

EXHIBIT A: Outcome Management of MH Through Application of the PNDS¹

The Perioperative Nursing Data Set (PNDS) is a clinically relevant and empirically validated standardized nursing language. The tables on the following pages represent a sample care plan for malignant hyperthermia (MH) that uses PNDS terminology to describe the care of patients in the perioperative setting. The diagram below provides more information to assist in reading and understanding the tables.

Nursing assessments for each outcome relate to symptoms covered in the corresponding pathophysiology section indicated by the PNDS domain (eg, D2, D3-B). The order of the outcomes is listed in the order the symptoms present as explained in the interpretive statements.

The information in the first column, labeled “Patient who has a personal or familial history of MH,” explains the perioperative team’s preventive actions to avoid symptoms and crisis.

The second column represents the “Patient who does not have history of MH; unknown risk.” This covers basic perioperative competencies and general

assessments for all patients. It is included in the care plan as a reminder that any patient could go into an MH crisis, shifting the perioperative nurse’s interventions to the third column unexpectedly.

The third column represents the “Patient in crisis; actively having symptoms” and includes the Malignant Hyperthermia Association of the United States (MHAUS) protocol.²

Note: Specific clinical interventions are based on the MHAUS protocol, but the protocol may not apply to all patients and should be altered according to specific patient needs.

REFERENCES

1. Beyea, S C, ed. *Perioperative Nursing Data Set: The Perioperative Nursing Vocabulary*. Second ed. Denver, CO: AORN, Inc; 2002: 85, 118, 121, 123, 131, 137, 158, 168, 183.

2. Malignant Hyperthermia Association of the United States (MHAUS). Emergency therapy for malignant hyperthermia. <http://www.mhaus.org/index.cfm/fuseaction/OnlineBrochures.Display/BrochurePK>. Accessed September 13, 2006.

PNDS domain	D2 Physiologic: Cardiac			
Outcome code and statement	Outcome O15: The patient’s cardiovascular status is consistent with or improved from baseline levels established preoperatively.			
	Interpretive Statement: Tachycardia is one of the first signs of MH.			
First, second, and third columns identify patient history of MH	Patient who has a personal or familial history of MH	Patient who does not have a history of MH; unknown risk	Patient in crisis; actively having symptoms	Plan reads DOWN for each patient category
	Nursing Diagnosis X20 Risk for fluid volume imbalance.	Nursing Diagnosis X20 Risk for fluid volume imbalance.	Nursing Diagnosis X20 Risk for fluid volume imbalance.	
PNDS codes for diagnoses and interventions	Nursing Interventions and Activities I59 Identifies baseline cardiac status.	Nursing Interventions and Activities I59 Identifies baseline cardiac status.	Nursing Interventions and Activities I59 Identifies baseline cardiac status.	

Malignant Hyperthermia Guideline

<p>D2 Physiologic: Cardiac</p> <p>Outcome O15: The patient’s cardiovascular status is consistent with or improved from baseline levels established preoperatively.</p> <p>Interpretive Statement: Tachycardia is one of the first signs of MH.</p>		
<p><i>Patient who has a personal or familial history of MH</i></p>	<p><i>Patient who does not have a history of MH; unknown risk</i></p>	<p><i>Patient in crisis; actively having symptoms</i></p>
<p>Nursing Diagnosis X20 Risk for fluid volume imbalance.</p>	<p>Nursing Diagnosis X20 Risk for fluid volume imbalance.</p>	<p>Nursing Diagnosis X20 Risk for fluid volume imbalance. X8 Decreased cardiac output.</p>
<p>Nursing Interventions and Activities I59 Identifies baseline cardiac status.</p>	<p>Nursing Interventions and Activities I59 Identifies baseline cardiac status.</p>	<p>Nursing Interventions and Activities I59 Identifies baseline cardiac status.</p> <ul style="list-style-type: none"> ◆ Monitors physiological parameters. ◆ Assists anesthesia provider as appropriate in monitoring <ul style="list-style-type: none"> – electrocardiogram (ECG); – vital signs (ie, blood pressure, pulse rate, body temperature); – oximetry; – capnometry; – arterial and venous blood gases for unexplained tachycardia; – core temperature, measured via esophageal, tympanic, axillary, rectal, and bladder probes; – serum potassium; – calcium; – clotting studies; – urine color and output; – diaphoresis; – mottling of skin; and – central venous and arterial pressure.
<p>I120 Uses monitoring equipment to assess cardiac status.</p>	<p>I120 Uses monitoring equipment to assess cardiac status.</p>	<p>I120 Uses monitoring equipment to assess cardiac status.</p> <p>Based on cardiac assessment of arrhythmias and indicators of cardiac output, follow MH protocol (see <i>D1 Safety: Medication</i> section).</p>

D2 Physiologic: Respiratory		
<p>Outcome O14: The patient's respiratory function is consistent with or improved from baseline levels established preoperatively.</p> <p>Interpretive Statement: Irregular breathing, ineffective breathing pattern, and subsequent impaired gas exchange are early stages of an MH crisis.</p>		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Diagnosis X7 Ineffective breathing pattern (risk for).</p>	<p>Nursing Diagnosis X7 Ineffective breathing pattern (risk for).</p>	<p>Nursing Diagnosis X7 Ineffective breathing pattern. X21 Impaired gas exchange.</p>
<p>Nursing Interventions and Activities I87 Monitors changes in respiratory status.</p>	<p>Nursing Interventions and Activities I87 Monitors changes in respiratory status.</p>	<p>Nursing Interventions and Activities I87 Monitors changes in respiratory status.</p>
I121 Uses monitoring equipment to assess respiratory status.	I121 Uses monitoring equipment to assess respiratory status.	I121 Uses monitoring equipment to assess respiratory status.
I45 Evaluates postoperative respiratory status.	I45 Evaluates postoperative respiratory status.	I45 Evaluates postoperative respiratory status.
		I110 Recognizes and reports deviations in arterial blood gas (ABG) studies.
D2 Physiologic: Fluid/electrolyte/acid-base balances		
<p>Outcome O13: The patient's fluid, electrolyte, and acid-base balances are consistent with or improved from baseline levels established preoperatively.</p> <p>Interpretive Statement: Due to cardiac arrhythmias and impaired gas exchanges, acid-base imbalance may be the next progression of symptoms when a patient is in MH crisis.</p>		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Diagnosis X18 Risk for fluid volume deficit.</p>	<p>Nursing Diagnosis X18 Risk for fluid volume deficit.</p>	<p>Nursing Diagnosis X18 Risk for fluid volume deficit. X17 Fluid volume deficit.</p>
<p>Nursing Interventions and Activities I89 Monitors physiologic parameters.</p>	<p>Nursing Interventions and Activities I89 Monitors physiologic parameters.</p>	<p>Nursing Interventions and Activities I89 Monitors physiologic parameters.</p>
I23 Collaborates in fluid and electrolyte management.	I23 Collaborates in fluid and electrolyte management.	<p>I23 Collaborates in fluid and electrolyte management.</p> <ul style="list-style-type: none"> ◆ Measures urine output ◆ Observes characteristics of any drainage. <ul style="list-style-type: none"> – Inserts 3-way indwelling urinary catheter. – Monitors urinary output. – Monitors color, amount, and consistency.

Malignant Hyperthermia Guideline

D2 Physiologic: Fluid/electrolyte/acid-base balances (continued)		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
		<p>Nursing Interventions and Activities</p> <p>123 Collaborates in fluid and electrolyte management. (continued)</p> <ul style="list-style-type: none"> ◆ Administers urinary drainage system care. Maintains aseptic technique during insertion. Secures catheter and places it in view of anesthesia care provider. ◆ Administers drainage tube system care. Maintains clean drainage device site, maintain dressings, and secures device properly.
		<p>184 Laboratory values (specimen collection)</p> <ul style="list-style-type: none"> ◆ Manages specimen handling and disposition (eg, blood and urine). ◆ Monitors central venous or pulmonary artery (PA) monitoring as needed; records minute ventilation. ◆ Venous blood gas (eg, femoral vein) values may document hypermetabolism better than arterial values. ◆ Follows coagulation profile. Watches for disseminated intravascular coagulation. ◆ Measure creatinine kinase (CK) every six hours until decreased. If event is severe, CK levels may stay elevated for two weeks.

D2 Physiologic: Fluid/electrolyte/acid-base balances (continued)		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
		<p>Nursing Interventions and Activities (continued)</p> <p>I34 Establishes IV access.</p> <ul style="list-style-type: none"> ◆ Initiates IV access or helps anesthesia care provider to initiate IV access, if none exists. ◆ Facilitates set-up for central line as needed. ◆ Based on fluid/electrolyte/acid-base assessment, follow MH protocol: <ul style="list-style-type: none"> – Administers IV fluid therapy. – Administers refrigerated IV normal saline. Note: Do not use IV lactated Ringer's solution; it may contribute to the patient's acidosis.
		<p>I9 Administers prescribed medications based on ABG results.</p> <p>Based on fluid/electrolyte/acid-base assessment, follow MH protocol (see <i>D1 Safety: Medication</i>)</p>
		<p>I153 Evaluates response to administration of fluids and electrolytes.</p> <ul style="list-style-type: none"> ◆ Creatinine kinase and potassium rise persistently, or urine output falls to less than 0.5mL/kg/hr; induce diuresis to at least 2mL/kg/hr to avoid myoglobin-induced renal failure.

Malignant Hyperthermia Guideline

D2 Physiologic: Wound/tissue perfusion		
<p>Outcome O11: The patient has wound/tissue perfusion consistent with or improved from baseline levels established preoperatively.</p> <p>Interpretive Statement: When a patient is in an MH crisis, there may not be time to close the wound immediately, acute muscular contraction and changes to tissue perfusion may affect the long-term wound healing and the rigorous cooling processes can increase the risk for physical injury to the skin and other tissue being cooled.</p>		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Diagnosis X51 Risk for impaired skin integrity.</p>	<p>Nursing Diagnosis X51 Risk for impaired skin integrity.</p>	<p>Nursing Diagnosis X50 Impaired skin integrity.</p>
<p>Nursing Interventions and Activities I60 Identifies baseline tissue perfusion.</p>	<p>Nursing Interventions and Activities I60 Identifies baseline tissue perfusion.</p>	<p>Nursing Interventions and Activities I15 Assesses factors related to risk for ineffective tissue perfusion.</p> <ul style="list-style-type: none"> ◆ Assesses for muscle rigidity progressing to cyanosis and mottling. ◆ Administers care to incision sites. ◆ Assists with closure of wound as soon as MH is suspected. ◆ If wound closure is not possible, wound should be packed with saline-soaked towels or laparotomy sponges. ◆ May need to irrigate the wound with cool normal saline solution, not lactated Ringer's solution.
<p><i>Note: Perioperative nurses assume basic assessment of injury to skin and tissue, but I152 is not specifically included in this column to indicate extra levels of assessment are needed for the patient in crisis.</i></p>	<p><i>Note: Perioperative nurses assume basic assessment of injury to skin and tissue, but I152 is not specifically included in this column to indicate extra levels of assessment are needed for the patient in crisis.</i></p>	<p>I152 Evaluates for signs and symptoms of physical injury to skin and tissue.</p>
<p>I46 Evaluates postoperative tissue perfusion.</p>	<p>I46 Evaluates postoperative tissue perfusion.</p>	<p>I46 Evaluates postoperative tissue perfusion.</p>

D2 Physiologic: Normothermia		
<p>Outcome O12: The patient is at or returning to normothermia at the conclusion of the immediate postoperative period.</p> <p>Interpretive Statement: When a patient is in an MH crisis there is hyperthermia related to hypermetabolic crisis and muscular contraction, and hypothermia related to rigorous cooling processes used to treat hyperthermia.</p>		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Diagnosis X57 Risk for imbalanced body temperature.</p>	<p>Nursing Diagnosis X57 Risk for imbalanced body temperature.</p>	<p>Nursing Diagnosis X58 Ineffective thermoregulation. X29 Risk for injury.</p>
<p>Nursing Interventions and Activities I131 Assesses risk for inadvertent hypothermia.</p>	<p>Nursing Interventions and Activities I131 Assesses risk for inadvertent hypothermia.</p>	<p>Nursing Interventions and Activities I131 Assesses risk for inadvertent hypothermia.</p> <ul style="list-style-type: none"> ◆ Stop cooling if temperature is 38° C (100.4° F) and falling to prevent it from dropping below 36° C (96.8° F).
I86 Monitors body temperature.	I86 Monitors body temperature.	I86 Monitors body temperature.
	<ul style="list-style-type: none"> ◆ Discontinues cooling measures when patient's temperature reaches 38° C (100.4° F). Note: Care should be taken to avoid too rigorous cooling, which can result in inadvertent hypothermia. 	<p>I78 Implements thermoregulation measures:</p> <ul style="list-style-type: none"> ◆ Directly lavage peritoneal and/or thoracic cavity with refrigerated normal saline irrigation fluid (ie, if surgical site is open). ◆ Indirectly lavage stomach (eg, connect nasogastric [NG] tube to refrigerated normal saline irrigation, not lactated Ringer's solution, with cystoscopy tubing). ◆ Lavage rectum (eg, connect a 3-way indwelling urinary catheter with 30-mL balloon to refrigerated normal saline irrigation, not lactated Ringer's solution, with cystoscopy tubing). ◆ Surface-cool patient with ice in plastic bags and a hypothermia blanket to neck, axillae, and groin area. ◆ Discontinues cooling measures when patient's temperature reaches 38° C (100.4° F). Note: Care should be taken to avoid too rigorous cooling, which can result in inadvertent hypothermia.

Malignant Hyperthermia Guideline

D1 Safety: Medication		
<p>Outcome O9: The patient receives appropriate medication(s), safely administered during the perioperative period.</p> <p>Interpretive Statement: When a patient is in an MH crisis, it is important to have a sufficient number of trained responders. The responders should be familiar with their role in the crisis and be able to access the appropriate supplies and prepare or administer medications efficiently.</p>		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Diagnosis X29 Risk for injury.</p>	<p>Nursing Diagnosis X29 Risk for injury.</p>	<p>Nursing Diagnosis X29 Risk for injury.</p>
<p>Nursing Interventions and Activities 18 Administers prescribed medications and solutions.</p>	<p>Nursing Interventions and Activities 18 Administers prescribed medications and solutions.</p>	<p>Nursing Interventions and Activities 18 Administers prescribed medications and solutions.</p> <ul style="list-style-type: none"> ◆ Anesthesia care provider to discontinue volatile agents and succinylcholine. ◆ Anesthesia care provider hyperventilates patient with 100% oxygen at flows of 10 L/min or more.
		<p>19 Administers prescribed medications based on ABG results.</p> <ul style="list-style-type: none"> ◆ Rapidly administers IV dantrolene sodium 2.5 mg/kg given rapidly through large-bore IV for initial bolus. <ul style="list-style-type: none"> – Dantrolene sodium should be mixed with sterile water for injection USP (without a bacteriostatic agent; 60 mL per 20-mg vial) and shaken vigorously. – Prewarming (not to exceed 38° C) the sterile water will speed dissolving of dantrolene sodium into solution. – Repeat dosages of dantrolene sodium as necessary; titrate to tachycardia, hyperthermia, hypercarbia, and rigidity. – Although the stated upper dosage of 10 mg/kg is suggested, more may be administered as needed. – For at least 24 hours dantrolene sodium should be administered by infusing 1mg/kg every 4 to 6 hours or 0.25mg/kg/hr.

D1 Safety: Medication (continued)		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
		<p>Nursing Interventions and Activities <i>19 Administers prescribed medications based on ABG results. (continued)</i></p> <ul style="list-style-type: none"> ◆ Administer sodium bicarbonate to correct metabolic acidosis as guided by ABG analysis. <ul style="list-style-type: none"> – If initial ABG results are not available and there are dysrhythmias or cardiac arrest, consider the most likely cause is due to acidosis and/or hyperkalemia. – Administer initial dose of 1 to 2 mEq/kg of sodium bicarbonate IV and repeat as indicated. Thereafter, dose should be based on ABG results. ◆ Administer IV glucose and insulin. <ul style="list-style-type: none"> – To treat hyperkalemia in adults use 10 units regular insulin IV and 50 mL 50% glucose. – To treat hyperkalemia in children, use 0.1 units insulin/kg and 1mL/kg 50% glucose. ◆ Administer calcium chloride to treat life-threatening hyperkalemia. <ul style="list-style-type: none"> – For adults, 10mg/kg calcium chloride or 10 to 50 mg/kg calcium gluconate for life-threatening hyperkalemia. – Check glucose levels hourly. ◆ Administer standard antiarrhythmic agents if dysrhythmias persist following treatment of acidosis and hyperkalemia.

Malignant Hyperthermia Guideline

D1 Safety: Medication (continued)		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
		<p>Nursing Interventions and Activities</p> <p>19 Administers prescribed medications based on ABC results. (continued)</p> <ul style="list-style-type: none"> ◆ Life-threatening dysrhythmias should not be treated with calcium channel blocking agents because they may cause hyperkalemia or cardiac arrest in the presence of dantrolene sodium. ◆ Avoid using solutions containing potassium.
		<p>178 Implements thermoregulation measures and applies devices to cool the patient as indicated.</p> <ul style="list-style-type: none"> ◆ Recognizes and reports deviation in diagnostic studies. ◆ Collaborates in maintenance and/or corrective therapy. Requests additional staff members to assist with management of complications. ◆ Monitors physiological parameters. Assists anesthesia provider as appropriate in monitoring <ul style="list-style-type: none"> – electrocardiogram (cardiac); – vital signs (ie, blood pressure, pulse rate, body temperature; cardiac); – oximetry (respiratory); – capnometry (respiratory); – arterial and venous blood gases for unexplained tachycardia (fluid and electrolytes); – core temperature (esophageal, tympanic, axillary, rectal, bladder); – serum potassium (electrolytes); – calcium (electrolytes); – clotting studies (electrolytes); – urine color and output (electrolytes); – diaphoresis (fluid electrolytes); – mottling of skin (perfusion); and – central venous pressure and arterial pressure (cardiac).

D1 Safety: Freedom from acquired physical injury.		
Outcome O2: The patient is free from signs and symptoms of injury caused by extraneous objects.		
Interpretive Statement: When a patient goes into an MH crisis, routine count procedures may be disrupted and additional supplies and equipment are used for thermoregulation. The perioperative nurse should reconcile the surgical count (ie, sponge, sharps, instrument) as soon as possible and anticipate prevention of retained surgical items throughout the MH crisis. The perioperative nurse should identify potential hazards associated with controlling patient temperature and establish safe practices. ^{3,4,5}		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
Nursing Diagnosis X29 Risk for injury.	Nursing Diagnosis X29 Risk for injury.	Nursing Diagnosis X29 Risk for injury.
Nursing Interventions and Activities I76 Implements protective measures to prevent skin or tissue injury due to thermal sources.	Nursing Interventions and Activities I76 Implements protective measures to prevent skin or tissue injury due to thermal sources.	Nursing Interventions and Activities I76 Implements protective measures to prevent skin or tissue injury due to thermal sources. Inspects skin integrity periodically during, when possible, and after using devices (eg, ice packs, temperature-regulating blankets).
I93 Performs required counts.	I93 Performs required counts.	I93 Performs required counts. <ul style="list-style-type: none"> ◆ Informs the surgeon and perioperative team as soon as a discrepancy in a surgical count (ie, sponge, sharps, instrument) is identified. ◆ Initiates additional measures for prevention of retained surgical items. ◆ Depending on facility policy and procedure, additional measures may include investigation, reconciliation, and documentation.⁴
I122 Uses supplies and equipment within safe parameters. <ul style="list-style-type: none"> ◆ Use supplies, equipment, and instruments carefully to avoid compromising patient safety. 	I122 Uses supplies and equipment within safe parameters. <ul style="list-style-type: none"> ◆ Uses supplies, equipment, and instruments carefully to avoid compromising patient safety. 	I122 Uses supplies and equipment within safe parameters. <ul style="list-style-type: none"> ◆ Irrigation/infusion solutions should be warmed or cooled to the temperatures appropriate for the surgical need.⁵ ◆ Uses supplies, equipment, and instruments carefully to avoid compromising patient safety.

Malignant Hyperthermia Guideline

D2 Physiologic: Pain control

Outcome O29: The patient demonstrates and/or reports adequate pain control throughout the perioperative period.

Interpretive statement: Patients who have experienced an MH crisis have potential for pain not only at the surgical wound site, but also as a result of acute muscle contractions and rigorous cooling processes that may have been implemented.

<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
Nursing Diagnosis X38 (Potential for) Acute pain.	Nursing Diagnosis X38 (Potential for) Acute pain.	Nursing Diagnosis X38 Acute pain.
Nursing Interventions and Activities I16 Assesses pain control.	Nursing Interventions and Activities I16 Assesses pain control.	Nursing Interventions and Activities I16 Assesses pain control.
I71 Implements pain guidelines.	I71 Implements pain guidelines.	I71 Implements pain guidelines.
I54 Evaluates response to pain management intervention.	I54 Evaluates response to pain management intervention.	I54 Evaluates response to pain management intervention.
I61 Identifies cultural and value components related to pain.	I61 Identifies cultural and value components related to pain.	I61 Identifies cultural and value components related to pain.
I69 Implements alternative methods of pain control.	I69 Implements alternative methods of pain control.	I69 Implements alternative methods of pain control.
		I118 Transports according to individual needs. <ul style="list-style-type: none"> ◆ Ensures transfer without tissue injury; altered body temperature; ineffective breathing patterns, altered tissue perfusion; and undue discomfort, pain, or fear. ◆ Gentle handling/movement/positioning.

D3-B Rights/Ethics: Participates in decisions		
Outcome O23: The patient participates in decisions affecting his or her perioperative plan of care.		
Interpretive Statement: When a patient has a known increased risk for an MH crisis, decisions need to be made about where to have his or her invasive procedure performed, and the patient should be informed about preventive measures.		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
Nursing Diagnosis X12 Decisional conflict.	Nursing Diagnosis X12 Decisional conflict.	Nursing Diagnosis X12 Decisional conflict.
Nursing Interventions and Activities I63 Identifies individual values and wishes concerning care.	Nursing Interventions and Activities I63 Identifies individual values and wishes concerning care.	Nursing Interventions and Activities I63 Identifies individual values and wishes concerning care.
I79 Includes family members in preoperative teaching.	I79 Includes family members in preoperative teaching.	I79 Includes family members in preoperative teaching.
Discharge planning I80 Includes patient and family members in discharge planning.	Discharge planning I80 Includes patient and family members in discharge planning.	Discharge planning I80 Includes patient and family members in discharge planning.
I106 Provides instruction based on age and identified needs.	I106 Provides instruction based on age and identified needs.	I106 Provides instruction based on age and identified needs.
I135 Determines knowledge level	I135 Determines knowledge level	I135 Determines knowledge level
I136 Assesses readiness to learn.	I136 Assesses readiness to learn.	I136 Assesses readiness to learn.
I137 Assesses coping mechanisms.	I137 Assesses coping mechanisms.	I137 Assesses coping mechanisms.
I147 Implements measures to provide psychological support.	<i>Note: Perioperative nurses assume basic role of support, but I147 not specifically included in this column to indicate that extra levels of support are needed for the patient in crisis or susceptible for MH.</i>	I147 Implements measures to provide psychological support.
I151 Maintains patient confidentiality.	I151 Maintains patient confidentiality.	I151 Maintains patient confidentiality.

Malignant Hyperthermia Guideline

D3-B Rights/Ethics: Consistent care		
<p>Outcome O27: The patient receives consistent and comparable care regardless of the setting.</p> <p>Interpretive Statement: Every patient is at risk for a malignant hyperthermia crisis and deserves to have the same level of care regardless of the setting where the procedure is performed.</p>		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Diagnosis X44 Protection, ineffective (potential for).</p>	<p>Nursing Diagnosis X44 Protection, ineffective (potential for).</p>	<p>Nursing Diagnosis X44 Protection, ineffective (potential for).</p>
<p>Nursing Interventions and Activities I1 Acts as a patient advocate by protecting the patient from incompetent, unethical, or illegal practices.</p>	<p>Nursing Interventions and Activities I1 Acts as a patient advocate by protecting the patient from incompetent, unethical, or illegal practices.</p>	<p>Nursing Interventions and Activities I1 Acts as a patient advocate by protecting the patient from incompetent, unethical, or illegal practices.</p>
<p>I97 Preserves and protects the patient's autonomy, dignity, and human rights.</p>	<p>I97 Preserves and protects the patient's autonomy, dignity, and human rights.</p>	<p>I97 Preserves and protects the patient's autonomy, dignity, and human rights.</p>
<p>I99 Provides care in a nondiscriminatory, nonprejudicial manner regardless of the setting in which is given.</p> <ul style="list-style-type: none"> ◆ Adheres to AORN, JCAHO, and other standards of care. ◆ Provides comparable levels of care regardless of the setting in which care is given (eg, inpatient, outpatient, public, private, home, emergency department). 	<p>I99 Provides care in a nondiscriminatory, nonprejudicial manner regardless of the setting in which is given.</p> <ul style="list-style-type: none"> ◆ Adheres to AORN, JCAHO, and other standards of care. ◆ Provides comparable levels of care regardless of the setting in which care is given (eg, inpatient, outpatient, public, private, home, emergency department). 	<p>I99 Provides care in a nondiscriminatory, nonprejudicial manner regardless of the setting in which is given.</p> <ul style="list-style-type: none"> ◆ Adheres to AORN, JCAHO, and other standards of care. ◆ Provides comparable levels of care regardless of the setting in which care is given (eg, inpatient, outpatient, public, private, home, emergency department).
<p>I27 Ensures continuity of care.</p> <ul style="list-style-type: none"> ◆ Hand-off communications include extra focus on patient's susceptibility to MH. 	<p><i>Note: Perioperative nurses assume basic role of continuity and communications, but I27 is not specifically included in this column to indicate that extra levels of communication are needed for the patient in crisis or susceptible for MH.</i></p>	<p>I27 Ensures continuity of care.</p> <ul style="list-style-type: none"> ◆ Transfers to another facility/department ◆ Hand-off communications

D3-B Rights/Ethics: Consistent care		
<i>Patient who has a personal or familial history of MH</i>	<i>Patient who does not have a history of MH; unknown risk</i>	<i>Patient in crisis; actively having symptoms</i>
<p>Nursing Interventions and Activities (continued)</p> <p>192 Obtains consultation from the appropriate health care provider to initiate new treatments or change existing treatments.</p> <ul style="list-style-type: none"> ◆ Upon suspicion and/or diagnosis of an MH crisis, notify the following personnel as appropriate: <ul style="list-style-type: none"> – attending anesthesia care provider, – attending physician, – OR charge nurse, – anesthesia technician(s), – postanesthesia care unit/intensive care unit, – OR cardiopulmonary assistant(s), – house supervisor, and – pharmacy supervisor. 	<p>Nursing Interventions and Activities (continued)</p> <p>192 Obtains consultation from the appropriate health care provider to initiate new treatments or change existing treatments.</p> <ul style="list-style-type: none"> ◆ Upon suspicion and/or diagnosis of an MH crisis, notify the following personnel as appropriate: <ul style="list-style-type: none"> – attending anesthesia care provider, – attending physician, – OR charge nurse, – anesthesia technician(s), – postanesthesia care unit/intensive care unit, – OR cardiopulmonary assistant(s), – house supervisor, and – pharmacy supervisor. 	<p>Nursing Interventions and Activities (continued)</p> <p>192 Obtains consultation from the appropriate health care provider to initiate new treatments or change existing treatments.</p> <ul style="list-style-type: none"> ◆ Upon suspicion and/or diagnosis of an MH crisis, notify the following personnel as appropriate: <ul style="list-style-type: none"> – attending anesthesia care provider, – attending physician, – OR charge nurse, – anesthesia technician(s), – postanesthesia care unit/intensive care unit, – OR cardiopulmonary assistant(s), – house supervisor, and – pharmacy supervisor. ◆ Counsel the patient and family regarding MH and further precautions; refer them to MHAUS. ◆ Fill out and send the Adverse Metabolic Reaction to Anesthesia (AMRA) form and send a letter to the patient and attending physician. ◆ Refer patient and family to the nearest center for muscle biopsy follow-up.

REFERENCES

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