CRASHING PATIENT/ PATIENT IN EXTREMIS

Inclusion Criteria:

- Patient in whom cardiac or respiratory arrest appears imminent.
- Patient with provider impression of extremis, including new onset altered mental status, airway issues, severe respiratory distress/failure, signs and symptoms of shock/poor perfusion.

Exclusion Criteria: Life-threatening trauma

Goals:

- EMS frequently encounters patients that are in extremis and quickly deteriorating to the point of cardiac arrest, often while packaging and loading these patients. It is important to rapidly recognize the deteriorating patient and take immediate action where you encounter the patient to stabilize the condition before loading and transporting.
- Anticipate providing care were patient is located for at least 10 minutes prior to moving to cot and/or ambulance.
    - Patient should NOT be moved from the location found unless:
        - Movement is necessary for physical access to the patient to provide care
        - Scene is unsafe for patient or EMS
    - Movement should be performed by EMS with as minimal patient effort or exertion as possible; even minimal patient exertion may result in decompensation

Timeline of Prioritization of the Goal Directed Treatments to Stabilize Patient and Prevent Deterioration:

- **Immediate Actions (within First 5 Minutes)[1,2]**

- Airway
    - Insert Nasopharyngeal (or OP) Airway as indicated/tolerated if not following commands (GCS motor <6) or no response to verbal stimuli
- Breathing
    - If respiratory distress or failure, sit patient up if tolerated and not contraindicated by suspected spine injury.
    - Provide high-flow oxygen to **all patients** regardless of pulse oximetry value or if unable to obtain pulse oximetry
        - Apply oxygen by NRB if respirations are adequate, and consider **NIPPV [EMT-O, AEMT-R]** for significant respiratory distress/hypoxia
        - If respirations are inadequate and the patient is not following commands or SpO2 is <90% give positive pressure ventilation with BVM with oxygen.
            - Respirations can be assisted with BVM in sitting position if patient tolerates.
- If poor air entry and/or significant decreased breath sounds (especially unilateral), consider potential tension pneumothorax and Needle Decompression **[PARA]**
- Monitoring – ECG, SpO2, $EtCO2^{3}$ (if nasal prong adapter available),BP
- Blood Glucose Assessment

- **Actions within First 10 Minutes[1,2]:**
    - Circulation
        - Electrical Therapy (cardioversion or pacing) **[PARA]** if dysrhythmia is primary cause of shock
        - Emergent IV/IO access **[AEMT]**
        - Administer NS 500 mL bolus, infused under pressure unless signs of pulmonary edema **[AEMT]**

        - Pediatrics: 20mL/Kg bolus
        - Unless concern for cardiogenic Shock, then 5-10mL/kg bolus and MEDICAL CONTROL CONSULTATION
    - Obtain 12-lead EKG
- Actions within First 15 Minutes[1,2]:
    - Re-assess response to treatments
    - Circulation
        - Repeat NS 500 mL bolus if indicated **[AEMT]**
            - Pediatrics: 20mL/kg
        - If bradycardia, ensure optimized ventilation/oxygen and consider **Atropine** 1 mg IV/IO, **[PARA]** if indicated
            - Pediatrics: 0.02mg/kg (minimum 0.1mg)
        - If no response to fluids (SBP <80 and decreased LOC), administer push dose **EPINEPHrine** 5-20mcg (pediatric 5-10mcg) **[PARA]**.
    - Airway: If attempting advanced airway, consider applying a nasal cannula with 15 LPM oxygen to maintain an appropriate SpO2.
- **Actions within First 20 Minutes[1,2]:**
    - Re-assess response to treatments
    - Circulation – continue fluids/**vasopressors** (push dose or infusion) **[PARA]** as indicated by appropriate protocol or medical command order
    - Airway – insert advanced airway if indicated
- **Once critical actions have been completed and prior to movement confirm:**
    - Systolic blood pressure greater than 80mmHg or MAP greater than 60mmHg; and upward trending
        - Age appropriate values for pediatrics
    - Hypoxia/pulse oximetry improving
    - Ideally 2 points of vascular access and access points secured
- **Move the patient to ambulance for transport**
    - Maintain cardiac and pulse oximetry monitoring unless such monitoring will signficantly limit ability to move patient efficiently
        - Consider use of "portable" pulse oximeter
- Movement should be performed by EMS with as minimial patient effort or exertion as possible; even minimal patient exertion may result in decompensation
    - Equipment pre-positioned and stopping points pre-determined for reassessment of VS/pulse check/further stabilization, no further apart than q2 min

Footnotes:

A. The specific lengths of time listed are approximate to provide a sense of urgency and to prioritize actions. Provider safety is of utmost importance. Care for these patients should be given as quickly as possible, but safety considerations and the scene environment may lead to times that are longer than these stated goals. When conditions make it impossible to meet these goals, the reasons should be documented.
B. Actions listed should be simultaneous and not in any specific order.
C. Symptomatic patients with end tidal capnography reading greater than 50mmHg may suggest impending respiratory failure. End tidal capnography readings less than 30mmHg in symptomatic patients may suggest shock.

Performance Parameters:

A. Review all cases of cardiac arrest witnessed by (in presence of) EMS providers for compliance with this protocol to prevent patient deterioration.
B. Ensure that specific treatments also follow other appropriate protocols, e.g. Airway Management, Shock, Tachycardia, Bradycardia, etc.