MHS post MH event additional surgery (form J)

Please complete the survey below.

Thank you!

J1.0 - Year of procedure:

_____
(listed as year of event in MHS report)

J2.0 - Type(s) of procedure scheduled?

- ☐ cardiothoracic with bypass
- ☐ cardiothoracic without bypass
- ☐ dental
- ☐ ear, nose, or throat
- ☐ eye
- ☐ general surgery
- ☐ gynecology
- ☐ laparoscopic surgery (specify)
- ☐ neurosurgery
- ☐ obstetrics
- ☐ oral surgery
- ☐ orthopedic
- ☐ plastic surgery
- ☐ radiology
- ☐ robot-assisted surgery
- ☐ thoracic surgery
- ☐ thoracoscopic surgery
- ☐ transplant (specify type)
- ☐ trauma
- ☐ urology
- ☐ vascular
- ☐ other (specify)
- ☐ unknown

J2.1 - if other please specify:

_____

J3.0 - Was the procedure and emergency?

- ○ Yes
- ○ No

J4.0 - Anesthetic preparations included:

- ☐ dedicated vapor free anesthesia machine
- ☐ anesthesia work station flushed with either oxygen or air
- ☐ activated charcoal filter on the inspiratory limb
- ☐ autoclaving ventilator diaphragm and integrated breathing system
- ☐ free standing ventilator not part of anesthesia workstation
- ☐ anesthetic vaporizers bypassed
- ☐ anesthetic vaporizers drained
- ☐ new carbon dioxide absorbent
- ☐ new anesthesia circuit
- ☐ new mask
- ☐ new endotracheal tube
- ☐ other (specify)
- ☐ unknown

(Check all that apply)

J4.1 - If other please specify:

_____

J5.0 - How many minutes was the anesthesia machine
flushed?
(if not applicable do not complete)

_____
(minutes)

J6.0 - What flow rate was the anesthesia machine
flushed at?
(do not complete if not applicable)

_____
(L/min)

J7.0 - What type of anesthesia workstation was used?

_____

J7.1 - What model of anesthesia workstation was used?

_____

J8.0 - Was a premedication other than dantrolene
given?

○ Yes
○ No

J9.0 - Was dantrolene given before anesthetic
induction?

○ Yes
○ No

J9.1 - Pre-induction dantrolene administration dose:

_____
(mg)

J9.2 - Number of dantrolene doses:

_____

J9.3 - Time final dose begun

_____

J9.4 - Time final dose completed:

_____

J9.5 - Route of initial dantrolene administration:

☐ IV
☐ PO
(Check all that apply)

J9.6 - Were any complication from dantrolene
administration noted?

○ Yes
○ No

J9.7 - What dantrolene associated complications were
observed?

☐ phlebitis
☐ excessive secretions
☐ gastrointestinal upset
☐ hyperkalemia
☐ muscle weakness
☐ respiratory failure
☐ other (specify)
(Check all that apply)

J9.8 - If other, please specify:

_____

REDCap

J10.0 - Monitoring utilized:

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

J10.1 - If other, please specify:

_____

J11.0 - Temperature probes:

☐ axillary
☐ bladder
☐ esophageal
☐ nasopharyngeal
☐ rectal
☐ skin - electronic (specify location)
☐ skin - liquid crystal (specify type and location)
☐ tympanic
☐ no temperature monitoring used
☐ other (specify)

J11.1 - If other, please specify:

_____

J12.0 - Were local anesthetic agents used?

○ Yes
○ No

J12.1 - Route of local anesthetic administration:

☐ epidural
☐ intercostals
☐ intravenous
☐ major plexus block
☐ spinal
☐ subcutaneous
☐ topical or mucosal
☐ other (specify)
(Check all that apply)

J12.2 - If other, please specify:

_____

J13.0 - Local anesthetic drugs and vasoconstrictors utilized:

- ☐ LOCAL ANESTHETICS - bupivacaine (Marcaine)
- ☐ LOCAL ANESTHETICS - choroprocaine (Nesacaine)
- ☐ LOCAL ANESTHETICS - cocaine
- ☐ LOCAL ANESTHETICS - etidocaine (Duranest)
- ☐ LOCAL ANESTHETICS - levo-bupivacaine
- ☐ LOCAL ANESTHETICS - lidocaine (Xylocaine)
- ☐ LOCAL ANESTHETICS - mepivacaine (Carbocaine)
- ☐ LOCAL ANESTHETICS - prilocaine (Citanest)
- ☐ LOCAL ANESTHETICS - procaine (Novocain)
- ☐ LOCAL ANESTHETICS - ropivacaine (Naropin)
- ☐ LOCAL ANESTHETICS - tetracaine (Pontocaine)
- ☐ LOCAL ANESTHETICS - curare
- ☐ LOCAL ANESTHETICS - benzocaine (americaine)
- ☐ VASOPRESSOR - ephedrine
- ☐ VASOPRESSOR - epinephrine (Adrenaline)
- ☐ VASOPRESSOR - norepinephrine (Noradrenaline)
- ☐ VASOPRESSOR - phenylephrine (Neosynephrine)
- ☐ VASOPRESSOR - vasopressin

(check all that apply)

J14.0 - Other anesthetic agents utilized (including premedication):

- ☐ ACETAMINOPHEN - acetaminophen (Tylenol)
- ☐ ANALGESIC/ANTICONVULSANT - gabapentin (Neurontin)
- ☐ ANALGESIC/ANTICONVULSANT - pregabalin (Lyrica)
- ☐ ANTACID AGENT - cimetidine (Tagament)
- ☐ ANTACID AGENT - dolasetron (Anzemet)
- ☐ ANTACID AGENT - droperidol (Inapsine)
- ☐ ANTACID AGENT - famotidine (Pepcid)
- ☐ ANTACID AGENT - lansoprazole (Prevacid)
- ☐ ANTACID AGENT - omeprazole (Prilosec)
- ☐ ANTACID AGENT - ranitidine (Zantac)
- ☐ ANTACID AGENT - sodium citrated citric acid (Bicitra)
- ☐ ANTIEMETIC - metoclopramide (Reglan)
- ☐ ANTIEMETIC - ondansetron (Zofran)
- ☐ ANTIEMETIC - promethazine (Phenergan)
- ☐ ANTIEMETIC - scopolamine (Hyoscine)
- ☐ ANTIHISTAMINE - diphenhydramine (Benadryl)
- ☐ ANTIHISTAMINE - hydroxyzine (Vistaril)
- ☐ ANTIMUSCARINIC AGENT - atropine
- ☐ ANTIMUSCARINIC AGENT - glycopyrrolate (Robinul)
- ☐ NSAID - celecoxib
- ☐ NSAID - diclofenac
- ☐ NSAID - ibuprofen
- ☐ NSAID - ketorolac (Toradol)
- ☐ NSAID - meloxicam
- ☐ NSAID - naproxen
- ☐ SEDATIVE/HYPNOTIC - clonidine (Duraclon)
- ☐ SEDATIVE/HYPNOTIC - dexmedetomidine (Precedex)
- ☐ SEDATIVE/HYPNOTIC - diazepam (Valium)
- ☐ SEDATIVE/HYPNOTIC- etomidate (Amidate)
- ☐ SEDATIVE/HYPNOTIC- ketamine (Ketalar)
- ☐ SEDATIVE/HYPNOTIC- lorazepam (Ativan)
- ☐ SEDATIVE/HYPNOTIC- midazolam (Versed)
- ☐ SEDATIVE/HYPNOTIC- propofol (Diprivan)
- ☐ SEDATIVE/HYPNOTIC- thiopental
- ☐ OPIOID/OPIOID ANTAGONIST - alfentanil (Alfenta)
- ☐ OPIOID/OPIOID ANTAGONIST - fentanyl (Sublimaze)
- ☐ OPIOID/OPIOID ANTAGONIST - hydromorphone (Dilaudid)
- ☐ OPIOID/OPIOID ANTAGONIST - meperidine (Demerol)
- ☐ OPIOID/OPIOID ANTAGONIST - methadone
- ☐ OPIOID/OPIOID ANTAGONIST - morphine
- ☐ OPIOID/OPIOID ANTAGONIST - nalbuphine
- ☐ OPIOID/OPIOID ANTAGONIST - naloxone
- ☐ OPIOID/OPIOID ANTAGONIST - remifentanyl (Ultiva)
- ☐ OPIOID/OPIOID ANTAGONIST - sufentanil (Sufenta)
- ☐ POTENT VOLATILE ANESTHETIC AGENT - desflurane (Suprane)
- ☐ POTENT VOLATILE ANESTHETIC AGENT - halothane
- ☐ POTENT VOLATILE ANESTHETIC AGENT - isoflurane (Forane)
- ☐ POTENT VOLATILE ANESTHETIC AGENT - sevoflurane (Ultane)
- ☐ OTHER VOLATILE ANESTHETIC AGENT- nitrous oxide
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - atracurium (Tracrium)
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - cisatracurium (Nimbex)
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - pancuronium (Pavulon)
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - rocuronium (Zemuron)
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - vecuronium (Norcuron)
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - other non-depolarizing neuromuscular block (NDNB)
- ☐ NON-DEPOLARIZING NEUROMUSCULAR BLOCK REVERSA AGENT - sugammadex (Bridion)
- ☐ DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - IM

succinylcholine (Anectine)
- ☐ DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - IV succinylcholine (Anectine)
- ☐ CHOLINESTERASE INHIBITOR - edrophonium (Tensilon)
- ☐ CHOLINESTERASE INHIBITOR - neostigmine (Prostigmin)
- ☐ CHOLINESTERASE INHIBITOR - physostigmine (Antilirium)
- ☐ CHOLINESTERASE INHIBITOR - pyridostigmine (Mestinon)
- ☐ LOCAL ANESTHETICS - bupivacaine (Marcaine)
- ☐ LOCAL ANESTHETICS - choroprocaine (Nesacaine)
- ☐ LOCAL ANESTHETICS - cocaine
- ☐ LOCAL ANESTHETICS - etidocaine (Duranest)
- ☐ LOCAL ANESTHETICS - levo-bupivacaine
- ☐ LOCAL ANESTHETICS - lidocaine (Xylocaine)
- ☐ LOCAL ANESTHETICS - mepivacaine (Carbocaine)
- ☐ LOCAL ANESTHETICS - prilocaine (Citanest)
- ☐ LOCAL ANESTHETICS - procaine (Novocain)
- ☐ LOCAL ANESTHETICS - ropivacaine (Naropin)
- ☐ LOCAL ANESTHETICS - tetracaine (Pontocaine)
- ☐ LOCAL ANESTHETICS - curare
- ☐ VASOPRESSOR - ephedrine
- ☐ VASOPRESSOR - epinephrine (Adrenaline)
- ☐ VASOPRESSOR - norepinephrine (Noradrenaline)
- ☐ VASOPRESSOR - phenylephrine (Neosynephrine)
- ☐ VASOPRESSOR - vasopressin
- ☐ STEROID - dexamethasone
- ☐ STEROID - hydrocortisone
- ☐ Other (specify)
- ☐ Unknown

(check all that apply)

J14.1 - If other, please specify:

_____

J15.0 - Type of anesthetic:

- ☐ 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
- ☐ tourniquet use

(check all that apply)

J16.0 - Type of ventilation:

- ☐ spontaneous
- ☐ assisted
- ☐ controlled

(Check all that apply)

J17.0 - Time of anesthetic of induction for general/regional anesthetic:

_____
(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

J18.0 - Earliest time the patient was stable in recovery room or ICU (after induction):

_____
(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

J19.0 - Were any signs of MH noted? ○ Yes
                                      ○ No

SIGNS

J19.1 - RANK in order of appearance. (click the number of order for each sign)

You have completed ... (of Form G - during AMRA Episode)
10%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	n/a
masseter spasm: mouth cannot be fully opened, but direct laryngoscopy is possible.	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
masseter spasm: jaw clamped shut, intubation by 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% baseline	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
other (specify below)	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

J19.2 - What is the time of the first adverse sign noted (after induction)?

_____
(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

J19.3 - What is the time of the second adverse sign noted (after induction)?

_____
(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

J19.4 - What is the maximum temperature noted in Celsius?

_____

J19.5 - What is the maximum temperature noted in Fahrenheit?

_____

J19.6 - Time maximum temperature noted (after induction)	
	_____
	(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

J19.7 - Maximum end-tidal pCO2 noted:	
	_____
	(mmHg)

J19.8 - Time maximum end-tidal pCO2 noted after induction:	
	_____
	(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

Laboratory Tests after MH - Most abnormal arterial blood gas after MH was suspected * recommended interval for creatine kinase determination are 0, 6, 12, 24 hours after the adverse reaction.

70%

J20.0 - FiO2 at the time of this blood gas:	
	_____

J20.1 - pH at the time of this blood gas:	
	_____

J20.2 - PCO2 at the time of this blood gas:	
	_____
	(mmHg)

J20.3 - PO2 at the time of this blood gas:	
	_____
	(mmHg)

J20.4 - BE (mEq/L) at the time of this blood gas:	
	_____
	(mEq/L)

J20.5 - Bicarbonate (mEq/L) at the time of this blood gas:	
	_____
	(mEq/L)

J20.6 - Liters/minute ventilation at time blood gas was obtained:	
	_____
	(L/min)

J20.7 - Time (after inductions)	
	_____
	(Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))

J20.8 - Peak lactic acid:	
	_____
	(mmol/L)

J20.9 - Peak K+:

_____
(mEq/L or mmol/L)

J20.10 - peak post-op cretine kinase:

_____
(U/L)

J20.11 - hours after induction of peak post-op
creatine kinase

_____

J20.12 - peak serum myoglobin:

_____
(ng/mL)

J20.13 - hours after induction of peak serum myoglobin

_____

J20.14 - PT (prothrombin time)

_____
(seconds)

J20.14.1 - PT laboratory upper limit of normal

_____
(seconds)

J20.15 - INR

_____

J20.16 - PTT (partial thromboplastin time)

_____
(seconds)

J20.16.1 - PTT laboratory upper limit of normal

_____
(seconds)

J20.17 - Platelet count

_____

J20.18 - fibrinogen

_____
(mg/dl)

J21.0 Treatment given for signs of MH:	☐ Volatile anesthetics discontinued (specify hours elapsed from induction) ☐ Anesthesia circuit changed ☐ Activated carbon filters in circuit ☐ Hyperventilation with 100% oxygen (specify max EtCO2) ☐ Dantrolene (specify type below: Dantrium, Revonto or Ryanodex) ☐ Active cooling (specify method) ☐ Fluid loading (specify type and volume) ☐ Furosemide ☐ Mannitol ☐ Glucose, insulin ☐ Amiodarone ☐ Procainamide ☐ Calcium ☐ Bicarbonate ☐ Albuterol ☐ Lidocaine ☐ Cardioversion or Defibrillation ☐ CPR ☐ Inotrope (specify) ☐ Vasopressor (specify) ☐ None of the above ☐ Other (specify) (check all that apply)
J21.1 - If Dantrolene give, time required (after induction):	_____ (Total time in hours, express parts of an hour using decimal points (example - 3 minutes = 0.05)))
J21.2 - Total dose of dantrolene give after induction:	_____ (mg)
J21.3 - Method of Active cooling:	_____
J21.4 - Amount of fluid given:	_____ (mL/kg)
J21.5 - Other, specify:	_____
J22.0 - Did the patient survive the initial MH reaction?	◯ Yes ◯ No
J22.1 - Did the patient develop additional signs of symptoms after initial adequate treatment (recrudesce)?	◯ Yes ◯ No
J22.2 - When did the patient recrudesce?	_____ (hours after induction)
J22.3 - Did the patient survive the recrudescence?	◯ Yes ◯ No

J23.0 - If the patient died, what was the cause of
death?

   ◯ N/A
   ◯ MH
   ◯ Other (specify)

J23.1 - if other, specify:

_____

Comments on Patient:

_____