan, you have to have a timeline, and you have to have education and training. And you have to be able to document and demonstrate that to the regulatory agency,” Doub said.

Not all identified problems reflected in the CMS data constituted immediate jeopardy. As CMS reported, one of Novant Health’s freestanding emergency departments was cited in 2013 for having succinylcholine in an automated storage cabinet but not stocking an MH kit.

Doub said the succinylcholine had been stocked in the dispensing cabinet, which didn’t have patient-profile capabilities and thus wasn’t subject to real-time review by a pharmacist. Since succinylcholine had not been used at the facility, it was removed.

“We had no patient harm from it. It was a good learning experience and an opportunity for us,” she said.

MH Survival Story

Ernesto’s Story

On May 5, 1983, when I was just seven years old, I had surgery to remove my tonsils and adenoids. Within five minutes of the halothane being administered, I had an MH reaction; my heart rate increased and I had muscle rigidity that developed with the use of succinylcholine.

At this time, the anesthesiologist decided to stop the anesthetics and cancel the surgery. I believe that my anesthesiologist’s knowledge and education on MH and the decision to stop my surgery saved my life and I owe him a debt of gratitude.

It was at this point that I was referred to Dr. Henry Rosenberg in Philadelphia, PA. On August 2, 1983, my muscle biopsy was performed. The muscle behaved in an abnormal fashion to halothane and therefore Dr. Rosenberg derived that I was susceptible to developing malignant hyperthermia on exposure to triggering anesthetics.

From that point forward, I have carried a card or worn a bracelet with medical alert information on it and I have been diligent in supplying my MH information to all of my current physicians.

I am now married and have a beautiful daughter, Tomasina. My wife and I are currently doing research into having our daughter tested for MH susceptibility.

Do you have an MH Survival Story? Tell us about it. Visit the MHAUS website at www.mhaus.org and click on “Faces of MH” under the “Get Involved” tab.

Long-Term Oral Dantrolene Improved Muscular Symptoms in a Malignant Hyperthermia Susceptible Individual

by Brett Teodoro

A recent case report presented a patient with a significant family history of MH who had frequent symptoms consistent with the skeletal muscle response seen in MH events. The most common triggers of an MH event are volatile anesthetic gases and the depolarizing muscle relaxant succinylcholine. Uncommon triggers though, confirmed in the literature, include vigorous exercise and heat exposure.

The patient in this report had a sibling die during a minor surgery with exposure to a volatile anesthetic, an uncle died unexpectedly during an operation and an aunt died during childbirth in warm weather. This concerning family history prompted this patient to have specific MH testing performed.

Test results were consistent with MH susceptibility (this was done prior to the more accurate testing available today). During the exam, the patient mentioned leg and calf muscle cramps as well as back pain affecting her sleep. The testing results, coupled with the patient’s symptoms resulted in the recommendation to take 25mg dantrolene daily by mouth.

Twenty-five years of follow up ensued. The patient reported resolution of symptoms 1-2 weeks after starting therapy. Her muscle cramps subsided and her back pain improved, which allowed her to get better sleep. Twice over the two and a half decades of follow up the patient had interruptions in her dantrolene medication. Each time she reported a return of cramps and back pain, and each time the medication was restarted, symptoms resolved.

No medication is without risk. The more common side effects of dantrolene include drowsiness, dizziness, nausea, vomiting and weakness. It has also been associated with hepatic injury at chronically high doses. The patient studied had no increase in lab values that would indicate liver injury; she did however complain of gait instability if dantrolene was taken in the morning, so she opted to schedule her dose for bedtime which solved the instability.

This exciting report highlights the potential benefits for MH susceptible patients who are suffering from chronic muscle pain and cramps.
Sheila Riazi Reports from the 35th Annual European Malignant Hyperthermia Meeting

by Sheila Riazi, MSc, MD, FRCPC
MH Investigation Unit, Department of Anesthesia, University of Toronto

Thirty-fifth EMHG meeting took place on May 12-14, 2016 in the Reisenburg castle in the beautiful city of Guenzburg. The event was organized by the MH group at University of Ulm in Germany, led by Dr. Werner Klingler. Apart from the outstanding social program that was arranged, the scientific content of the meeting was also excellent. The meeting was well attended by physicians, scientists, and trainees from Europe, Australia, New Zealand, Africa, and South America. From North America, Drs. Sheila Muldoon, Stacey Watt, Andrew Ding, and Sheila Riazi attended.

The first two days included 24 presentations on six general topics of calcium handling, heat stress and metabolics, myopathies, case reports, genetics, epigenetics and patient safety.

Calcium handling sessions included presentations on various calcium pathways in the skeletal muscle cells and changes with halothane and temperature in mouse models of MH. There were several presentations from Leeds MH group, including overview of a different method (CRISPR-Cas9) to facilitate functional analysis of newly identified mutations; changes in expression of several genes following exposure to heat in MH mouse model; study of expression of various genes in MH patients with whole genome affymetrix arrays (a microarray technology for genomic analysis).

Toronto’s MH group demonstrated increased oxidative and osmotic stress, and baseline high metabolic rate along with impairment of fatty acid oxidation in MHS, compared to MHN. In a very interesting study, Dr. Treves showed increased bleeding in patients with gain of function mutation in RYR1, due to impairment of smooth muscle cell contractility. She elegantly showed the existence of RYR1 proteins in smooth muscle cells, and that dantrolene counteracted the bleeding.

Some of the highlights of the clinically-related presentations continued on page 7
were increased twitch peak force in response to caffeine in mice pre-treated with simvastatin. The study was performed by a Brazilian MH group, who also showed positive IVCT in 60% of their idiopathic hyperCKemia (i.e., high creatine kinase with no apparent diagnosis) patients. A Swiss MH group demonstrated that intake of simvastatin in MH pig models was associated with increased contracture to halothane. There were a few reports of MH crisis in Bulgaria and South Africa, and one report of MH crisis and death in a 6 month-old baby with two RYR1 mutations from Germany. Also, there was an announcement of opening the South African MH Center in Pretoria.

From genetics aspects, a Leeds group showed their change in the MH diagnostic algorithm and that next generation sequencing (NGS) is now being performed as the first step, and if the patients’ genetic testing are negative or if they carry variants of unknown significance, IVCT will be performed. A MH group in Leipzig showed correlation between IVCT contracture results and positive genetic results. The rate of positive genetics (with full RYR1 and CACNA1S screening) was 75% in their positive IVCT patients. They demonstrated the patients with two mutations had higher contracture values or reached the threshold with lower concentration of caffeine and halothane.

Dr. Klingler’s lab showed male dominance in their positive IVCT patients, with higher BMI, and lower resistance values in affected males. Toronto’s MH group showed significantly higher penetrance for MH in R163L and G2434R mutations.

Dr. Gillies from Melbourne showed identification of an RYR1 variant (p.Asp2431Tyr) in the first reported MH family (Denborough’s case).

Dr. Stowell from New Zealand showed identification of a few novel RYR1 variants found via NGS along with their functional analysis. It is of note that Dr. Stowell and Dr. Erik-Jan Kamsteeg (Netherlands) were jointly appointed as EMHG genetic officers. They along with others will implement an RYR1 database for MH and revise genetic guidelines for MH.

There is an effort by EMHG to setup scenarios for simulation for MH, which is led by Dr. Dalmas from Lille.

There was a report from German MH hotline that showed 11% of calls are about MH incidence, 11% about atypical cases, and 4% are from ICU. A survey of German anesthetists revealed that 47% have access less than 36 vials of dantrolene.

One of the highlights of the meeting was implementation of “fitness breaks” between lectures led by an exercise physiologist, followed by an interesting presentation by professor Schleip on significant role of fascia in muscular force transmission, proprioception and soft tissue pain.

The next annual European MH meeting will be held in Antwerp on June, 1-2, 2017.

Summer is upon us. ....DID YOU KNOW more and more clinical data is suggesting there may be a relationship between MH and heat-stroke/exertional rhabdomyolysis (muscle pain)?

This data has encouraged us to build on our initial efforts to join forces with other like-minded forces focused on reducing and eradicating deaths from this killer. We maintain an open dialogue with the Korey Stringer Institute to share data and education both ways and have asked a very well-known neurologist to join our board of directors as his feedback, insight, and knowledge are extremely helpful in sifting through the data. We plan to share updates on progress made through The Communicator and on the website as the months and years progress. We are anticipating future research will provide answers to the questions that are confusing at this moment.

I personally plan to reach out to some of our members to ask for your thoughts on assistance received from MHAUS’ staff and MH experts to assure the quality we offer remains at a high standard and improve, if possible. I want to understand how we help your personal practice, facility or personal life and would relish sharing your testimonial with others.

I leave you with my fervent wish for a happy and healthy summer season!
George Massik, a Co-founding Member of MHAUS, Passes

Jan. 22, 1927 – April 21, 2016

George Massik, of Amherst, NY, a retired pharmacist and philanthropist, died Thursday in Hospice Buffalo, Cheektowaga, after a period of declining health. He was 89. Born in Buffalo, he was a 1944 graduate of Bennett High School and a graduate of the School of Pharmacy at the University of Buffalo.

Mr. Massik opened his first pharmacy, Park Plaza Pharmacy, in Cheektowaga in 1954. He was owner and co-owner of several drugstores in the Buffalo area, in addition to operating a wholesale business. He retired in the late 1970s.

In 1978, he discovered that his family was susceptible to a little-known disorder, malignant hyperthermia, after his son Daniel was struck by a truck while riding his bicycle to North Carolina during his senior year at Duke University. Because a small-town hospital did not recognize the anesthetic-related disorder, his son died.

In his son’s memory, he co-founded the Malignant Hyperthermia Association of the United States, which maintains a 24-hour hotline. Through the association, he established the Daniel Massik Writing Award, which gives a grant to anesthesiologists in residence or in training for the best manuscript about an aspect of the disorder.

Mr. Massik and the other co-founders were honored at a convention of anesthesiologists in 2006.

In his son’s memory, he established the Daniel Massik Fund at the Foundation for Jewish Philanthropies in Buffalo, which supports a wide range of charitable agencies. He also founded The Compassion Fund, which supports people at times of immediate need, such as the threat of a utility shutoff.

Last fall he was honored by Us Too of Western New York, an education and support group for patients dealing with prostate cancer, for his many years of advocacy and dedication. In 2014, the Hebrew Benevolent Loan Association gave him its Exemplary Service Award for his many years of support.

He also was chairman of the Holy Order of the Living Cemetery for many years and put the organization on a firm footing financially.

Physically active, he was a downhill skier until he was 79 and an avid bicyclist until he was 85.

Survivors include his wife, Mary Van Vorst; a son, Michael; a daughter, Diane McDaniel; a sister, Esther Rothenberg; and a grandson.

Meet New Hotline Consultant
Dr. Stacey Watt

Dr. Stacey Watt, MD, Chief of Anesthesiology, Kaleida Health, and Director of the Pediatric Anesthesiology Fellowship program at the University of Buffalo, became an MH Hotline Consultant in 2015.

“My interest in malignant hyperthermia was sparked by my exposure to it by one of my mentors at SUNY Buffalo, where I learned to appreciate the disorder and its impact on patients and families,” she says. “The more I learned, the more fascinated I became with the disorder.”

Dr. Watts also has a background as a competitor in high-level athletics, and she remains an active coach. Thus, her interest in MH has spread to the area of exertional heat stroke and other similar heat-related injuries, and that remains the area of her current research.

Dr. Watts joins an elite team of 32 specialists nationwide that provide 24-hour emergency phone assistance in cases of malignant hyperthermia.
American and Filipino forces came together in Iloilo City, Philippines, on 8 January 2016. The group of healthcare professionals from the United States was led by Saint Barnabas Medical Center (Livingston, NJ) anesthesiologist and Marian Rose World Mission non-profit organization founder, Dr. Cristina G. Pamaar.

At the end of a week of medical and civic services in Iloilo, the group brought forth a symposium on malignant hyperthermia (MH) to their counterparts in the Philippines that Friday. The symposium was supported by the Malignant Hyperthermia Association of the United States (MHAUS) via educational materials and guidance of MHAUS President, Dr. Henry Rosenberg.

Dr. Pamaar commenced the event by addressing the crowd of 100 nurses, physicians, and students, in the auditorium at Saint Paul University. She described the significance of recognizing the life-threatening syndrome of MH and how the symposium’s tutorial components which would confer knowledge to save the lives of patients.

The first lecturer was Dr. Jonathon Smith, a practicing anesthesiologist from Alabama and previous resident of Dr. Pamaar. He presented a number of topics pertaining to MH, including signs and symptoms, causes, pathophysiology, diagnosis, prevention, and treatment. The second lecturer was Dr. Ramesh M. Singa, a resident in anesthesiology at Saint Barnabas Medical Center. He presented a mock MH drill, provided by MHAUS, and brought the audience’s attention to important elements during an MH episode, including changes in vital signs, coordinated teamwork to deliver care, and techniques of rapid dantrolene reconstitution.

After the two lectures, the audience separated into smaller groups and were directed toward several MH tutorial stations. At one station, Dr. Sophonie Noel, an anesthesiology resident at Saint Barnabas Hospital, discussed a case report of MH occurring at the Saint Barnabas Ambulatory Care Center. At another station, Dr. Seema Kamisetti, a regional anesthesia fellow at Vanderbilt University, demonstrated the items of the MH tackle box donated to Iloilo medical community by the Marion Rose foundation, including dantrolene, furosemide, sodium bicarbonate, intravenous tubing, and other essentials for appropriate patient care.

Three other stations comprised of interactive case scenarios with mannequins equipped with prompts that the small-group audience would choose from and the case moderator would provide the best recourse in the situation if a less effective answer was given. These stations were moderated by Dr. Pamaar; Dr. Christopher O’Mahoney, an anesthesiologist at Saint Barnabas Medical Center, Nina Weeks Bullard, a certified nurse anesthetist from Boston, and Athena Kerin, a certified nurse anesthetist; and Drs. Singa and Smith.

There was an incredible amount of enthusiasm during the entire symposium, easily recognized by the quantity and quality of questions asked by the audience. By the end of the day, smiling Filipino faces gave hugs and took photos with their American counterparts. It was without a doubt that the diffusion of knowledge of MH throughout Iloilo and the rest of the Philippines will endure, helped by colleagues of a common cause.

The U.S. and Canada MH Hotline is 1-800-MH-HYPER (1-800-644-9737)
Outside the U.S., call 1-209-417-3722
Implementation of a New Dantrolene Formulation Across a Multifacility Health System

Commentary
This article describes the process of product conversion to the Ryanodex formulation of dantrolene. Motivated by a work group of pharmacy personnel, an anesthesiologist, a nurse anesthetist, and a representative of the health system’s group purchasing organization, both potential patient care benefits and process benefits were identified. Smaller systems might need less than the 4 months needed by this 15 hospital system to complete this process.

Authors
Zavilla, Chelsea M. University of Pittsburgh School of Pharmacy, Pittsburgh, PA. Sklendar, Susan. University of Pittsburgh Medical Center Health System, Pittsburgh, PA, and University of Pittsburgh School of Pharmacy, Pittsburgh, PA. Lang, Mary Beth. H.C. Pharmacy, Inc., Pittsburgh, PA, and University of Pittsburgh Medical Center, Pittsburgh, PA. Gross, Christopher. Pharmacy, Inc., Pittsburgh, PA, and University of Pittsburgh Medical Center, Pittsburgh, PA.

Title
Implementation of a new dantrolene formulation across a multifacility health system

Source

Abstract
PURPOSE: An initiative to optimize the treatment of malignant hyperthermia in surgical patients through a dantrolene product conversion program is described.

SUMMARY: A large health system’s formulary evaluation of a new dantrolene sodium product indicated that despite a higher cost per treatment course, the product could offer key advantages over older formulations of dantrolene in terms of preparation and administration time, product content, and storage requirements. A work group, consisting of pharmacy personnel, an anesthesiologist, a nurse anesthetist, and a representative of the health system’s group purchasing organization, determined that a switch to the new dantrolene product would offer both patient care benefits and process benefits. With the approval of the health system’s pharmacy and therapeutics committee, the new product was added to the formulary as the preferred dosage form of dantrolene, and existing dantrolene product stock was converted to the new formulation. Key implementation steps included (1) concurrent replacement of dantrolene stock on all “malignant hyperthermia carts” across the 15-hospital health system, (2) development of educational materials to raise awareness of the conversion and revised product preparation procedures, (3) anesthesiology provider and pharmacy staff education, (4) revision of dantrolene listings in each hospital’s computerized prescriber-order-entry system, and (5) redistribution of returned dantrolene product stock. The dantrolene product conversion occurred over a four-month period.

CONCLUSION: A multifacility health system was successful in converting an existing stock of dantrolene to a newly available formulation.

MHAUS Partners with American Society of Peri-Anesthesia Nurses

The American Society of PeriAnesthesia Nurses (AS-SPAN) has partnered with the Malignant Hyperthermia Association of the United States (MHAUS) to offer MHAUS membership benefits to active ASPAN members at a reduced rate.

“For many years, ASPAN has supported and upheld the mission of MHAUS, and remains focused on assuring their patients remain safe from an MH crisis through MH preparedness action plans. The mutual respect and cooperation between our organizations is enhanced through consistent and open communication. “It was recently decided this partner membership option will allow us to combine each group’s individual members into a larger, focused group with the ability to yield positive and impactful action in the future. By sharing robust feedback between the leaders and members of ASPAN and MHAUS, we will most certainly enhance and improve the MHAUS products and programs designed to save patients’ lives,” said Dianne Daugherty, MHAUS Executive Director.
Did you know?

MHAUS offers a lifesaving Hotline, free-of-charge, for any healthcare professional who unexpectedly comes face-to-face with a malignant hyperthermia emergency and quickly needs help. The cost per call to MHAUS is $100.00, and includes the contracted service to transfer your call to a consultant, the costs associated with the MH Hotline Coordinator, who assures there are consultants ready every day on a 24-hour basis for you. Dedicated MH Hotline Consultants, all well-known MH Experts, freely volunteer their time to help their fellow healthcare professionals through an intense situation.

Consider making at least a $100.00 donation (to cover a single call) specifically to help us maintain this lifesaving tool provided by MHAUS to all healthcare professionals.

Enclosed is my tax-deductible contribution of $_____________ in support of the lifesaving MH Hotline.

Please make checks payable to: MHAUS and send to PO Box 1069, Sherburne, NY 13460.

Name on card: ___________________________________________________

Credit Card Number: ___________________________ Expiration Date _________

Signature: ________________________________________________________

Yes! I want to support MHAUS in its campaign to prevent MH tragedies through better understanding, information and awareness.

A contribution of: ❑ $35 ❑ $50 ❑ $100 ❑ $250 ❑ $500 ❑ $1000 (President’s Ambassador)

or ❑ $ ____________, will help MHAUS serve the entire MH community.

Please print clearly:

Name: ______________________________________________________________________

Address: ___________________________________________________________________

City: ____________________ State: _____________ Zip: ____________

Phone: ___________________________ E-mail: ____________________

❑ I am MH-Susceptible ❑ I am a Medical Professional

Please charge my ❑ Visa ❑ Mastercard ❑ Discover ❑ American Express

Name on card: ___________________________________________________

Credit Card Number: ____________________________________________

CV Code: ____________________ Expiration: _________________________
MHAUS Happenings, Events and Notices

❑ THANKS! MHAUS thanks the following State Societies of Anesthesiology – Alabama, Michigan, and Wisconsin – for their financial support. Our appreciation also goes out to the following Associations of Nurse Anesthetists: Illinois, New York, Michigan, and Tennessee. Call the MHAUS office to ask Gloria how your group can join their ranks.

❑ MH Memorial Ride and After Party, August 12, Sherburne, NY
Join us for a day of fun. Registration begins at Gilligan’s at 9:00 am. Kickstands up at 11:00 am for a Sweets and Treat’s Poker Run along scenic route 80, through Glimmerglass State Park, with stops at Fly Creek Cider Mill, Dyn Cider Mill, and Stewart’s Shop in New Berlin to sample the goodies and collect your card. Meet back at Gilligan’s for the family friendly after party that starts at 3:00 p.m. The after party will have a bounce house, ice cream, cotton candy, popcorn, Bike Show, raffles, and music! All are welcome! Bring the family. All proceeds from this event will go to MHAUS’ education fund to allow us to continue to educate the healthcare community about early recognition to prevent any more unnecessary deaths from malignant hyperthermia. If you have any questions, be sure to contact Tina Roalef at 607-674-7901 or by email at tina@mhaus.org.

❑ MH Memorial Ride and After Party, August 12, Sherburne, NY
Join us for a day of fun. Registration begins at Gilligan’s at 9:00 am. Kickstands up at 11:00 am for a Sweets and Treat’s Poker Run along scenic route 80, through Glimmerglass State Park, with stops at Fly Creek Cider Mill, Dyn Cider Mill, and Stewart’s Shop in New Berlin to sample the goodies and collect your card. Meet back at Gilligan’s for the family friendly after party that starts at 3:00 p.m. The after party will have a bounce house, ice cream, cotton candy, popcorn, Bike Show, raffles, and music! All are welcome! Bring the family. All proceeds from this event will go to MHAUS’ education fund to allow us to continue to educate the healthcare community about early recognition to prevent any more unnecessary deaths from malignant hyperthermia. If you have any questions, be sure to contact Tina Roalef at 607-674-7901 or by email at tina@mhaus.org.

❑ Book Editors Seek Writers for Chapter on MH
Editors are seeking authors (up to three co-authors) for a chapter dedicated to MH in an upcoming volume of the Handbook of Clinical Neurology entitled “Thermoregulation: From Basic Neurosciences to Clinical Neurology.” The style of the handbook is comprehensive, well-illustrated, and well referenced. The chapter should cover the topic with detailed information, with a suggested length of 8,000 words excluding references. It is expected that most chapters will have between 5,000 and 15,000 words, 4 to 12 illustrations (figures and/or tables), and 100-300 references. Deadline for chapter submission is February 1, 2017. To express interest or for more information, contact Andrej A. Romanovsky, MD, PhD Professor, St. Joseph’s Hospital and Medical Center, Dignity Health. Email andrej.romanovsky@dignity-health.org or call 1-(602)-406-5059.

❑ Help Feed the MH Research Pig
We’re asking you to help us Feed MH Research. Pigs have provided MH research and many insights into Malignant Hyperthermia. We all are grateful to have such a resource – but there is more research to do. You can help by ordering a pig (that’s piggy bank) of your very own, at no charge, to care for, feed, and name. At MHAUS, we have named our pig Nelson Ellis. He lives near the copier where he is kept warm and receives lots of attention. MH Research Pigs are shipped in white 5.5” x 4.25” x 5.5” box by U.S. Postal Service and takes three to seven days to arrive. Shop the MHAUS website for your MH Research Pig.