Inclusion Criteria – all must be present
- Cardiac arrest with return of spontaneous circulation (ROSC)
- ROSC within 60 mins of witnessed arrest; unknown downtime may be cause for exclusion
- Age > 18 years
- Initial temperature > 35° C
- Patient is intubated and remains comatose (defined as: not following commands, no speech, no purposeful movement to noxious stimuli, no eye opening within 15-30 mins after resuscitation)

Exclusion Criteria (Absolute)
- Patient awakening with return of normal mental status within 15-30 mins after successful resuscitation
- Known terminal illness
- Existing DNAR status

Exclusion Criteria (Relative)
- Actively bleeding or at high risk of bleeding
- Persistent shock: SBP < 90 mm Hg or MAP < 60 mm Hg after resuscitation with fluids and/or vasopressors
- Pregnancy (Discuss on a case to case basis with family)
- Sustained refractory ventricular arrhythmias

NURSING
- Hypothermia Instructions:
  - Monitor Temp continuously via urinary catheter, esophageal probe, or rectal probe. (No oral or axillary temps)
  - Apply Arctic Sun cooling pads to patient to cover 40% of body surface area. Use additional "universal" pad if patient’s weight is over 100 Kg.
  - Set Arctic Sun cooling machine to 33°C
  - Notify Intensivist if unable to reach goal Temp of 33°C within 4 Hrs or if unable to decrease Temp 1°C X 2 Hrs
  - Begin re-warming 24 Hrs after initiation of cooling therapy; Set Arctic Sun target Temp to 37°C and re-warming rate at 0.25° C/Hr
  - After re-warming complete, maintain patient on Arctic Sun for 48 Hrs at target Temp of 37°C to avoid hyperthermia
- Insert nasogastric / orogastric tube (NGT / OGT) tube to low continuous suction
- Apply leg compression device to lower extremities at all times
- Blood glucose monitoring Q 1 Hr (DO NOT use finger stick)
- Train of four monitoring with neuromuscular stimulator Q 1 Hr while on Vecuronium drip
- Apply BIS monitor continuously while on hypothermia. Goal to maintain BIS 40-60.
- Indicate Richmond Agitation Sedation Scale (RASS) Sedation Goal: -5 Unarousable.
- Maintain CVP of 6-10 mmHg or PCWP 8-12 mmHg
- RN to order electrocardiogram (EKG) Prn sustained dysrhythmia
- Notify Physician (Intensivist) to initiate Critical Care Insulin Drip Orders if serum glucose > 180 x 2 Hrs

ACTIVITY
- Elevate head of bed (HOB) to 30° unless contraindicated
- Activity restrictions: Bedrest
  (If there are no restrictions nursing will ambulate patient at least four times a day per policy PC-112.)

RESPIRATORY
- Hypothermia Ventilator Management
  Ventilator Adjustment to be made by therapist to maintain:
  Hypothermia Orders critical care V22 10.29.12 OK FOR PRINTING
  MEDITECH NAME: MD.HYPOT
  MEDITECH MNEMONIC: HYPOTHERMIA SS – CRITICAL CARE
  ZYNX : none
  Sponsor: Nancy Christiansen
  V:\SJO Ordersets\Order Sets\MEDICAL INFECTIOUS DX\Hypothermia
pH 7.35-7.45, PaCO2 35-45 mm Hg, PaO2 80-120 mm Hg

No Weaning parameters during hypothermia protocol
Resume Weaning parameters after normothermia restored and sedation is discontinued

ABGs after intubation – STAT

- Discontinue heating circuit
- Continuous End Tidal CO2 Monitoring
  - Lo ETCO2 35-Hi ETCO2 45

**IV FLUIDS**
- □ Sodium Chloride 0.9% IV to run at 100 mL/Hr.
- □ Sodium Chloride 0.9%, 250 mL IV over 30 mins Prn CVP < 6 or PCWP < 8, REPEAT until CVP > 6 or PCWP > 8 or until 2 liters infused (i.e. DO NOT exceed 8 doses total). If CVP or PCWP goals are still not achieved after 8 doses, notify intensivists.
- □ Albumin 5% 250 mL IVPB over 30 mins x 1 dose Prn if Sodium Chloride boluses are ineffective (i.e. CVP still < 6 or PCWP still < 8).

**MEDICATIONS**

- □ Acetaminophen (Tylenol) 650 mg via NG Q 4 Hrs Prn Temp > 99.6°F /37.6°C during re-warming phase. Clamp NG tube x 30 mins after each dose. *Total Acetaminophen not to exceed 4,000 mg/24 Hrs*
- □ Acetaminophen (Tylenol) 650 mg suppository PR Q 4 Hrs Prn Temp > 99.6°F / 37.6°C during re-warming phase if unable to give NG acetyaminophen (if ordered). *Total Acetaminophen not to exceed 4,000 mg/24 Hrs*

- **Analgesic medications**

- □ Meperidine (Demerol) 10 mg IV Push x 1 dose Prn shivering. If ineffective after 30 mins may repeat 10 mg IV Push x 1 dose. Contact MD if patient is still shivering after 2 doses have been given. Hold if SCr > 1.5.

- **Analgesic/Paralytic medications: Shivering**

- □ Vecuronium (Norcuron) 0.1 mg/Kg Bolus = ______mg IV Push x 1 dose.
- □ Vecuronium (Norcuron) continuous IV infusion, start at 1 mCg/Kg/min and titrate up by 0.25 mCg/Kg/min or down by 50% after each train of four test to maintain train of four with neuromuscular stimulator goal 1 of 4. (max dose = 1.75 mCg/Kg/min)

- □ Lubricating Ophthalmic Ointment (Lacrilube) to both eyes Q 4 Hrs ATC while on neuromuscular blocking agent. RN to contact Pharmacy to DC Lubricating Ophthalmic Ointment order when Vecuronium is discontinued.

- **CNS medications: Antiepileptics**

- □ Phenytoin (Dilantin) Loading dose, 1,000 mg IVPB x 1 dose now.
  - (Rate not to exceed 50 mg/min, if patient is > 65 years, rate not to exceed 25 mg/min.)
- □ Phenytoin (Dilantin) 100 mg IV Push Q 8 Hrs. Start 8 Hrs after completion of loading dose (if ordered).
- □ LevETIRAcetam (Keppra) 500 mg/100 mL NS IVPB over 15 mins Q 12 Hrs.

- **CNS medications: Sedatives** **For intubated patients only**

- □ Propofol or Midazolam IV drip order – Use “Sedation Ventilator SS – CC”

- **Cardiac medications: Anti-arrhythmics**

- □ Amiodarone (Cordarone) Bolus - 150 mg/100 mL D5W IVPB over 10 mins x 1 dose.
- □ Amiodarone (Cordarone) Drip - 450 mg/250 mL D5W continuous IV infusion. Start at...
1 mg/min x 6 Hrs, then 0.5 mg/min. Use an in-line filter (1.2 micron).

**Cardiac medications: Vasoactive Agents**

**REMINDER:** For vasoactive IV drip orders – Use “Vasoactive Medication ICU – SS”

**Other medications**
- Potassium chloride 40 mEq (20 mEq/100 mL premixed IVPB over 1 Hr x 2 doses) Prn potassium level 2–3 mEq/L. Hold dose and notify intensivist if SCr > 1.8 mg/dL.
- Potassium chloride 80 mEq (20 mEq/100 mL premixed IVPB over 1 Hr x 4 doses) x 1 dose Prn potassium level < 2 mEq/L. Hold dose and notify intensivist if SCr > 1.8 mg/dL. May not repeat without additional orders. Hold dose and notify intensivist if SCr >1.8 mg/dL.
- Magnesium sulfate 2 Gm/50 mL premixed IVPB over 1 Hr Prn magnesium level < 2 mg/dL. Hold dose and notify intensivist if SCr >1.8 mg/dL.
- Sodium phosphate 12 mMol/100 mL NS IVPB over 3 Hrs Prn phosphorus level < or = 2 mg/dL. Hold dose and notify intensivist if SCr >1.8 mg/dL.
- Calcium gluconate 2 Gm/100 mL NS IVPB over 1 Hr Prn ionized Calcium level < 1 mMol/L. Hold dose and notify intensivist if SCr >1.8 mg/dL.

**Other medications:**

*All labs/diagnostics will be drawn/done routine now unless otherwise specified*

**BLOOD BANK**

**REMINDER:** Review labs completed in ED prior to ordering
- Type and Screen - STAT
- Type and Screen - in 3 days

**LABORATORY - Cardiac Markers**
- Cardiac enzymes with troponin – URGENT Q8 x 3,

**LABORATORY - Hematology**
- Complete blood count (CBC) - STAT

**LABORATORY – Chemistry**
- Basic metabolic panel (BMP) – STAT
- Magnesium (Mg) – STAT
- Phosphorus (Phos) – STAT

**LABORATORY - Blood Gas**
- Arterial blood gas (ABG) with Lactate – STAT
- Venous blood gas (VBG) with Lactate- STAT

**LABORATORY - Coagulation**
- Partial thromboplastin time (aPTT) - STAT
- Prothrombin time (PT/INR) - STAT

**LABORATORY – Urine**
- Urinalysis with reflex culture (UATC) - STAT

**LABORATORY – Toxicology**
- Phenytoin (Dilantin) levels
- Phenytoin (Dilantin) levels – in AM

**LABORATORY – Miscellaneous**

Hypothermia Orders.critical care V22 10.29.12 OK FOR PRINTING
MEDITECH NAME: MD.HYPOT
MEDITECH MNEMONIC: HYPOTHERMIA SS – CRITICAL CARE
ZYNX : none
Sponsor: Nancy Christiansen
V:\SJO Ordersets\Order Sets\MEDICAL INFECTIOUS\DX: Hypothermia
☐ Hypothermia Orders.critical care V22 10.29.12 OK FOR PRINTING
MEDITECH NAME: MD.HYPOT
MEDITECH MNEMONIC: HYPOTHERMIA SS – CRITICAL CARE
ZYNX : none
Sponsor: Nancy Christiansen
V:\SJO Ordersets\Order Sets\MEDICAL INFECTIOUS DX\Hypothermia

☐ hCG Pregnancy Serum – STAT

MICROBIOLOGY
☐ Respiratory sputum culture - STAT

☒ Hypothermia Induction LABS: Draw the following labs until Temperature is 33° C (RN to order labs in POM)
Q 2 Hrs:
• Arterial blood gas (ABG) with Electrolytes and Lactate,
• Ionized Calcium
Q 4 Hrs:
• Magnesium (Mg)
• Phosphorus (Phos)

☒ Hypothermia Maintenance LABS: Draw the following labs while patient at goal Temp 33° C (RN to order labs in POM)
Q 8 Hrs:
• ABG with Electrolytes, Lactate
• Ionized Calcium
• Magnesium (Mg)
• Phosphorus (Phos)
• Blood Urea Nitrogen (BUN)
• Creatinine
• Prothrombin time / partial thromboplastin time (PT/PTT)
• Hemogram (HMG)

☒ Re-warming Labs: Draw the following labs until Temperature is 36° C (RN to order labs in POM)
Q 2 Hrs:
• Arterial blood gas (ABG) with Electrolytes, Lactate
• Ionized Calcium
Q 4 Hrs:
• Magnesium (Mg)
• Phosphorus (phos)
• Blood urea nitrogen (BUN)
• Creatinine
Q 8 Hours:
• Complete blood count (CBC)
• Prothrombin time / Partial thromboplastin time (PT/PTT)

DIAGNOSTICS - Cardiology
☒ Electrocardiogram (12 lead EKG) - STAT; Reason for exam: Cardiac Arrest
☒ Electrocardiogram (12 lead EKG) - Q 8 Hrs x 3; Reason for exam: Cardiac Arrest
☒ Echocardiogram Adult (ECHOA) – 2D Echo Doppler w/wo M Mode- now
  Reason for exam: Cardiac Arrest

DIAGNOSTICS - Radiology
☐ Chest X-ray (CXR) portable - STAT Reason for exam: Confirm endotracheal tube placement
☒ Chest X-ray (CXR) portable – in AM; Reason for exam:__________________

DIAGNOSTICS – Neurology
☒ Electroencephalograph (EEG Awake & Drowsy)- STAT

Hypothermia Orders.critical care V22 10.29.12 OK FOR PRINTING
MEDITECH NAME: MD.HYPOT
MEDITECH MNEMONIC: HYPOTHERMIA SS – CRITICAL CARE
ZYNX : none
Sponsor: Nancy Christiansen
V:\SJO Ordersets\Order Sets\MEDICAL INFECTIOUS DX\Hypothermia
MD CONSULTS
REMINDER: Contact neurologist
☐ MD _____________________