

*The North American Malignant Hyperthermia Registry*

**Report of Anesthesia in a**

**MH BIOPSY NEGATIVE PATIENT**

**(“MHN Report”)**

**INSTRUCTIONS**

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

1. Complete this form each time you anesthetize a patient who has had a **negative MH biopsy** (caffeine halothane contracture test).
2. The attending anesthesiologist should review the completed form.
3. If the patient has been registered previously in the NAMH Registry, please ask the patient for his Registry identification number and record it in the space provided.
4. A copy of this report may be given to the patient. Please send the **original** completed form to the NAMH Registry.
5. Return original completed form to:

The North American Malignant Hyperthermia Registry  
UPMC Mercy Hospital  
8<sup>th</sup> Floor, Ermire Buildilng (B)  
Room 8522-3  
1400 Locust Street  
Pittsburgh, PA 15219  
1-888-274-7899

North American MH Registry Number *(for office use)*  
\_\_\_\_\_

**MHN REPORT**

*Version 8.4 June 2010*

**PATIENT IDENTIFICATION**

1. Any previous North American MH Registry numbers associated with the patient. That is, the Registry number of this patient on a Biopsy Report, AMRA, or AKA or the Registry number's of a close relative's reports, etc.

a. \_\_\_\_\_ Comment \_\_\_\_\_

b. \_\_\_\_\_ Comment \_\_\_\_\_

c. \_\_\_\_\_ Comment \_\_\_\_\_

2. Patient's Initials

\_\_\_\_\_  
first middle last

3. Has consent been obtained to enter patient's name into the Registry?

*check one*

( ) yes

( ) no

*If yes, please complete a-g on following page.*

**Note: DO NOT COMPLETE IF CONSENT HAS NOT BEEN OBTAINED**

a. Patient's name

_____	_____	_____
last	first	middle

b. Patient's previous name

_____	_____	_____
last	first	middle

c. Patient's maiden name

\_\_\_\_\_

last

d. Patient's Address

\_\_\_\_\_

street address

\_\_\_\_\_

_____	_____	_____
city	state/province	zip/postal code

\_\_\_\_\_

country

e. Phone number

(Home) (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

(Work) (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

f. Patient e-mail address \_\_\_\_\_

g. Date of patient's birth

\_\_\_\_ \ \_\_\_\_ \ \_\_\_\_

year month day

**DEMOGRAPHIC INFORMATION**

4. Sex  
*check one*  
 male                       female
5. Weight  
\_\_\_\_ . \_\_\_\_ kilograms      OR \_\_\_\_ lbs
6. Height  
\_\_\_\_ . \_\_\_\_ cms                      OR \_\_\_\_ ft \_\_\_\_ inches
7. Year of patient's birth  
\_\_\_\_\_
8. Race:  
*check as many as apply*  
*(data utilized for demographic purposes only)*  
 Caucasian                               African  
 Hispanic                                       East Asian  
 African-American                       South Asian  
 Native American                       Middle Eastern  
 Hawaiian or Pacific Islander  
 other (*specify*): \_\_\_\_\_
9. Body Build  
*check one*  
 Normal                                       Lean  
 Muscular                                       Obese  
 Postpartum  
 Other (*specify*): \_\_\_\_\_
10. State or province of the patient's residence  
\_\_\_\_\_
11. State or province of the facility in which anesthesia was given.  
\_\_\_\_\_
12. Reporting physician's name (*optional*)  
\_\_\_\_\_
13. Facility type:  
 Hospital  
 Ambulatory Surgical facility on hospital campus  
 Free-standing ambulatory surgical facility  
 Dental Office  
 Surgical Office

13. Facility name (*optional*)  
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14. Anesthesia Department telephone number and/or email address (*optional*)  
(\_\_\_\_) - \_\_\_\_ - \_\_\_\_\_ @\_\_\_\_\_

**ANESTHETIC HISTORY**

15. Patient's anesthetic history is positive for:  
*check all applicable*  
 clear-cut clinical MH episode(s)  
 possible MH (not clear-cut MH)  
 masseter muscle rigidity only  
 positive calcium uptake test (performed in Boston)  
 other (*specify*) \_\_\_\_\_  
 none of the above
16. How many times was this patient anesthetized prior to this evaluation?  
\_\_ \_\_  unknown but > 0  unknown
17. How many were general anesthetics?  
\_\_ \_\_  unknown but > 0  unknown
18. Indicate the number of anesthetics with the following agents:  
\_\_ \_\_ volatile agents without succinylcholine  
\_\_ \_\_ volatile agents with succinylcholine  
\_\_ \_\_ succinylcholine without other known triggering agents
19. Year of negative MH muscle biopsy (caffeine halothane contracture test)  
\_\_ \_\_ \_\_ \_\_

20. Center which performed MH Biopsy

*check one*

- Children's Hospital of Oklahoma
- Cleveland Clinic
- Hahnemann University
- Thomas Jefferson University
- Loyola University
- Northwestern University
- Mayo Clinic
- Ottawa Hospital Civic Campus
- Presbyterian University Hospital (Pittsburgh)
- Toronto General Hospital
- UC-Davis
- UCLA
- Uniformed Services University
- University of Calgary
- University of Florida
- University of Iowa
- University of Manitoba
- University of Massachusetts
- University of Minnesota
- University of Nebraska
- University of South Florida
- University of Texas-Houston
- University of Washington
- University of Wisconsin
- Wake Forest University
- other (*specify*): \_\_\_\_\_

**ANESTHETIC MANAGEMENT**

21. Year of anesthetic

— — — —

22. Type of procedure scheduled

*check all applicable*

cardiothoracic

dental

ear, nose, or throat

eye

general surgery

laparoscopic surgery

abdominal

pelvic

other (specify) \_\_\_\_\_

gynecology

neurosurgery

thoracoscopic surgery (thoracic)

obstetrics

oral surgery

orthopedic

plastic surgery

radiology

urology

vascular

transplant

other (*specify*): \_\_\_\_\_

23. Was the procedure an emergency?

*check one*

no

yes

**MONITORING UTILIZED**

24. Monitoring utilized:

*check all monitoring used*

- |  |   |
|--|---|
| <input type="checkbox"/> blood pressure monitor    | <input type="checkbox"/> end-tidal PCO <sub>2</sub> |
| <input type="checkbox"/> electrocardiograph        | <input type="checkbox"/> pulse oximeter             |
| <input type="checkbox"/> stethoscope               | <input type="checkbox"/> bladder (Foley) catheter   |
| <input type="checkbox"/> arterial catheter         |   |
| <input type="checkbox"/> central venous catheter   |   |
| <input type="checkbox"/> pulmonary artery catheter |   |

temperature probes:

- axillary
- bladder
- esophageal
- nasopharyngeal
- rectal
- skin-electronic
- skin-liquid crystal
- tympanic
- other (*specify*): \_\_\_\_\_

25. Type of anesthetic

*check all applicable*

- monitored anesthesia care (local with anesthesia stand-by)
- regional anesthesia
- spinal anesthesia
- epidural anesthesia
- general anesthesia with a face mask only
- general anesthesia **with** a laryngeal mask airway
- general anesthesia **with** endotracheal intubation
- general anesthesia **with** volatile agents (potent inhalation anesthetics)

26. Type of ventilation

*check one*

- spontaneous
- assisted
- controlled



27. Pre-medication and anesthetic agents utilized:

*check all applicable*

- |  |   |
|--|---|
| <input type="checkbox"/> sodium citrated citric acid (Bicitra) | <input type="checkbox"/> sevoflurane (Ultane)                 |
| <input type="checkbox"/> cimetidine (Tagamet)                  | <input type="checkbox"/> desflurane (Suprane)                 |
| <input type="checkbox"/> famotidine (Pepcid)                   | <input type="checkbox"/> halothane (Fluothane)                |
| <input type="checkbox"/> lansoprazole (Prevacid)               | <input type="checkbox"/> enflurane (Ethrane)                  |
| <input type="checkbox"/> ranitidine (Zantac)                   | <input type="checkbox"/> isoflurane (Forane)                  |
| <input type="checkbox"/> metoclopramide (Reglan)               | <input type="checkbox"/> nitrous oxide                        |
| <input type="checkbox"/> omeprazole (Prilosec)                 | <input type="checkbox"/> nalbuphine (Nubain)                  |
| <input type="checkbox"/> atropine                              | <input type="checkbox"/> naloxone (Narcan)                    |
| <input type="checkbox"/> glycopyrrolate (Robinul)              | <input type="checkbox"/> atracurium (Tracrium)                |
| <input type="checkbox"/> scopolamine (Hyoscine)                | <input type="checkbox"/> cis-atracurium (Nimbex)              |
| <input type="checkbox"/> dolasetron (Anzemet)                  | <input type="checkbox"/> mivacurium                           |
| <input type="checkbox"/> droperidol (Inapsine)                 | <input type="checkbox"/> rocuronium                           |
| <input type="checkbox"/> hydroxyzine (Vistaril)                | <input type="checkbox"/> vecuronium (Norcuron)                |
| <input type="checkbox"/> ondansetron (Zofran)                  | <input type="checkbox"/> curare                               |
| <input type="checkbox"/> promethazine (Phenergan)              | <input type="checkbox"/> metocurine (Metubine)                |
| <input type="checkbox"/> methohexital (Brevital)               | <input type="checkbox"/> pancuronium (Pavulon)                |
| <input type="checkbox"/> pentobarbital (Nembutal)              | <input type="checkbox"/> pipecuronium (Arduan)                |
| <input type="checkbox"/> thiamylal                             | <input type="checkbox"/> other NMB                            |
| <input type="checkbox"/> thiopental (Pentothal)                | <input type="checkbox"/> <b>IM</b> succinylcholine (Anectine) |
|  | <input type="checkbox"/> <b>IV</b> succinylcholine (Anectine) |
|  | <input type="checkbox"/> <b>NO</b> succinylcholine            |
| <input type="checkbox"/> clonidine                             | <input type="checkbox"/> edrophonium (Tensilon)               |
| <input type="checkbox"/> dexmedetomidine                       | <input type="checkbox"/> neostigmine (Prostigmin)             |
| <input type="checkbox"/> diazepam (Valium)                     | <input type="checkbox"/> physostigmine (Antilirium)           |
| <input type="checkbox"/> lorazepam (Ativan)                    | <input type="checkbox"/> pyridostigmine (Mestinon)            |
| <input type="checkbox"/> midazolam (Versed)                    | <input type="checkbox"/> bupivacaine (Marcaine)               |
| <input type="checkbox"/> etomidate (Amidate)                   | <input type="checkbox"/> levo-bupivacaine                     |
| <input type="checkbox"/> ketamine (Ketalar)                    | <input type="checkbox"/> chlorprocaine (Nesacaine)            |
| <input type="checkbox"/> propofol (Diprivan)                   | <input type="checkbox"/> cocaine                              |
| <input type="checkbox"/> alfentanil (Alfenta)                  | <input type="checkbox"/> etidocaine (Duranest)                |
| <input type="checkbox"/> fentanyl (Sublimaze)                  | <input type="checkbox"/> lidocaine (Xylocaine)                |
| <input type="checkbox"/> fentanyl and droperidol (Innovar)     | <input type="checkbox"/> mepivacaine (Carbocaine)             |
| <input type="checkbox"/> meperidine (Demerol)                  | <input type="checkbox"/> prilocaine (Citanest)                |
| <input type="checkbox"/> morphine                              | <input type="checkbox"/> procaine (Novocain)                  |
| <input type="checkbox"/> remifentanyl (Ultiva)                 | <input type="checkbox"/> ropivacaine (Naropin)                |
| <input type="checkbox"/> sufentanil (Sufenta)                  | <input type="checkbox"/> tetracaine (Pontocaine)              |
| <input type="checkbox"/> unknown                               | <input type="checkbox"/> epinephrine                          |
|  | <input type="checkbox"/> ephedrine                            |
|  | <input type="checkbox"/> neosynephrine                        |
| <input type="checkbox"/> <b>NO</b> potent volatile anesthetic  |   |
| <input type="checkbox"/> other ( <i>specify</i> ): _____       |   |

28. Total duration of potent inhalation anesthetic administration:  
— . — (in hours, express parts of an hour using decimal points)  
(example – 3 minutes = 0.05)
29. Was a barbiturate given prior to the potent inhalation anesthetic?  
*check one*  
 no  
 yes  
 n/a
30. Was a non-depolarizing neuromuscular blocker given during the potent inhalation anesthetic?  
*check one*  
 no  
 yes  
 n/a
31. Maximum observed perioperative temperature and end-tidal pCO<sub>2</sub> :  
*fill in the blanks*  
— . — maximum temperature noted (°C)  
— — — maximum end-tidal pCO<sub>2</sub> noted (mmHg)
32. Were any signs of MH noted during this anesthetic?  
*check one*  
 no  
 yes
33. Abnormal signs felt to be inappropriate in the judgment of the attending anesthesiologist  
*NUMBER in order of appearance*  
*(a number may be used more than once if signs 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*): \_\_\_\_\_

34. Laboratory Evaluation  
*fill in the blank, write unknown if results not known*

most abnormal arterial blood gas after MH was suspected

\_\_\_ . \_\_\_ \_\_\_      FiO<sub>2</sub>  
\_\_\_ . \_\_\_ \_\_\_      pH  
\_\_\_ \_\_\_ \_\_\_      PCO<sub>2</sub> (mmHg)                      \_\_\_ \_\_\_ \_\_\_ liters/minute  
\_\_\_ \_\_\_ \_\_\_      PO<sub>2</sub> (mmHg)                                      ventilation  
\_\_\_ \_\_\_ . \_\_\_      BE (mEq/L) (*specify ±*)                      at the time of this  
\_\_\_ \_\_\_      Bicarbonate (mEq/L)                              blood gas  
\_\_\_ \_\_\_ \_\_\_      Time (*after induction*)  
*(in hours, express parts of an hour using decimal points)*  
*(example – 3 minutes = 0.05)*

peak lactic acid  
\_\_\_ . \_\_\_      mmol/L

peak K<sup>+</sup>  
\_\_\_ \_\_\_ . \_\_\_      mEq/L or mmol/L

peak post-op creatine kinase\*  
\_\_\_ \_\_\_ \_\_\_ , \_\_\_ \_\_\_ \_\_\_      U/L  
\_\_\_ \_\_\_      hours after induction

**\* recommended intervals for creatine kinase  
determination are 0, 6, 12, 24 hours after MH  
reaction suspected**

peak serum myoglobin\*  
\_\_\_ \_\_\_ , \_\_\_ \_\_\_ \_\_\_      ng/ml  
\_\_\_ \_\_\_      hours after induction

peak urine myoglobin  
\_\_\_ \_\_\_ , \_\_\_ \_\_\_ \_\_\_      mg/L  
\_\_\_ \_\_\_      hours after induction

PT (prothrombin time)      INR  
\_\_\_ \_\_\_ seconds      \_\_\_ . \_\_\_

PTT (partial thromboplastin time)  
\_\_\_ \_\_\_ seconds

laboratory upper limit of normal  
\_\_\_ \_\_\_ \_\_\_ seconds

laboratory upper limit of normal  
\_\_\_ \_\_\_ \_\_\_ seconds

platelet count  
\_\_\_ \_\_\_ \_\_\_ , \_\_\_ \_\_\_ \_\_\_

fibrinogen  
\_\_\_ \_\_\_ \_\_\_ mg/dl

35. Treatment given for signs of MH  
*check all treatments utilized; fill in the blanks*

- Hyperventilation with 100% oxygen
- Intraoperative or postoperative dantrolene given  
\_\_\_ \_\_\_ Time required (*after anesthetic induction*)  
(*in hours, express parts of an hour using decimal points*)  
(*example – 3 minutes = 0.05*)
- \_\_\_ \_\_\_ Total dose given after induction (mg)
- Active cooling  
Method (specify) \_\_\_\_\_
- Fluid loading  
\_\_\_ ml/kg  
Fluid type (specify) \_\_\_\_\_
- Furosemide
- Mannitol
- Bicarbonate
- Glucose, insulin
- Bretylium
- Lidocaine
- Procainamide
- Defibrillation
- CPR
- other

36. Did the patient survive?  
*check one*  
 no  
 yes

37. Cause of death?  
 MH  
 Other (*specify*): \_\_\_\_\_

**COMMENTS ON PATIENT**  
*Optional*

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