## after AMRA Episode (form H)

Please complete the survey below.

Thank you!

Post-Medication and anesthetic agents utilized

You have completed ... (of Form H - after AMRA Episode) 10%



H1.1 - Anesthetic agents utilized (AFTER Adverse Metabolic or Muscular Reaction re (check all applicable)	:cognized):	
☐ ACETAMINOPHEN - acetaminophen (Tylenol)		
☐ ANALGESIC/ANTICONVULSANT - gabapentin (Neurontin)		
ANALGESIC/ANTICONVULSANT - pregabalin (Lyrica)		
ANTACID AGENT - cimetidine (Tagament)		
ANTACID AGENT - delasetron (Anzemet)		
<ul><li>☐ ANTACID AGENT - droperidol (Inapsine)</li><li>☐ ANTACID AGENT - famotidine (Pepcid)</li></ul>		
ANTACID AGENT - Tamoddine (Fepcid)  ANTACID AGENT - Tamoddine (Fepcid)		
☐ ANTACID AGENT - omeprazole (Prilosec)		
☐ ANTACID AGENT - ranitidine (Zantac)		
ANTACID AGENT - sodium citrated citric acid (Bicitra)		
ANTIEMETIC - metoclopramide (Reglan)		
<ul><li>☐ ANTIEMETIC - ondansetron (Zofran)</li><li>☐ ANTIEMETIC - promethazine (Phenergan)</li></ul>		
ANTIEMETIC - scopolamine (Hyoscine)		
ANTIHISTAMINE - diphenhydramine (Benadryl)		
☐ ANTIHISTAMINE - hydroxyzine (Vistaril)		
ANTIMUSCARINIC AGENT - atropine		
☐ ANTIMUSCARINIC AGENT - glycopyrrolate (Robinul)		
□ NSAID - celecoxib □ NSAID - diclofenac		
□ NSAID - diciorenac		
□ NSAID - ketorolac (Toradol)		
□ NSAID - meloxicam		
□ NSAID - naproxen		
SEDATIVE/HYPNOTIC - clonidine (Duraclon)		
<ul><li>☐ SEDATIVE/HYPNOTIC - dexmedetomidine (Precedex)</li><li>☐ SEDATIVE/HYPNOTIC - diazepam (Valium)</li></ul>		
☐ SEDATIVE/HYPNOTIC - diazepain (validin)		
☐ SEDATIVE/HYPNOTIC- ketamine (Ketalar)		
SEDATIVE/HYPNOTIC- Iorazepam (Ativan)		
SEDATIVE/HYPNOTIC- midazolam (Versed)		
SEDATIVE/HYPNOTIC- propofol (Diprivan)		
SEDATIVE/HYPNOTIC- thiopental		
<ul><li>☐ OPIOID/OPIOID ANTAGONIST - alfentanil (Alfenta)</li><li>☐ OPIOID/OPIOID ANTAGONIST - fentanyl (Sublimaze)</li></ul>		
☐ OPIOID/OPIOID ANTAGONIST - Tentality (Sabilinaze) ☐ 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 - Terminentally (GittVa)		
☐ 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 - atracunum (Trachum)		
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		ock (NDNB)
<ul> <li>□ NON-DEPOLARIZING NEUROMUSCULAR BLOCK REVERSAL AGENT - sugammade</li> <li>□ DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - IM succinylcholine (Anectine)</li> </ul>		
☐ DEPOLARIZING NEUROMUSCULAR BLOCK AGENT - IM Succinylcholine (Anectine)		
☐ CHOLINESTERASE INHIBITOR - edrophonium (Tensilon)		
☐ CHOLINESTERASE INHIBITOR - neostigmine (Prostigmin)		
☐ CHOLINESTERASE INHIBITOR - physostigmine (Antilirium)		
CHOLINESTERASE INHIBITOR - pyridostigmine (Mestinon)		
LOCAL ANESTHETICS - bupivacaine (Marcaine)		
<ul><li>☐ LOCAL ANESTHETICS - choroprocaine (Nesacaine)</li><li>☐ LOCAL ANESTHETICS - cocaine</li></ul>		
☐ LOCAL AND THE TICS - Cocaine ☐ 1506A-1ANTSTHETICS - etidocaine (Duranest)	projectredcap.org	REDC
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<ul> <li>□ LOCAL ANESTHETICS - levo-bupivacaine</li> <li>□ LOCAL ANESTHETICS - lidocaine (Xylocaine)</li> <li>□ LOCAL ANESTHETICS - mepivacaine (Carbocaine)</li> <li>□ LOCAL ANESTHETICS - prilocaine (Novocain)</li> <li>□ LOCAL ANESTHETICS - ropivacaine (Naropin)</li> <li>□ LOCAL ANESTHETICS - tetracaine (Pontocaine)</li> <li>□ LOCAL ANESTHETICS - curare</li> <li>□ VASOPRESSOR - ephedrine</li> <li>□ VASOPRESSOR - epinephrine (Adrenaline)</li> <li>□ VASOPRESSOR - norepinephrine (Noradrenaline)</li> <li>□ VASOPRESSOR - phenylephrine (Neosynephrine)</li> <li>□ VASOPRESSOR - vasopressin</li> </ul>
☐ STEROID - dexamethasone
☐ STEROID - dexametriasone ☐ STEROID - hydrocortisone
Other (specify)
☐ Unknown
H1.1.1 - If other, please specify:

## SIGNS

H2.1 - Symptoms of repeated MH event (recrudescence) that were judged to be inappropriate by the attending anesthesiologist or other physician

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

1	You have completed (of	Forn	ո H -	afte	er Al	ИRA	Epis	sode	)										
be fully opened, but direct laryngoscopy is possible  masseter spasm: jaw clamped shut, intubation by direct visualization impossible  generalized muscular rigidity	30%	_	_	_		_	_	_	$\overline{}$	_	_	_	_	_	_		_	$\sim$	n/a
shut, intubation by direct visualization impossible           generalized muscular rigidity         O	be fully opened, but direct	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
cola colored urine         O O O O O O O O O O O O O O O O O O O	shut, intubation by direct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
tachypnea	generalized muscular rigidity	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$							
hypercarbia	cola colored urine	$\bigcirc$	$\circ$	$\bigcirc$	$\circ$	$\bigcirc$	$\circ$	$\bigcirc$	$\circ$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$						
cyanosis	tachypnea	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
skin mottling	hypercarbia	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$							
sinus tachycardia	cyanosis	$\bigcirc$	$\circ$	$\bigcirc$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
ventricular tachycardia       0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	skin mottling	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$							
ventricular fibrillation       O O O O O O O O O O O O O O O O O O O	sinus tachycardia	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$							
elevated temperature       O	ventricular tachycardia	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$	$\circ$	$\circ$	$\circ$	$\bigcirc$	$\circ$	$\circ$	$\circ$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$
rapidly increasing temperature	ventricular fibrillation	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	$\bigcirc$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$
sweating	elevated temperature	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$	$\circ$	$\circ$	$\circ$	$\bigcirc$	$\bigcirc$	$\circ$	$\bigcirc$	$\circ$	$\bigcirc$	$\bigcirc$	$\bigcirc$
excessive bleeding	rapidly increasing temperature	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$							
hypertension > 20% baseline	sweating	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\circ$							
	excessive bleeding	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$							
other (specify)	hypertension > 20% baseline	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$							
	other (specify)	0	$\bigcirc$	$\circ$	$\circ$	$\bigcirc$	$\bigcirc$	0	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	0	$\circ$	$\circ$	0	$\circ$	$\circ$

H2.1.1 - If other, please specify:

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MONITOR	
You have completed (of Form H - after AMRA Epis 50%	sode)
H3.1 - Monitoring utilized (AFTER reaction recognized)	<ul> <li>□ blood pressure monitor</li> <li>□ electrocardiograph</li> <li>□ stethoscope</li> <li>□ arterial catheter</li> <li>□ central venous catheter</li> <li>□ pulmonary artery catheter</li> <li>□ end-tidal PCO2</li> <li>□ pulse oximeter</li> <li>□ bladder (Foley) catheter</li> <li>□ processed EEG (e.g. BIS)</li> <li>□ other (specify)</li> <li>(check all monitoring used)</li> </ul>
H3.1.1 - If other, please specify:	
H3.2 - Temperature probes (AFTER reaction recognized):	axillary bladder esophageal nasopharyngeal rectal skin - electronic (specify location) skin - liquid crystal (specify type and location) tympanic no temperature monitoring used other (specify)
H3.2.1 - If skin (electronic), please specify the location of the monitor:	
H3.2.2a - If skin (liquid crystal), please specify the type of the monitor:	
H3.2.2b - If skin (liquid crystal), please specify the location of the monitor:	
H3.2.3 - If other, please specify:	



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## **Laboratory Tests after MH**

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

You	have	completed	(of F	orm H	- after	AMRA	Episode)
70%							

H4.1h - Hours elapsed from induction to the most abnormal arterial/venous blood gas?	(hrs)	_
H4.1yr - What was the year of the most abnormal arterial/venous blood gas test?	(for example, 2017)	
H4.1m - What was the month of the most abnormal arterial/venous blood gas test?	(for example, 12)	
H4.1d - What was the day of the most abnormal arterial/venous blood gas test?	(for example, 25)	
H4.1t - What was the time of the most abnormal arterial/venous blood gas test?	(for example, 18:30)	
H4.2 - FiO2 at the time of this blood gas:		
H4.3 - pH at the time of this blood gas:		
H4.4.1 - PCO2 at the time of this blood gas:		
H4.4.2 - PCO2 ventilation rate (liters/minute):	((liters/minute))	
H4.4.3 - PO2 at the time of this blood gas:		
H4.5 - BE (mEq/L) at the time of this blood gas:	(mEq/L)	
H4.6 - Bicarbonate (mEq/L) at the time of this blood gas:	(mEq/L)	
H4.7.1 - Peak lactic acid (mmol/L):		
	(mmol/L)	



H4.7.2h - Hours elapsed from induction to Peak lactic acid test :	(hrs)	
H4.7.2yr - What was the year of the Peak lactic acid test:	(for example, 2017)	
H4.7.2m - What was the month of the Peak lactic acid test:	(for example, 12)	
H4.7.2d - What was the day of the Peak lactic acid test:	(for example, 25)	
H4.7.2t - What was the time of the Peak lactic acid test:	(for example, 18:30)	
H4.8.1 - Peak K+:		
	(mEq/L or mmol/L)	
H4.8.2h - Hours elapsed from induction to Peak K+ test:	(hrs)	
H4.8.2y - What was the year of the Peak K+ test:		
	(for example, 2017)	
H4.8.2m - What was the month of the Peak K+ test:		
	(for example, 12)	
H4.8.2d - What was the day of the Peak K+ test:		
	(for example, 25)	
H4.8.2t - What was the time of the Peak K+ test:		
	(for example, 18:30)	
H4.9.0 - initial post-op creatine kinase (U/L):		
	(U/L)	
H4.9.0h - Hours elapsed after induction to initial post-op creatine kinase test:	(hrs)	
H4.9.1 - Peak post-op creatine kinase (U/L):		
	(U/L)	



H4.9.2h - Hours elapsed from induction to Peak post-op creatine kinase test:	(hrs)
H4.9.2y - What was the year of the Peak post-op creatine kinase test:	(for example, 2017)
H4.9.23m - What was the month of the Peak post-op creatine kinase test:	(for example, 12)
H4.9.23d - What was the day of the Peak post-op creatine kinase test:	(for example, 25)
H4.9.2t - What was the time of the Peak post-op creatine kinase test:	(for example, 18:30)
H4.10.1 - First creatine kinase (U/L)	(U/L)
H4.10.2h - Hours elapsed from induction to first creatine kinase test:	(hrs)
H4.10.2y - What was the year of the first creatine kinase test:	(for example, 2017)
H4.10.2m - What was the month of the first creatine kinase test:	(for example, 12)
H4.10.2d - What was the day of the first creatine kinase test:	(for example, 2017)
H4.10.2t - What was the time of the first creatine kinase test:	(for example, 18:30)
H4.11.1 - Last creatine kinase (U/L):	(U/L)
H4.11.2h - Hours elapsed from induction to last creatine kinase test:	(hrs)
H4.11.2y - What was the year of the last creatine kinase test:	(for example, 2017)



H4.11.2m - What was the month of the last creatine kinase test:	(for example, 12)	
H4.11.2d - What was the day of the last creatine kinase test:	(for example, 25)	
H4.11.2t - What was the time of the last creatine kinase test:	(for example, 18:30)	
H4.12.1- Is Urine chemstrip positive for blood?	<ul><li>Yes</li><li>No</li><li>Unknown</li></ul>	
H4.12.2h - Hours elapsed from induction to Urine chemstrip test:	(hrs)	
H4.12.2y - What was the year of the Urine chemstrip test:	(for example, 2017)	
H4.12.2m - What was the month of the Urine chemstrip test:	(for example, 12)	
H4.12.2d - What was the day of the Urine chemstrip test:	(for example, 25)	
H4.12.2t - What was the time of the Urine chemstrip test:	(for example, 18:30)	
H4.13.1 - serum myoglobin (ng/ml):	((ng/ml))	
H4.13.2h - Hours elapsed from induction to serum myoglobin test:	(hrs)	
H4.13.2y - What was the year of the serum myoglobin test:	(for example, 2017)	
H4.13.2m - What was the month of the serum myoglobin test:	(for example, 12)	
H4.13.2d - What was the day of the serum myoglobin test:	(for example, 25)	



H4.13.2t - What was the time of the serum myoglobin test:				
	(for example, 18:30)			
H4.14.1 - urine myoglobin (mg/L):				
	(mg/L)			
H4.14.2h - Hours elapsed from induction to urine myoglobin test:				
myogiobin test.	(hrs)			
H4.14.2y - What was the year of the urine myoglobin test:				
	(for example, 2017)			
H4.14.2m - What was the monthof the urine myoglobin test:				
	(for example, 12)			
H4.14.2d - What was the day of the urine myoglobin test:				
test.	(for example, 25)			
H4.14.2t - What was the time of the urine myoglobin test:				
test.	(for example, 18:30)			
H4.15 - Lowest fibrinogen (mg/dl):				
	(mg/dl)			
H4.16 - Peak PT (prothrombin time):				
	(seconds)			
H4.17 - PT laboratory upper limit of normal:				
	(seconds)			
H4.18 - Peak PTT (partial thromboplastin time)				
	(seconds)			
H4.19 - PTT laboratory upper limit of normal:				
	(seconds)			
H4.20 - Lowest platelet count:				
H4.21 - Peak INR				



PATIENT OUTCOME	
You have completed (of Form H - after AMRA Epis	ode)
90%	·
${\sf H5.1}$ - Did the patient develop any of the following complications (check all applicable)	5?
<ul> <li>□ brain death</li> <li>□ cardiac dysfunction</li> <li>□ cardiac arrest</li> <li>□ change in consciousness level</li> <li>□ coma</li> <li>□ compartment syndrome</li> <li>□ disseminated intravascular coagulation</li> <li>□ hepatic dysfunction</li> </ul>	
<ul> <li>□ pulmonary edema</li> <li>□ renal dysfunction</li> <li>□ SIRS after initial control of MH episode</li> <li>□ hypotension</li> <li>□ none of the above</li> <li>□ other (specify)</li> </ul>	
unknown	
H5.1.1 - If other, please specify	
H5.2 - Did the patient survive the initial reaction?	
H5.3 - Did the patient develop additional signs or symptoms of u rapidly increasing temperature, after initial adequate treatment	
<ul><li>Yes</li><li>No</li><li>Unknown</li></ul>	
H5.4 - Did recrudescence occur?	○ Yes ○ No
H5.4.1y - What was the year of the recrudescence?	
	(for example, 2017)
H5.4.1m - What was the month of the recrudescence?	
	(for example, 12)
H5.4.1d - What was the day of the recrudescence?	
	(for example, 25)
H5.4.2 - What was the time of the recrudescence?	
	(for example, 18:30)



H5.4.3 - Signs or recrudescence judged to be inappropriate by the attending anesthesiologist or other attending physician:

(Please enter the sign/sympotom in order of appearance 1-17)

	,
H5.5 - Did the patient survive both the initial reaction & the re	ecrudescence, if any, and recover?
<ul><li>Yes</li><li>No</li><li>Unknown</li></ul>	
H5.5.1 - If the patient died, what was the primary cause of death?	<ul><li>○ MH</li><li>○ other (specify)</li><li>○ unknown</li><li>(check all applicable)</li></ul>
H5.5.1.1 - If other, please specify	
H5.5.2 - If the patient died, was an autopsy performed?	○ Yes ○ No
H5.6 - If tissue from this patient was examined for a specific genetic defect, at what lab was this done (specify name and location of lab)?	
H5.7 - If so, what was found?	<ul><li>○ Ryanodine receptor type 1</li><li>○ other (specify)</li></ul>
H5.7.1 - If Ryanodine receptor type 1, specify amino acid change:	(e.g. p.2458Arg>His)
H5.7.2a - If other, specify gene name:	
H5.7.2b - if other, specify amino acid change:	
	(e.g. p.2458Arg>His)
H5.8 - In what tissue?	<ul><li>○ Blood</li><li>○ Muscle</li><li>○ other (specify)</li></ul>
H5.8.1 - If other, please specify:	

Congratulations. You have completed ... (of Form H - after AMRA Episode) 100%

**₹EDCap**°

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