



Medical Directive

Directive Number	<u>11-06</u>
Publish Date	<u>19 September 2011</u>
Effective Date	<u>05 October 2011</u>
Subject	<u>New and Updated Documents for COGs</u>
Update to Clinical Operating Guidelines v 01.06.11	

Credentialed System Responder	Action
Credentialed EMT	Action
Credentialed EMT-Intermediate	Action
Credentialed EMT-Paramedic	Action
Credentialed EMD	Action

During the past several months our Continuing Education has been focused on Acute Coronary Syndromes, STEMI and System integration of the Mission Lifeline Criteria. We implemented additional cooling measures for Hyperthermic Patients $\geq 104^{\circ}$ F. Also, an additional STEMI and Resuscitation Center have been posted to the Hospital Transport Guidelines and Grid. The enclosed table of changes and attached documents will provide all additional information. Please review this information in preparation for implementation of these COG changes on October 05, 2011.

COG Change	Effectuated Documents
Remove Atropine from Asystole/PEA	Protocol CA – 02 and Formulary DF - 07
STEMI Alert Criteria and 12 lead assessment	Protocol C – 01, New Clinical Standard CS – 33, Clinical Procedure CP – 01, Clinical Reference CR – 10
Revise Pearls statement to permit use of Cold Saline infusion without Advanced Airway	Protocol CA – 04 and Hypothermia Checklist CR - 14
Add the use of Cold Saline Bolus 30ml/kg for Hyperthermia with AMS that is not related to Hemorrhage.	Protocol M – 07 and Protocol M – 10
Statement in pearls to withhold Versed if not giving Paralytic.	Protocol CA - 04
Reduce age for Induced Hypothermia to ≥ 12	Protocol CA – 04 and Hypothermia Checklist CR - 14
New STEMI Center: UMC Scott & White, New Resuscitation Center: Seton Medical Center Hays	Hospital Transport Guidelines Appendix A – 02 and Hospital Transport Grid Clinical Reference CR - 13

Thanks for all you do. As always, please let us know if you have any questions.

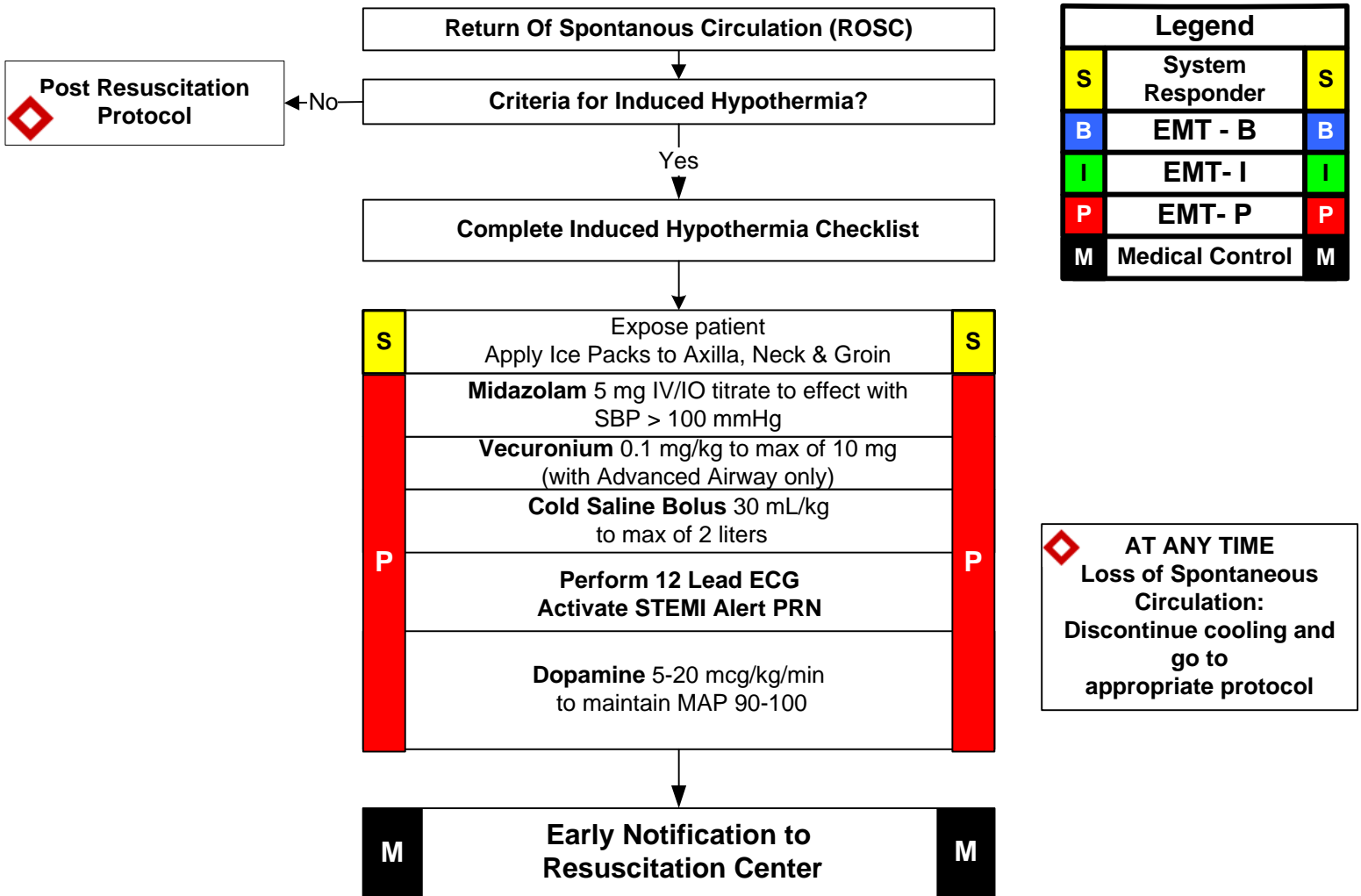
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Induced Hypothermia

History: <ul style="list-style-type: none"> Non-Traumatic Cardiac Arrest 	Signs and Symptoms: <ul style="list-style-type: none"> Return of pulse 	Differential: <ul style="list-style-type: none"> Continue to address specific differentials associated with original dysrhythmia
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Pearls:
Criteria for Induced Hypothermia:

- ROSC after cardiac arrest not related to trauma or hemorrhage.
- Age \geq 12
- Initial temperature $>$ 34C
- Patient remains comatose or unable to follow commands

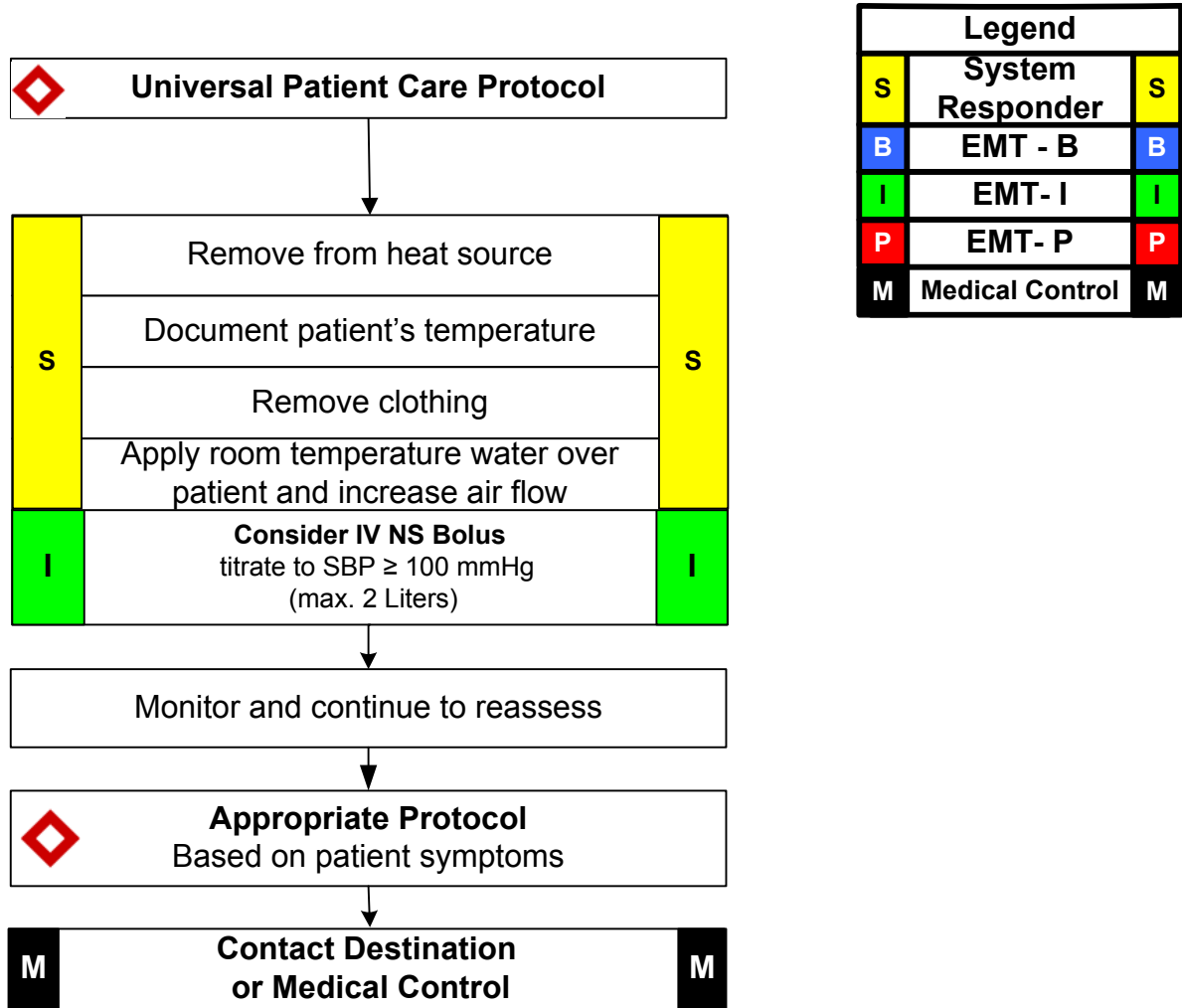
- If patient meets other criteria for induced hypothermia and does not have Advanced Airway, immediately provide cooling.
- If patient is hypotensive do not administer sedative/paralytic. Initiate volume replacement with cold saline.
- When exposing patient for purpose of cooling undergarments may remain in place to preserve the patient's modesty.
- Reassess airway frequently and with every patient move.
- Patients develop metabolic alkalosis with cooling. Do not hyperventilate.
- These patients should only be transported to Resuscitation Centers of Excellence.
- Notify destination ASAP when this protocol is utilized so that the receiving unit can prepare to receive patient.
- Cold Saline should be infused @ 100ml/min.
- **Do not administer Midazolam if not also administering Vecuronium.**

Induced Hypothermia Checklist:

- Meets criteria for induction
 - ROSC
 - ≥ 12 yoa
 - Non-traumatic cause
 - No suspected hemorrhagic cause
 - Temp > 34 C
 - Unable to follow commands
- ITD removed
- If Lucas used release/retract “pressure pad”
- Airway confirmed with each move
- Oxygen titrated to $>95 < 100\%$
- Continuous ETCO₂
- 12-Lead ECG
- Resuscitation Alert/STEMI Alert Declared
- Versed/Vecuronium if not hypotensive (advanced airway only)
- Cold fluids/Dopamine for MAP < 90
- Ice packs applied to neck, axilla, groin
- Cold saline infused 30ml/kg max 2L
- Controlled Ventilation < 12 bpm
- Adequate personnel for transport
- If loss of ROSC go to appropriate Protocol

Hyperthermia

History: <ul style="list-style-type: none"> • Age • Past medical history • Medications • Exposure to environment even in normal temperatures • Exposure to extreme heat • Extreme exertion • Drug use • Fatigue/Muscle Cramping 	Signs and Symptoms: <ul style="list-style-type: none"> • Altered LOC • Hot, Dry or sweaty skin • Mental status changes • Seizures • Hypotension or shock 	Differential: <ul style="list-style-type: none"> • Fever • Dehydration • Medications • Hyperthyroidism (Storm) • Agitated Delirium • Heat Cramps • Heat exhaustion • Heat stroke • CNS Lesion
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Pearls:

- Extremes of age are more prone to heat emergencies (i.e. young and old).
- Drugs may contribute to hyperthermia: tricyclic antidepressants, phenothiazines, anticholinergic medications, and alcohol.
- Cocaine, Amphetamines, and Salicylates may elevate body temperatures.
- Intense shivering may occur as patient is cooled.
- **Utilize cold saline for bolus when available.**
- **Heat Cramps** consists of benign muscle cramping 2° to dehydration and is not associated with an elevated temperature.
- **Heat Exhaustion** consists of dehydration, salt depletion, dizziness, fever, headache, cramping, nausea and vomiting. Vital signs usually consist of tachycardia, hypotension, and an elevated temperature.
- **Heat Stroke** hyperthermia and an altered mental status or seizure with rectal temp of $>104^{\circ}$ F
- **Cold saline boluses 30 ml/kg with temperature \geq 104 (up to 2 liters max in adults)**

Decisions regarding patient destination should be made in the following order, AGE appropriate and: Trauma ACTIVATION, ***if not then*** Condition listed below (closest designated facility) ***if not then*** Patient and/or family preference ***if not then*** Closest facility listed.

Comprehensive List of Approved Transport Facilities

University Medical Center at Brackenridge	Dell Children's Medical Center	Heart Hospital of Austin	North Austin Medical Center
Round Rock Hospital	Seton Medical Center Austin	Seton Northwest Medical Center	Seton Southwest Medical Center
South Austin Hospital	St. David's Medical Center	Westlake Medical Center	Austin Women's Hospital
University Medical Campus. Round Rock, S & W	Seton Medical Center Williamson	Cedar Park Regional Medical Center	Seton Medical Center Hays
St. David's Bee Cave (FSED)			

SINGLE TRAUMA PATIENT IN THE UNIT

Trauma ACTIVATION ≥15 yrs **OR** <15 yrs (**With OB or Cardiac Arrest**) closest Adult Level 1 or 2 Trauma Center: UMC Brackenridge, Round Rock Hospital or Seton Medical Center Williamson.

Trauma ACTIVATION <15 yrs Dell Children's Medical Center (**EXCEPT – OB**) unless a prolonged transport would potentially compromise the patient, then closest Adult Level 1 or 2 Trauma Center for immediate stabilization, **then on to Dell Children's Medical Center.**

MULTIPLE TRAUMA PATIENTS IN THE SAME UNIT

Guiding principle of trauma transportation destination decision with multiple patients in the unit: The most severely injured patient determines the destination unless a prolonged transport would potentially compromise either patient, then closest Level 1 or 2 Trauma Center.

- **STEMI ALERT with 12 Lead Transmission (when available)** ≥ 18 yrs All Hospitals **EXCEPT:** Seton Northwest Medical Center, Seton Southwest Medical Center, Dell Children's Medical Center, Cedar Park Regional Medical Center, Austin Women's Hospital and St. David's Bee Cave (FSED).
- **STEMI ALERT with 12 Lead Transmission (when available)** < 18 yrs Dell Children's Medical Center (**EXCEPT – OB**)
- **Stroke ALERT Level 1** ≥18 yrs UMC Brackenridge Hospital, Seton Medical Center Austin, and St. David's Medical Center
- **Stroke ALERT** < 18 yrs Dell Children's Medical Center (**EXCEPT – OB**)
- **Resuscitation ALERT** ≥ 18 yrs UMC Brackenridge Hospital, Round Rock Hospital, South Austin Hospital, Seton Medical Center Austin, St. David's Medical Center, Seton Medical Center Williamson, Heart Hospital of Austin, North Austin Medical Center, Seton Medical Center Hays
- **Resuscitation ALERT** < 18 yrs Dell Children's Medical Center (**EXCEPT - OB**)
- **Basic Receiving Facility** ≥ 18 yrs (**Alpha, Bravo, Charlie–non OB**) All Hospitals **EXCEPT:** Dell Children's Medical Center and Austin Women's Hospital
- **Basic Receiving Facility** < 18 yrs (**Alpha, Bravo, Charlie–non OB**) All Hospitals **EXCEPT:** Austin Women's Center



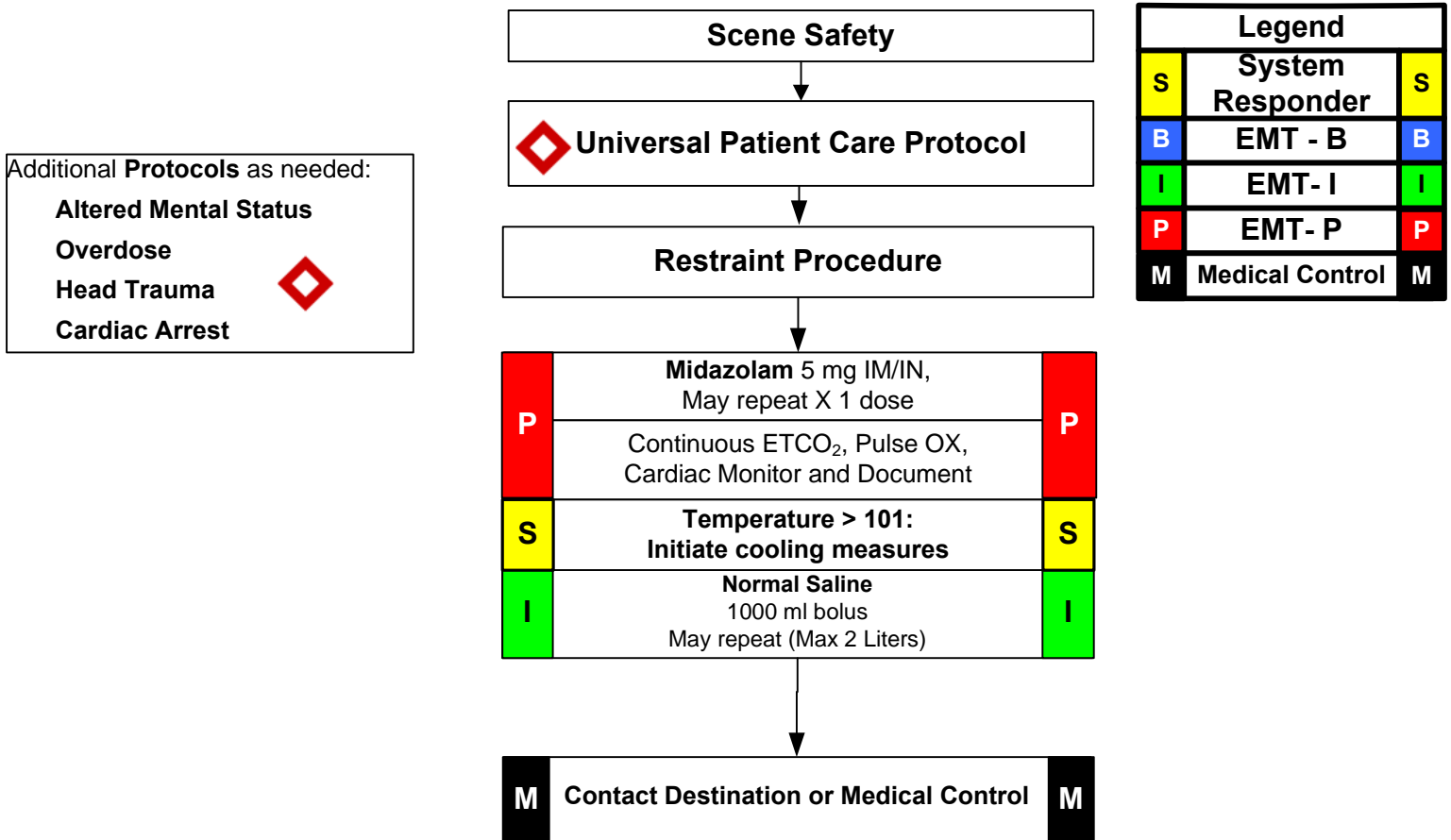
- **Comprehensive / Critical Care Facility** ≥18 yrs (**Delta & Echo – non trauma/non OB**)
All Hospitals **EXCEPT**: Seton Southwest Medical Center, Westlake Medical Center, University Medical Campus RR, Dell Children’s Medical Center, Cedar Park Regional Medical Center, Austin Women’s Hospital and St. David’s Bee Cave (FSED).
- **Comprehensive / Critical Care Facility** <18 yrs (**Delta & Echo – non trauma/non OB**)
Dell Children’s Medical Center
- **OB ECHO Patients** All Ages, UMC Brackenridge
- **OB Delta Patients** All Ages, All Hospitals **EXCEPT**: Dell Children’s Medical Center, Heart Hospital of Austin, Westlake Medical Center, Seton Southwest Medical Center, University Medical Campus RR, Cedar Park Regional Medical Center and St. David’s Bee Cave (FSED).
- **OB Pre-Registered and/or OB Alpha, Bravo, Charlie, Patients** All Ages, All Hospitals **EXCEPT**: Dell Children’s Medical Center, Heart Hospital of Austin, Westlake Medical Center and St. David’s Bee Cave (FSED).
- **Diving Barotraumas (HBO)** All Ages, St. David’s Medical Center
- **Sexual Assault** ≥18 yrs St. David’s Medical Center and St. David’s Round Medical Center
- **Sexual Assault** <18 yrs Dell Children’s Medical Center (**EXCEPT – OB or Menses has begun or Male ≥ 12 yrs old – these go to St. David’s Medical Center or St. David’s Round Rock Medical Center**)
- **FSED Additional conditions: NO Open Fractures and NO Psychiatric patients regardless of classification (Alpha, Bravo, Charlie).**

The “ALERT” status declaration is made to Communications and is for their assistance (as needed) in determining the most appropriate transport destination (based on time, distance and facility level/type). Communications will provide an “ALERT” notification to the selected Hospital. Then, communications will advise and facilitate the most expeditious mode of Transport (Ground or Air).

	University Medical Center at Brackneridge	Dell Children's Medical Center	Seton Medical Center Austin	St. David's Medical Center	North Austin Medical Center	Heart Hospital of Austin	South Austin Medical Center	Westlake Medical Center	Seton Northwest Medical Center	Seton Southwest Medical Center	Austin Women's Hospital	Round Rock Medical Center	University Medical Center (Scott & White)	Seton Medical Center Williamson	St. David's Bee Cave FSED
Trauma Alert/Transport <15 y/o & not pregnant		✓													
Trauma Alert/Transport ≥15 y/o or pregnant at any age	✓										✓	✓			
Stroke Alert <18 y/o & not pregnant		✓													
Stroke Alert ≥18y/o or pregnant at any age	✓		✓	✓											
STEMI Alert <18 y/o & not pregnant		✓													
STEMI Alert ≥18 y/o or pregnant at any age	✓		✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
RESUSCITATION Alert < 18 y/o & not pregnant		✓													
RESUSCITATION Alert ≥ 18y/o or pregnant at any age	✓		✓	✓	✓	✓	✓				✓	✓	✓	✓	✓
OB Echo	✓														
OB Delta	✓														
OB Pre-Registered and/or OB Alpha/Bravo/Charlie	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sexual Assault Female <18 y/o, not pregnant, and no menses		✓													
Sexual Assault Female ≥18 y/o or pregnant, or menses has begun				✓							✓				
Sexual Assault Male <12		✓													
Sexual Assault Male ≥12				✓							✓				
CO Exposure/Diving Barotraumas (HBO) all ages				✓											
< 18 y/o Delta/Echo medical patients not pregnant		✓													
≥ 18 y/o Delta/Echo medical patients not pregnant	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
< 18 y/o Alpha/Bravo/Charlie not pregnant	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
≥ 18 y/o Alpha/Bravo/Charlie not pregnant	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dell can not take any pregnant patient															
Geographic Specific															
FSED Cannot take OPEN Fractures or Psychiatric patients regardless of classification															

Excited Delirium

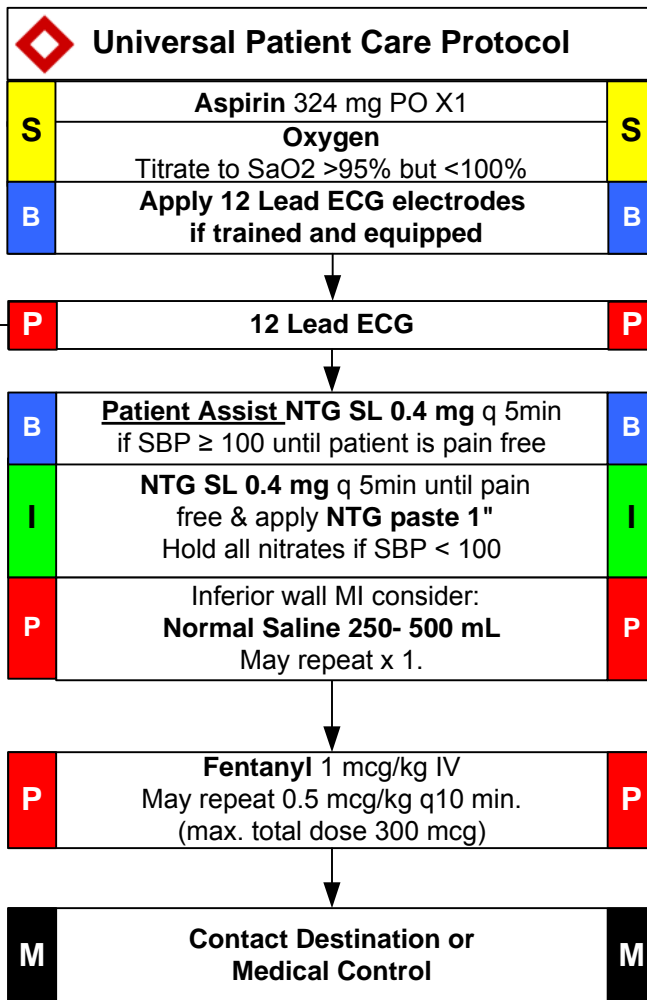
<p>History</p> <ul style="list-style-type: none"> Situational crisis Psychiatric illness/medications Injury to self or threats to others Medic alert tag Substance abuse / overdose Diabetes 	<p>Signs & Symptoms</p> <ul style="list-style-type: none"> Anxiety, agitation, confusion Affect change, hallucinations Delusional thoughts, bizarre behavior Combative violent Expression of suicidal/homicidal thoughts Very "hot" to touch 	<p>Differential:</p> <ul style="list-style-type: none"> see Altered Mental Status differential Hypoxia Alcohol Intoxication Toxin / Substance abuse Medication effect / overdose Withdrawal syndromes Bipolar (manic-depressive) Schizophrenia, anxiety disorders, etc
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- Pearls:**
- Consider your safety first. Physical Restraint should be performed/assisted by Law Enforcement when available.
 - All patients who receive either physical or chemical restraint must be continuously observed by ALS personnel on scene or immediately upon their arrival.
 - Any transported patient who is handcuffed or restrained by Law Enforcement should be accompanied by an officer whenever possible. If not possible law enforcement must be immediately available.
 - Be sure to consider all possible medical/trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.)
 - If patient is suspected of excited delirium suffers cardiac arrest, consider a fluid bolus and sodium bicarbonate early.
 - Restrained patients should never be maintained or transported in a prone position..
 - Midazolam should be titrated to effect with SBP ≥100 mmHg or peripheral pulses present.
 - Cold saline boluses 30 ml/kg with temperature ≥ 104 (up to 2 liters max in adults)

Chest Pain, Suspected Acute Coronary Syndrome

<p>History</p> <ul style="list-style-type: none"> Hypertension Hyperlipidemia Viagra, Levitra, Cialis Past medical history (MI, Angina, Diabetes, Post Menopausal) Family HX cardiovascular disease Recent physical exertion Smoker Stimulants 	<p>Signs & Symptoms</p> <ul style="list-style-type: none"> Pain between navel and jaw Pressure, discomfort, tightness or heartburn "Heart racing", "palpitations", or "heart too slow" CHF signs and symptoms Electrical injuries Syncope Severe Weakness if > 45 years old New onset stroke symptoms Difficulty breathing (no obvious respiratory cause) Suspected overdose Patient with any of the above symptoms AND history of: (cardiac, diabetes, obese, family history of early CHD, or recent cocaine use) 	<p>Differential</p> <ul style="list-style-type: none"> Trauma vs. Medical Angina vs. Myocardial infarction Pericarditis Pulmonary embolism Asthma / COPD Pneumothorax Aortic dissection or aneurysm GI reflux or Hiatal hernia Esophageal spasm Chest wall injury or pain Pleural pain Overdose (Cocaine)
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Legend		
S	System Responder	S
B	EMT - B	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

STEMI →

Declare a STEMI Alert
Initiate transport to appropriate STEMI Center.

Patient may develop:
Hypotension
Dysrhythmia
N/V

Treat per appropriate protocol

Pearls:

- Do not administer Nitroglycerin in any patient who has used Viagra (sildenafil) or Levitra (vardenafil) in the past 24 hours or Cialis (tadalafil) in the past 48 hours due to potential severe hypotension.
- Refer to STEMI Alert or ACS Consultation Criterion listed in Clinical Standard CS – 33.
- If patient has ECG changes, or is going directly to cardiac cath lab, establish a second IV but do NOT delay transport.
- Monitor for hypotension and respiratory depression after administration of nitroglycerin and fentanyl.
- Diabetics and geriatric patients often have atypical pain, or only generalized complaints.
- Hypersympathetic state from stimulant abuse usually presents with sustained HR >120 bpm and HTN. If chest pain occurs in setting of stimulants utilize benzodiazepine per Overdose/Toxic Ingestion Protocol in addition to above.

Suspected Cardiac Chest Pain Checklist:

- Rapid ECG criteria/acquisition
- ASA (if not allergic) chewed
- Oxygen titrated >95% <100%
- IF STEMI:
 - Symptomatic and ≥ 1 mm ST elevation in 2 contiguous leads and no STEMI Alert exclusions (CS – 33)
 - Immediate packaging/transport
 - Declare STEMI Alert
 - Defer additional treatment until enroute
- NTG SL and paste if:
 - SBP >100
 - No allergies to NTG
 - No Viagra/Levitra last 24 hrs
 - No Cialis last 48 hrs
 - IV as time permits
- Fentanyl for persistent pain
- Contact receiving facility

Atropine Sulfate

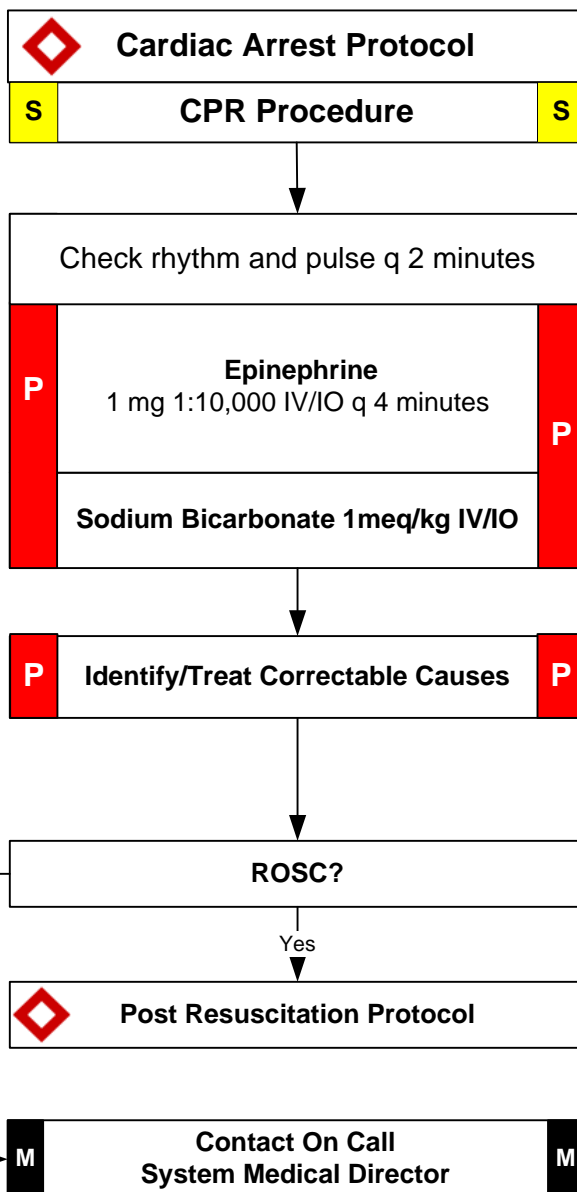
- Class** Parasympatholytic
- Action** Competitive antagonist that selectively blocks all muscarinic responses to acetylcholine. Blocks vagal impulses, thereby increasing SA node discharge, thereby enhancing AV conduction and cardiac output. Potent anti-secretory effects caused by the blocking of acetylcholine at the muscarinic site. Atropine is also useful in the treatment of the symptoms associated with nerve agent poisoning.
- Pharmacokinetics** Rapid onset, peak in 2-4m IV, half-life 2-3h.
- Contraindications** A-Fib, A-Flutter, second degree type II or third degree block. Tachycardia, glaucoma. Use with caution in suspected AMI.
- Adverse effects** Pupil dilation, tachycardia, V-Tach, V-Fib, HA, dry mouth
- Indications** Bradycardia and Organophosphate poisoning
- Dosing** **Per Protocols: C-02, M-14, PC-01**
Per Clinical Procedure: CP-24

Asystole/PEA

History: <ul style="list-style-type: none"> • Past medical history • Medications • Events leading to arrest • End stage renal disease • Estimated downtime • Suspected hypothermia • Suspected overdose • DNR 	Signs and Symptoms: <ul style="list-style-type: none"> • Pulseless • Abnormal Breathing (gasps) • No electrical activity on ECG • No auscultated heart tones 	Differential: <ul style="list-style-type: none"> • Medical or Trauma • Hypoxia • Potassium (hyper/hypo) • Drug overdose • Acidosis • Hypothermia • Device (machine error) • Obvious Death
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AT ANY TIME
Return of Spontaneous Circulation
Declare a Resuscitation Alert and go to Post Resuscitation Protocol

AT ANY TIME
Change in Rhythm go to Appropriate Protocol



Legend		
S	System Responder	S
B	EMT - B	B
I	EMT- I	I
P	EMT- P	P
M	Medical Control	M

Look for treatable causes:

- Hypoxia**
- Hypothermia**
- Hypovolemia**
(NS 1L bolus IV/IO)
- Hypoglycemia**
(D50 25g IV/IO)
- Acidosis**
(Sodium Bicarbonate 1meq/kg IV/IO)
- Hyperkalemia**
(Calcium gluconate 1g IV/IO)
(Sodium Bicarbonate 1meq/kg IV/IO)
- OD Calcium channel/Beta blocker**
(Calcium Gluconate 1g IV/IO)
(Glucagon 3mg IV/IO)
- Tension Pneumothorax**
(Chest Decompression)

Pearls:

- Always confirm asystole in more than one lead.
- Correctable causes must be addressed.

12 Lead ECG

Clinical Indications:

Any patient > 20 years old with the following:

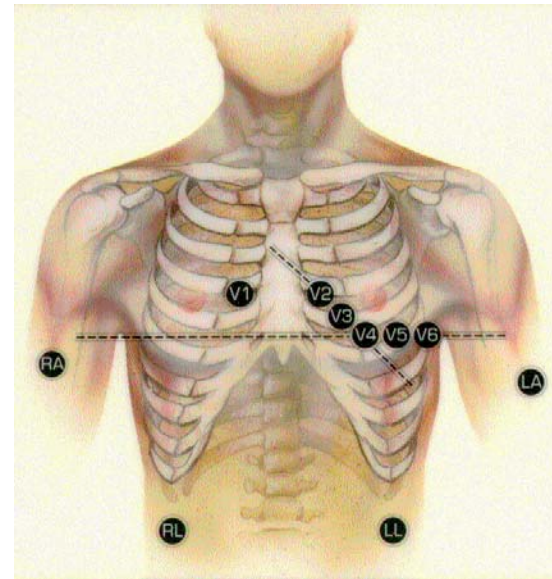
- Suspected cardiac patient
 - Pain between navel and jaw
 - Pressure, discomfort, tightness or heartburn
 - “Heart racing”, “palpitations”, or “heart too slow”
 - CHF signs and symptoms
- Electrical injuries
- Syncope
- Severe Weakness if > 45 years old
- New onset stroke symptoms
- Difficulty breathing (no obvious respiratory cause)
- Suspected overdose
- Patient of any age with any of the above symptoms **AND** history of: (cardiac, diabetes, obese, family history of early CHD, or recent cocaine use)

Legend		
B	EMT - B	B
I	EMT- I	I
P	EMT- P	P

Procedure:

Any provider:

1. Assess patient.
2. Administer oxygen as patient condition warrants.
3. Expose chest and prep as necessary. Modesty of the patient should be respected as best as possible.
4. Apply chest leads and extremity leads using the following landmarks:
 - RA -Right arm
 - LA -Left arm
 - RL -Right leg
 - LL -Left leg
 - V1 -4th intercostal space at right sternal border
 - V2 -4th intercostal space at left sternal border
 - V3 -Directly between V2 and V4
 - V4 -5th intercostal space at midclavicular line
 - V5 -Level with V4 at left anterior axillary line
 - V6 -Level with V5 at left midaxillary line



Paramedic:

5. Prepare ECG monitor and connect patient cable with electrodes.
6. Enter the required patient information (patient name, etc.) in to the 12-lead ECG device.
7. Instruct patient to remain still.
8. Press the appropriate button to acquire the 12 Lead ECG.
9. For patients with cardiac complaint, keep all leads connected at all times practical to allow automatic ST-segment monitoring to proceed.
10. Monitor the patient while continuing with the treatment protocol.
11. Document the procedure, time, and results on/with the patient care report (PCR).

STEMI Alert Criteria

In order to more consistently assess and apply the notification for a STEMI Alert the following criteria have been developed in conjunction with Mission Lifeline.

A STEMI Alert should be called when a patient is currently **“symptomatic”** for an Acute Coronary Syndrome (ACS) event **AND** a new or presumably new ST elevation ≥ 1 mm in two anatomically contiguous leads **AND** does not have exclusion criterion listed below in the ACS Consultation section.

The STEMI Alert notification should 1st be “declared” to Communications via radio or phone. Then as soon as possible transmit a 12 lead ECG. Whenever possible the patients name should accompany the 12 lead ECG.

The transport Hospital should be notified of the STEMI Alert as soon as practical by Communications and the Alert must be included in the Transport radio report to the Hospital with the patient condition information.

If < 18 yrs old and not OB, transport to Dell Children's Medical Center.

ACS Consult Criteria

The Provider should not declare a STEMI Alert and should consult with the anticipated receiving Hospital prior to transport. And, transmit a 12 lead ECG with “ACS Consult – Facility Name” in the patient ID field.

- Patients that are currently **“asymptomatic”** for an ACS event however, have ECG readings consistent with the above STEMI Alert Criteria.

OR

- Patients who are **“symptomatic”** for ACS and have evidence of Isolated V1 and V2 elevation only, LBBB, LVH, Early Repolarization, Ventricular/Ventricular Paced, Diffuse ST Elevation, or Non-Specific ST Changes or other type “Abnormal” ECG findings including poor quality ECG tracing.

The declaration of the Alert or use of the ACS Consult option should be based upon the patient’s current condition and the Provider’s judgment.