INSTRUCTIONS
This form is to be filled out by an anesthesiologist or other health care provider.

1. Complete this form each time you suspect a patient may have experienced an adverse metabolic reaction to anesthesia or exercise, possibly related to malignant hyperthermia (MH).

Examples: hypercarbia, acidosis, tachycardia, rigidity, hyperkalemia, myoglobinuria, arrhythmias, unexplained fever.

2. Please fill out as soon as patient is stable, preferably within 48 hours of the event.

3. The attending anesthesiologist or other physician should review the completed form.

4. The patient’s name should not be recorded on the form sent to the NAMH Registry. If a patient wishes to be registered by name, they may contact the Registry directly. The toll free telephone # of the NAMHR is 888-274-7899

5. Send to:

The North American Malignant Hyperthermia Registry
University of Florida
Department of Anesthesiology
1600 SW Archer Road, PO Box 100254
Gainesville, FL 32610

For FULMINANT MH cases refer the patient for a blood test that assesses genetic risk of MH. This may also help diagnose MH susceptibility in other family members. The patient or the legal guardian of a minor should call # 888-274-7899, the MH Registry, to discuss joining this research registry. In the case of fatal, fulminant MH, muscle should examined by the autopsy pathologist for genetic defects related to MH and the patient’s next of kin should consider calling the MH Registry, # 888-274-7899, to facilitate full reporting of this death.

Z:\MHReg\Admin\IRB\NAMHR\2009 AMRA

Updated 11-14-17
## DEMOGRAPHIC INFORMATION

1. **Sex**  
   *check one*  
   ( ) male          ( ) female

2. **Weight**  
   ____.__ kilograms OR ____ lbs

3. **Height**  
   ____ cm OR ____ ft ____ inches

4. **Age when MH event occurred?**   __ __ __ years __ __ months

5. **Race/Ethnicity:**  
   *check as many as apply*  
   ( ) White    ( ) African  
   ( ) Hispanic    ( ) East Asian  
   ( ) Black or African-American    ( ) South Asian  
   ( ) American Indian/Alaskan Native    ( ) Middle Eastern  
   ( ) Hawaiian/Pacific Islander  
   ( ) other (specify):_____________________________________________________

6. **Body Build**  
   *check one*  
   ( ) Normal    ( ) Lean  
   ( ) Muscular    ( ) Obese  
   ( ) Peripartum  
   ( ) Other (specify):_____________________________________________________

7. **State or province of patient’s residence**   __ __

8. **State or province of facility in which anesthesia was given**   __ __

9. **Country**   __ __ __

10. **Reporting physician’s name:** *(optional)*   
    __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

11. **Facility type:**  
   ( ) Hospital  
   ( ) Ambulatory Surgical facility located on hospital campus  
   ( ) Free-standing ambulatory surgical facility  
   ( ) Dental Office  
   ( ) Surgical Office    other ________________________________

12. **Facility name:** *(optional)*   
    __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __
13. Anesthesia department telephone number and/or email address: (optional)

(_______)-____-____-____@_______________

FAMILY HISTORY

14. Before this episode, was the patient’s family history positive for:

* Check one only; if applicable

( ) malignant hyperthermia
( ) masseter spasm
( ) intraoperative death *not* thought to be MH
( ) sudden infant death syndrome or cot death
( ) sudden death from unknown cause at < 45 years > 1.5 years
( ) exercise-associated heatstroke
( ) environmentally induced heatstroke
( ) neuroleptic malignant syndrome
( ) intolerance to heat
( ) chronic muscle pain
( ) frequent muscle cramps
( ) chronic muscle weakness
( ) exercise intolerance due to muscle pain, weakness or fever
( ) episodes of dark urine (myoglobinuria) and muscle pain
( ) myopathies *specify type; write unknown if not known:

_____________________

( ) idiopathic creatine kinase elevation
( ) diabetes

( ) Type 1
( ) Type 2
( ) Other (specify):

_________________________________________

( ) none of the above*
( ) unknown*

MEDICAL HISTORY

15. Has the patient had any of the following?

* Check one only; if applicable

( ) muscle weakness interferes with daily activity at least once/week
( ) muscle cramps or pain that interfere with daily activity at least once/week
( ) cola colored urine
( ) heat stroke or heat prostration
( ) oral (or rectal/axillary equivalent) fever >38.8°C or 101.4°C at least 6 times/year without medical cause
( ) recent generalized infection
   If there was infection, how long ago was it? ___ (days)
( ) recent use of cholesterol lowering drugs
   If so, which drug _____, and how long ago was it last ingested? ___ (days)
( ) recent use of antipsychotic drugs
   If so, which drug(s) _____, and how long ago was it last ingested? ___ (days)
( ) recent use of serotonin re-uptake inhibitors
   If so, which drug(s) _____, and how long ago was it last ingested? ___ (days)
( ) recent use of monoamine oxidase inhibitors
   If so, which drug(s) _____, and how long ago was it last ingested? ___ (days)
( ) recent use of illicit drugs
   If so, which drug(s) _____, and how long ago was it last ingested? ___ (days)
( ) a regular regimen of strenuous physical activity?
   If so, how long ago was the last work-out? ___ (days)
( ) ingestion of any drug to improve muscular performance
   If so, which drug: ________, how long ago was it ingested: _______ (days)
( ) intolerance to heat
( ) exercise intolerance due to muscle pain, weakness or fever
( ) diabetes
   ( ) Type 1
   ( ) Type 2
   ( ) Other (specify): ____________________________
( ) none of the above*
( ) unknown*

* Check one only; if applicable

16. Has the patient ever had physical findings of:
   check all applicable
   ( ) increased muscle tone
   ( ) decreased muscle tone
   ( ) generalized muscle weakness
   ( ) myopathy specify type; write unknown if not known: ____________________________
   ( ) ptosis
   ( ) strabismus
   ( ) undescended testes
   ( ) clubbed foot
   ( ) joint hypermobility
   ( ) kyphoscoliosis (moderate or severe; curve > 45°)
   ( ) pectus carinatum
   ( ) pectus excavatum
   ( ) winged scapulae
   ( ) skeletal fractures (e.g. possible osteogenesis imperfect) (more than 2)
   ( ) kidney stones
   ( ) laryngeal papillomas
   ( ) other (specify): ____________________________
( ) none of the above*
( ) unknown*
* Check one only; if applicable

**ANESTHETIC HISTORY**

17. How many times was this patient anesthetized prior to this event?
   
   ___ ___
   
   ( ) unknown, but greater than zero  ( ) Unknown

   *Skip to question 20 if zero*

18. How many were general anesthetics?
   
   ___ ___
   
   ( ) unknown, but greater than zero  ( ) Unknown

19. Year of most recent anesthetic (excluding present episode)?
   
   ___ ___ ___ __
   
   ( ) unknown

   Year

20. Were unusual metabolic or muscular responses (including myoglobinuria) noted during prior anesthetics?

   *check one*
   
   ( ) no
   
   ( ) yes
   
   ( ) unknown

21. Was there unusual delayed awakening from previous general anesthetics?

   *check one*
   
   ( ) no
   
   ( ) yes
   
   ( ) unknown

**ADVERSE METABOLIC REACTION TO ANESTHESIA**

22. Date of adverse metabolic or muscular reaction.
   
   ___ ___ / ___ / ___ (mm/dd/yy)
   
   ( ) unknown

23. Type of procedure scheduled

   *check all applicable*
   
   ( ) cardiothoracic with bypass  ( ) orthopedic
   
   ( ) cardiothoracic without bypass  ( ) plastic surgery
   
   ( ) dental  ( ) radiology
   
   ( ) ear, nose, or throat  ( ) robot-assisted surgery
   
   ( ) eye  ( ) thoracic surgery
   
   ( ) general surgery  ( ) thoracoscopic surgery
24. Was the procedure an emergency? 
   check one 
   ( ) no 
   ( ) yes 
   ( ) unknown

25. Did this adverse reaction occur without exposure to anesthetic? 
   check one 
   ( ) no 
   ( ) yes 
   ( ) unknown 
   add details ________________________________________________________

26. Was the environment hot when this reaction occurred? 
   check one 
   ( ) no 
   ( ) yes 
   ( ) unknown 
   If yes how hot? ____ . ____ C or ____ . ____ F

27. Was any infection present at the time of this reaction? 
   check one 
   ( ) no 
   ( ) yes 
   ( ) unknown

28. If infection was present, what organisms were known to be present? 
   specify: __________________________________________________________

29. Where was the reaction noted to occur? 
   check one 
   ( ) pre-operative holding area 
   ( ) in the operating room 
   ( ) in the intensive care unit 
   ( ) in a remote location (e.g. GI suite, radiology) 
   ( ) in the post-anesthesia care unit 
   ( ) other (specify): ____________

30. After adverse metabolic or muscular reaction was noted, the procedure was: 
    check one 
    ( ) deferred 
    ( ) terminated before all scheduled procedures completed 
    ( ) completed in spite of reaction 
    ( ) not applicable - patient was in transport at time reaction occurred 
    ( ) not applicable - patient in recovery or intensive care area at time of reaction
31. Premedication and anesthetic agents utilized (before reaction occurred):

check all applicable

(   ) sodium citrated citric acid (Bicitra)
(   ) cimetidine (Tagamet)
(   ) famotidine (Pepcid)
(   ) lansoprazole (Prevacid)
(   ) ranitidine (Zantac)
(   ) metoclopramide (Reglan)
(   ) omeprazole (Prilosec)
(   ) atropine
(   ) glycopyrrolate (Robinul)
(   ) scopalamine (Hyoscine)
(   ) dolasetron (Anzemet)
(   ) droperidol (Inapsine)
(   ) hydroxyzine (Vistaril)
(   ) ondansetron (Zofran)
(   ) promethazine (Phenergan)
(   ) diphenhydramine (Benadryl)
(   ) clonidine (Duraclon)
(   ) ketorolac (Toradol)
(   ) acetaminophen (Tylenol)
(   ) diazepam (Valium)
(   ) lorazepam (Ativan)
(   ) midazolam (Versed)
(   ) dexamethasone
(   ) hydrocortisone
(   ) dexametomidine
(   ) etomidate (Amidate)
(   ) ketamine (Ketalar)
(   ) propofol (Diprivan)
(   ) alfentanil (Alfenta)
(   ) fentanyl (Sublimaze)
(   ) fentanyl and droperidol (Innovar)
(   ) meperidine (Demerol)
(   ) morphine
(   ) remifentanil (Ultiva)
(   ) sufentanil (Sufenta)
(   ) hydromorphone (Dilaudid)
(   ) sevoflurane (Ultane)
(   ) desflurane (Suprane)
(   ) isoflurane (Forane)
(   ) NO volatile anesthetic
(   ) NO succinylcholine
(   ) IM succinylcholine (Anectine)
(   ) IV succinylcholine (Anectine)
(   ) NO succinylcholine
(   ) edrophonium (Tensilon)
(   ) neostigmine (Prostigmin)
(   ) bupivacaine (Marcaine)
(   ) levo-bupivacaine
(   ) choroprocaine (Nesacaine)
(   ) cocaine
(   ) etidocaine (Duranest)
(   ) lidocaine (Xylocaine)
(   ) mepivacaine (Carbocaine)
(   ) prilocaine (Citanest)
(   ) procaine (Novocain)
( ) ropivacaine (Naropin)  ( ) epinephrine
( ) tetracaine (Pontocaine)  ( ) ephedrine
( ) other (specify): __________________________________________________________
( ) unknown

32. Anesthesia induction date/time
   __ __ / __ __ / __ __ (mm/dd/yy)
   __ __:__ __ (military time)

33. General anesthetic induction method
    check one
    ( ) inhalation
    ( ) intravenous
    ( ) other (specify): __________________________________________________________

34. Total anesthetic duration
    __ __ . __ __ (hours and minutes from induction to anesthetic completion)

35. Type of anesthetic prior to adverse metabolic or muscular reaction
    check all applicable
    ( ) monitored anesthesia care
    ( ) regional anesthesia
    ( ) spinal anesthesia
    ( ) epidural anesthesia
    ( ) general anesthesia without endotracheal intubation
    ( ) general anesthesia with endotracheal intubation
    ( ) general anesthesia with a face mask
    ( ) general anesthesia with a laryngeal mask airway

36. Was a tourniquet used prior to the adverse metabolic reaction?
   ( ) no
   ( ) yes
   Time inflated:
   __ __:__ __ (military time), date __ __ / __ __ / __ __ (mm/dd/yy)
   Time of final release of tourniquet:
   __ __:__ __ (military time), date __ __ / __ __ / __ __ (mm/dd/yy)
PATIENT MONITORING UTILIZED BEFORE THE REACTION

37. Monitoring utilized (before reaction occurred):

*check all monitoring used*

( ) blood pressure monitor  ( ) end-tidal PCO₂
( ) electrocardiograph  ( ) pulse oximeter
( ) stethoscope  ( ) bladder (Foley) catheter
( ) arterial catheter  ( ) processed EEG (e.g. BIS)
( ) central venous catheter
( ) pulmonary artery catheter  ( ) other *(specify)*:________________

Temperature probes:

( ) axillary
( ) bladder
( ) esophageal
( ) nasopharyngeal
( ) rectal
( ) skin – electronic *(specify location of skin temperature monitor)*:________________
( ) skin - liquid crystal *(specify type and location of skin temperature monitor)*:________________
( ) tympanic
( ) other *(specify)*:________________________________________
( ) no temperature monitoring used before reaction occurred

38. If a liquid crystal temperature probe was used, did it accurately trend with core temperatures? *check one*

( ) no
( ) yes
( ) unknown

39. Was a forced air warming device in use? *check one*

( ) no
( ) yes

__________ temperature used (°C)
( ) unknown

40. Was an IV fluid warming device in use? *check one*

( ) no
( ) yes

__________ temperature used (°C)
( ) unknown
41. Was a circulating water mattress used? 
   ( ) no 
   ( ) yes 
   __________ temperature used (°C) 
   ( ) unknown 

**SIGNS NOTED DURING THE REACTION**

42. Abnormal signs judged to be inappropriate by the attending anesthesiologist or other physician: 
   **RANK in order of appearance. NUMBER, do not check.**
   *(a number may be used more than once if signs were noted simultaneously)*

   ___ masseter spasm: mouth cannot be fully opened, but direct laryngoscopy possible
   ___ masseter spasm: jaw clamped shut, direct laryngoscopy impossible
   ___ generalized muscular rigidity
   ___ cola colored urine
   ___ tachypnea
   ___ hypercarbia
   ___ cyanosis
   ___ skin mottling
   ___ sinus tachycardia
   ___ ventricular tachycardia
   ___ ventricular fibrillation
   ___ elevated temperature
   ___ rapidly increasing temperature
   ___ sweating
   ___ excessive bleeding
   ___ hypertension > 20% of baseline
   ___ other (specify): ________________________________________________________

43. Signs: Maximum values and times noted 
   *fill in the blanks, use military time*

   __ __.__ __ time first adverse sign noted, date __ __ /__ __ /__ __ (mm/dd/yy)
   __ __.__ __ time second adverse sign noted, date __ __ /__ __ /__ __ (mm/dd/yy)
   __ __.__ maximum temperature noted (°C) **OR**
   __ __.__ maximum temperature noted (°F)
   __ __.__ __ time maximum temperature noted, date __ __ /__ __ /__ __ (mm/dd/yy)
   __ __.__ maximum end-tidal PCO₂ noted (mmHg)
   __ __.__ __ time maximum end-tidal PCO₂ noted, date __ __ /__ __ /__ __ (mm/dd/yy)

44. Did the temperature exceed 40°C? 
   *check one*

   ( ) no 
   ( ) yes (specify minutes that temp was > 40°C)
45. Type of ventilation used at the time hypercarbia was first observed: 
   check one
   ( ) spontaneous       __ ___ liters/minute ventilation
   ( ) assisted/pressure support
   ( ) controlled at the time hypercarbia 1st noted
   ( ) unknown
   ( ) not applicable

LABORATORY TESTS UTILIZED

46. Laboratory Evaluation
   Fill in the blanks for all lab tests obtained. Write unknown if results are not known.

   Most abnormal arterial blood gas after MH was suspected:
   __.__  FiO\(_2\)
   __.__  pH
   __.__  PCO\(_2\) __ ___ liters/minute ventilation
   __.__  PO\(_2\)
   __.__  BE (mEq/L) (specify ±) at the time of this blood gas
   __.__  Bicarbonate (mEq/L)
   __.__  time of blood gas, military time
   __ __ __ date of this blood gas (mm/dd/yy)

   peak lactic acid
   __.__ mmol/L __ ___ time of this test, military time
   __ __ __ date of this test (mm/dd/yy)

   peak K\(^+\)
   __.__ mEq/L or mmol/L __ ___ time of this test, military time
   __ __ __ date of this test (mm/dd/yy)

   peak post-op creatine kinase* first creatine kinase* last creatine kinase*
   __ __ __ U/L __ __ __ __ __ __
   __ __ __ military time __ __ __ military time __ __ __ military time
   __ __ __ date __ __ __ date __ __ __ date

* recommended intervals for creatine kinase determination are 0, 6, 12, 24 hours after the adverse reaction

   urine chemstrip positive for blood
   check one ( ) no
Lowest fibrinogen
__ __ __ mg/dl

peak PT (prothrombin time) peak PTT (partial thromboplastin time)
__ __ seconds __ __ seconds
laboratory upper limit of normal laboratory upper limit of normal
__ __ seconds __ __ seconds

lowest platelet count peak INR
__ __ __, __ __ __ __ __ __

PATIENT MONITORING UTILIZED AFTER THE REACTION

47. Monitoring utilized (after reaction occurred):
    check all monitoring used

    ( ) blood pressure monitor ( ) end-tidal PCO₂
    ( ) electrocardiograph ( ) pulse oximeter
    ( ) stethoscope ( ) bladder (Foley) catheter
    ( ) arterial catheter ( ) processed EEG (e.g. BIS)
    ( ) central venous catheter
    ( ) pulmonary artery catheter ( ) other (specify): ________________

Temperature probes:
( ) axillary
( ) bladder
( ) esophageal
( ) nasopharyngeal
( ) rectal
( ) skin – electronic (specify location of skin temperature monitor): ________________
( ) skin - liquid crystal
    (specify type and location of skin temperature monitor): ________________
( ) tympanic
( ) other (specify): ________________
( ) no temperature probe used after reaction

TREATMENT GIVEN

48. Treatment given for possible or fulminant MH
    Check all treatments utilized.
    Fill in the blanks.
    ( ) Volatile anesthetics discontinued at:
<table>
<thead>
<tr>
<th>Event Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military time, date (mm/dd/yy)</td>
<td></td>
</tr>
<tr>
<td>Anesthesia circuit changed</td>
<td></td>
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<tr>
<td>Activated carbon filters in circuit</td>
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<tr>
<td>Hyperventilation with 100% oxygen</td>
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<tr>
<td>Maximum EtCO₂ after initiation of hyperventilation</td>
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<tr>
<td>Dantrolene (type)</td>
<td></td>
</tr>
<tr>
<td>Dantrium</td>
<td></td>
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<tr>
<td>Revonto</td>
<td></td>
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<tr>
<td>Ryanodex</td>
<td></td>
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<tr>
<td>Initial dantrolene dose (mg)</td>
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<tr>
<td>Time of first dantrolene dose military time</td>
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<tr>
<td>Date of first dantrolene dose (mm/dd/yy)</td>
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<tr>
<td>Time of last dantrolene dose military time</td>
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<tr>
<td>Date of last dantrolene dose (mm/dd/yy)</td>
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<tr>
<td>Total dantrolene dose (mg) - including maintenance therapy</td>
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<tr>
<td>Active cooling</td>
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<tr>
<td>Method (specify)</td>
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<td>Fluid loading</td>
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<td>ml/kg</td>
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<tr>
<td>Fluid type (specify)</td>
<td></td>
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<tr>
<td>Furosemide</td>
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<tr>
<td>Calcium</td>
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<tr>
<td>Mannitol</td>
<td></td>
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<td>Calcium</td>
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<td>Glucose, insulin</td>
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<tr>
<td>Bicarbonate</td>
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<tr>
<td>Amiodarone</td>
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<tr>
<td>Albuterol</td>
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<tr>
<td>Cardioversion or Defibrillation</td>
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<tr>
<td>CPR</td>
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<tr>
<td>Inotrope, which one(s):</td>
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<td>Vasopressor, which one(s):</td>
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<tr>
<td>Other (specify):</td>
<td></td>
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<tr>
<td>None of the above</td>
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</tr>
</tbody>
</table>
49. Mark any of the following that were noted after dantrolene was given:
   ( ) Decrease in heart rate
   ( ) Decrease in end-tidal carbon dioxide or carbon dioxide tension in blood
   ( ) Decrease in temperature
   ( ) Decrease or resolution of rigidity
   
   *If none were noted, please skip to question 52*

50. How many minutes after dantrolene administration was the maximum change in this sign noted and what was the magnitude of the maximum change?

   Heart rate
   ( _ _ _ ) minutes
   ( _ _ ) (change in beats/min)

   Carbon dioxide
   ( _ _ _ ) minutes
   ( _ _ ) (change in mmHg or torr)

   Temperature
   ( _ _ _ ) minutes
   ( _ . _ °C) or ( _ . _ °F) (change in temperature)

51. How many minutes after the start of dantrolene, did the rigidity completely resolve?
   (_ _ _ ) minutes

52. Were any problems noted with the dantrolene administration?
   check one
   ( ) no
   ( ) yes
   
   *If no, please skip to question 54*

53. What were the observed dantrolene complications?
   check all applicable
   ( ) excessive secretions
   ( ) gastrointestinal upset
   ( ) muscle weakness
   ( ) phlebitis
   ( ) respiratory failure
   ( ) other (specify): ________________________________

54. Anesthetic Agents Utilized After Adverse Metabolic or Muscular Reaction was noted:
   check all applicable
   ( ) sodium citrated citric acid (Bicitra)
<table>
<thead>
<tr>
<th>Medicine</th>
<th>Relevant Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>cimetidine (Tagamet)</td>
<td></td>
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<tr>
<td>famotidine (Pepcid)</td>
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<td>lansoprazole (Prevacid)</td>
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<td>ranitidine (Zantac)</td>
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<td>metoclopramide (Reglan)</td>
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<td>omeprazole (Prilosec)</td>
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<td>atropine</td>
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<td>glycopyrrolate (Robinul)</td>
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<td>scopolamine (Hyoscine)</td>
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<td>dolasetron (Anzemet)</td>
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<td>droperidol (Inapsine)</td>
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<td>hydroxyzine (Vistaril)</td>
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<td>ondansetron (Zofran)</td>
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<td>promethazine (Phenergan)</td>
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<td>diphenhydramine (Benedryl)</td>
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<tr>
<td>clonidine (Duraclon)</td>
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<td>ketorolac (Toradol)</td>
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<td>acetaminophen (Tylenol)</td>
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<td>diazepam (Valium)</td>
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<tr>
<td>lorazepam (Ativan)</td>
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<tr>
<td>midazolam (Versed)</td>
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<tr>
<td>dexmedetomidine</td>
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<td>etomidate (Amidate)</td>
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<td>ketamine (Ketalar)</td>
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<td>propofol (Diprivan)</td>
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<td>alfentanil (Alfenta)</td>
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<tr>
<td>fentanyl (Sublimaze)</td>
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<tr>
<td>fentanyl and droperidol (Innovar)</td>
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<td>meperidine (Demerol)</td>
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<td>morphine</td>
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<td>remifentanil (Ultiva)</td>
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<td>sufentanil (Sufenta)</td>
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<td>hydromorphone (Dilaudid)</td>
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<tr>
<td>sevoflurane (Ultane)</td>
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<tr>
<td>desflurane (Suprane)</td>
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<tr>
<td>isoflurane (Forane)</td>
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<tr>
<td>NO volatile anesthetic</td>
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<tr>
<td>nitrous oxide</td>
<td></td>
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<tr>
<td>naltbuphine (Nubain)</td>
<td></td>
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<tr>
<td>naloxone (Narcan)</td>
<td></td>
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<tr>
<td>atracurium (Tracrium)</td>
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<tr>
<td>cisatracurium (Nimbex)</td>
<td></td>
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<tr>
<td>rocuronium (Zemuron)</td>
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<tr>
<td>vecuronium (Norcuron)</td>
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<tr>
<td>pancuronium (Pavulon)</td>
<td></td>
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<tr>
<td>other NMB</td>
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<tr>
<td>IM succinylcholine (Anectine)</td>
<td></td>
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<tr>
<td>IV succinylcholine (Anectine)</td>
<td></td>
</tr>
<tr>
<td>NO succinylcholine</td>
<td></td>
</tr>
<tr>
<td>edrophonium (Tensilon)</td>
<td></td>
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<tr>
<td>neostigmine (Prostigmin)</td>
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<tr>
<td>bupivacaine (Marcaine)</td>
<td></td>
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<tr>
<td>levo-bupivacaine</td>
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<tr>
<td>chorprocaine (Nesacaine)</td>
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<tr>
<td>cocaine</td>
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<td>etidocaine (Duranest)</td>
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<tr>
<td>lidocaime (Xylocaime)</td>
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<tr>
<td>mepivacaine (Carbocaine) prilocaine (Citanest) procaine (Novocain)</td>
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<tr>
<td>ropivacaine (Naropin)</td>
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<td>tetracaine (Pontocaine)</td>
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<tr>
<td>epinephrine</td>
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<tr>
<td>ephedrine</td>
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<tr>
<td>neosynephrine</td>
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</tbody>
</table>

Updated 11-14-17
( ) other (specify): __________________________________________________________
( ) unknown
PATIENT OUTCOME

55. Did the patient develop any of the following complications?
   check all that apply
   ( ) brain death
   ( ) cardiac dysfunction
   ( ) cardiac arrest
   ( ) change in consciousness level
   ( ) coma
   ( ) compartment syndrome
   ( ) disseminated intravascular coagulation
   ( ) hepatic dysfunction
   ( ) hypotension
   ( ) pulmonary edema
   ( ) renal dysfunction
   ( ) SIRS after initial control of MH episode_____________________
   ( ) other (specify): ______________________________
   ( ) none*
   ( ) unknown*
* Check one only; if applicable

56. Did the patient survive the initial reaction?
   check one
   ( ) no
   ( ) unknown because of transfer to another facility
   ( ) yes
   
   If no or unknown, please skip to question 61

57. Did the patient develop additional signs or symptoms of unanticipated hypercarbia,
rigidity, myoglobinuria, or rapidly increasing temperature, after initial adequate treatment
(i.e. recrudescence)?
   ( ) no
   ( ) unknown because of transfer to another facility
   ( ) yes
   
   If no or unknown, please skip to question 60

58. What was the date and time of the recrudescence?
   __ __/__ __/__ __ date (mm/dd/yy)
   __ __.__ __ military time
59. Signs of recrudescence that were judged to be inappropriate by the attending anesthesiologist or other physician:

**RANK in order of appearance. NUMBER do not check. A number may be used more than once if signs were noted simultaneously.**

- ___ masseter spasm: mouth cannot be fully opened, but direct laryngoscopy possible
- ___ masseter spasm: jaw clamped shut, intubation via direct visualization impossible
- ___ generalized muscular rigidity
- ___ cola colored urine
- ___ tachypnea
- ___ hypercarbia
- ___ cyanosis
- ___ skin mottling
- ___ sinus tachycardia
- ___ ventricular tachycardia
- ___ ventricular fibrillation
- ___ elevated temperature
- ___ rapidly increasing temperature
- ___ sweating
- ___ excessive bleeding
- ___ hypertension > 20% of baseline
- ___ other (specify): ________________________________

60. Did the patient survive both the initial reaction & the recrudescence, if any, and recover?
   check one
   (   ) no
   (   ) yes
   (   ) unknown due to transfer to another facility

61. If the patient died, what was the primary cause of death?
   check all that apply
   (   ) MH
   (   ) other (specify): ________________________________
   (   ) unknown

62. If the patient died, was an autopsy performed?
   (   ) no
   (   ) yes specify principal findings ________________________________
63. If tissue from this patient was examined for a specific genetic defect, at what lab was this done?

(specify name and location of lab):

If so what was found? Specify amino acid change, such as Arg 614 Cys
( ) Ryanodine receptor type 1 amino acid change ___ ___ ___
( ) Other, specify: Gene _______ amino acid change________________
In what tissue?
( ) Blood
( ) Muscle
( ) Other (specify) _______________________

CLINICAL IMPRESSION

64. Patient experienced (opinion of attending anesthesiologist):

check one
( ) adverse metabolic reaction that was not related to MH
( ) possible MH - may include masseter spasm (MH diagnostic center referral recommended)
( ) fulminant MH - (family counseling, MH diagnostic center referral recommended)
( ) other (specify):__________________________________________________________

65. Were the patient and his/her family referred to a MH diagnostic center?

check one
( ) no
( ) yes
( ) unknown

66. If referred to a MH diagnostic center, check identity of center:

( ) Wake Forest University .........................................................Winston-Salem, NC
( ) Uniformed Services University .............................................Bethesda, MD
( ) University of California at Davis .........................................Davis, CA
( ) University of Minnesota .....................................................Minneapolis, MN
( ) University of Toronto .......................................................Toronto, ON

67. Were the patient and the family also referred to MHAUS?

PO Box 1069
Sherburne, NY 13460-1069
1-800-986-4287

check one
( ) no
( ) yes
COMMENTS ON PATIENT
(Optional)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Original may be mailed to:
  The North American Malignant Hyperthermia Registry
  University of Florida
  Department of Anesthesiology
  1600 SW Archer Road, PO Box 100254
  Gainesville, FL 32610

MH DIAGNOSTIC CENTER DIRECTORY

John Capacchione, M.D.
Department of Anesthesiology
Uniformed Services
University of the Health
Sciences 4301 Jones Bridge
Road
Bethesda, MD 20814
(301) 295-3140

Joseph Tobin, M.D.
Department of Anesthesiology
Wake Forest University (Bowman-Gray)
Medical Center Blvd
Winston-Salem, NC 27157
(336) 716- 4497

Sheila Riazi, MSc, MD, FRCPC
Department of Anesthesia/Pain Management
University Health Network
Toronto General Hospital
2 Elizabeth Street, Room E3-323
Toronto, ON M5G 2C4
011 + 1 + 416 + 340-3128

Timothy J. Tautz, M.D.
Department of Anesthesiology
School of Medicine
TB 170
University of California
Davis, CA 95616
(530) 752-7805

Paul A. Iaizzo, Ph.D.
Department of Anesthesiology
University of Minnesota
B515 Mayo, Box 294 UMHC
420 Delaware Street, SE Minneapolis,
MN 55455
(612) 624-9990