ROUTINE MEDICAL CARE (RMC)  
ALS  
ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION
- To define procedures indicated by ALS RMC per treatment guidelines or
- Patient condition warrants ALS care/assessment, but does not meet the indication of any other treatment policy

TREATMENT
- As indicated:
  - Vascular access
  - Blood glucose monitoring as indicated by ALOC or patient history
  - Cardiac monitor
  - Advanced airway management
  - Initiate oxygen therapy for respiratory distress, signs of hypoxia, suspected CO poisoning, or SpO2 saturation <94%
  - Temperature
  - ETCO2
  - 12 lead ECG
  - For pediatric patients, use length based color-coded resuscitation tape and apply corresponding wrist band
ADULT PAIN MANAGEMENT
ALWAYS USE STANDARD PRECAUTIONS

Assess/document initial pain score and after each pain management intervention. Utilize non-pharmacological pain management as appropriate (ice, splinting, repositioning, distraction).

**PHYSICIAN CONSULT FOR OPIOIDS**
- Patients with SBP < 100
- Patients with ALOC (GCS < 15); acute onset of severe headache; multi-system trauma that includes abdominal/thoracic trauma; decreased respirations; or women in active labor
- > 20 mg Morphine Sulfate or > 200mcg of Fentanyl is needed for pain management
- Concomitant administration of OPIOIDS and Midazolam

Pt is > 50kg:
Acetaminophen (Tylenol / Ofirmev)
1000 mg IV
Infuse over 15-20 min.

Pain > 6?

**ALS RMC**

**Morphine Sulfate**
- IV/IO: 5 mg slowly; MR q 5 minutes, max. dose 20 mg.
- IM: 5-10 mg; MR in 20 minutes, max. dose 20 mg

**OR**

**Fentanyl**
- IV/IO: 50 mcg slowly; MR q 5 minutes, max. dose 200 mcg.
- IN: 1 mcg/kg (administer ½ dose in each nare; max single dose = 100 mcg)
- IM: 1 mcg/kg; max single dose = 100 mcg. MR in 30 min. at ½ initial dose.

If Morphine/Fentanyl unavailable or patient unable to tolerate, consider Acetaminophen IV or:

**Midazolam**
- IV/IO: 1 mg slowly; MR q 3 minutes to maximum dose 0.05 mg/kg
- IN: 5 mg/1ml (2.5 mg in each nostril)
- IM: 0.1 mg/kg; MR x 1 in 10 minutes

If nausea/vomiting, consider Ondansetron (Zofran ©) 4mg ODT/IM or slow IV/IO over 30 seconds; MR x 1 in 10 minutes
ADDENDUM A

Visual Analog Scale

No pain                               Worse pain ever

0  1  2  3  4  5  6  7  8  9  10

0  NO HURT
2  HURTS LITTLE BIT
4  HURTS LITTLE MORE
6  HURTS EVEN MORE
8  HURTS WHOLE LOT
10 HURTS WORST
ADULT SEDATION
ALWAYS USE STANDARD PRECAUTIONS

INDICATION
- Cardioversion / Cardiac Pacing
- Agitation / combativeness interfering with critical ALS interventions and airway control or that endangers patient or caregiver
- Patients unable to tolerate opioids (e.g. Morphine Sulfate or Fentanyl) for pain management

 PHYSICIAN CONSULT
- Head injury (airway is stable)
- Multiple system trauma (airway is stable)
- Concomitant administration of opioids and Midazolam

CRITICAL INFORMATION
- Relative contraindications:
  - Nausea / vomiting
  - ALOC
  - Hypotension (SBP < 100)
  - Suspected drug / alcohol intoxication

TREATMENT
- ALS RMC, including ETCO2
- Cardioversion / cardiac pacing
  - If patient is conscious, administer Midazolam 1 mg slow IV/IO. May repeat 1 mg every 3 minutes to desired degree of sedation. Maximum dose = 0.05 mg/kg.
  - Opioids for pain management as needed per Adult Pain Management, ATG 2
  - Agitation, combativeness or for patients unable to tolerate Morphine Sulfate- administer Midazolam
  - IV/IO: 1 mg slowly; MR q 3 minutes to maximum dose 0.05 mg/kg.
  - IN: 5 mg (2.5 mg in each nostril)
  - IM: 0.1 mg/kg; MR x 1 in 10 minutes
- Patients receiving sedation for airway management who have long transport times may receive sedation maintenance doses of Midazolam 1 mg IV/IO every 15 minutes

| Midazolam for Sedation Weight Based Chart - MAXIMUM DOSE for IV/IO only |
|-----------------|------|----------------|
| Kg              | Lb   | Dose (0.05 mg/kg) |
| 40              | 88   | 2 mg            |
| 45              | 99   | 2.25 mg         |
| 50              | 110  | 2.5 mg          |
| 55              | 121  | 2.75 mg         |
| 60              | 132  | 3 mg            |
| 65              | 143  | 3.25 mg         |
| 70              | 154  | 3.5 mg          |
| 75              | 165  | 3.75 mg         |
| 80              | 176  | 4 mg            |
| 85              | 187  | 4.25 mg         |
| 90              | 198  | 4.5 mg          |
| 95              | 209  | 4.75 mg         |
| >100            | >220 | 5 mg            |
SPECIAL CONSIDERATION

- Sedation for airway management does not mandate intubation, but may require airway/ventilation support
- Patients receiving Midazolam may experience hypotension
- Prior to arrival, prehospital personnel must notify the receiving facility of any patient with a known history of violence, or behavior which may pose a risk to staff (disruptive, uncooperative, aggressive, unpredictable).

RELATED POLICIES

- Patient Restraint GPC11
- Continuous Positive Airway Pressure (CPAP) Procedure ALS PR 13
- External Cardiac Pacing Procedure ALS PR 11
- Adult Pain Management ATG 2
ALS TO BLS TRANSFER OF CARE
ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION
- Patient needs or desires transport to a hospital and does not meet criteria for ALS interventions
- Criteria for transfer of care must include:
  - Patent airway, maintained without assistance or adjuncts
  - No hemodynamic changes are anticipated during transport
  - No imminent changes are anticipated in the patient's present condition
  - GCS ≥ 14

CRITICAL INFORMATION
- The EMT in attendance must be comfortable with the patient's condition
- Transport by the ALS transport ambulance should be considered if the transfer of care to the BLS staffed ambulance would incur a time delay greater than the projected transport time to the intended receiving facility

SPECIAL CONSIDERATION
- The ALS first responder or provider will complete a County approved Patient Care Record (PCR) and submit the data electronically as described in Policy 7006.
- The ALS first responder will provide the BLS transport unit with a handwritten record detailing the ALS assessment, a copy of which will be left at the receiving hospital.

DOCUMENTATION- ESSENTIAL ELEMENTS
- The transfer of patient responsibility
- ALS transferring unit is identified on the BLS PCR

RELATED POLICIES/ PROCEDURES
- Patient Care Record 7006
ADULT INTRAOSSEOUS INFUSION
ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION
- Patient in extremis, cardiac arrest, profound hypovolemia, or septic and in need of immediate delivery of medications / fluids and immediate IV access is not possible

CRITICAL INFORMATION
- All approved ALS IV medications may be administered IO
- No more than 2 attempts for IO access at scene
- Absolute contraindications:
  - Recent fracture of involved bone (less than 6 weeks)
  - Vascular disruption proximal to insertion site
  - Inability to locate landmarks
- Relative contraindications:
  - Infection or burn overlying the site
  - Congenital deformities of the bone
  - Metabolic bone disease

SPECIAL CONSIDERATION
- Pressure bags for optimal flow of IO infusions
- Administer Lidocaine 2% prior to saline bolus if patient responsive to painful stimuli

DOCUMENTATION- ESSENTIAL ELEMENTS
- Insertion site

RELATED POLICIES/ PROCEDURES
- Adult Intraosseous Procedure ALS PR 2
DETERMINATION OF DEATH - ALS
ALWAYS USE STANDARD PRECAUTIONS

INDICATION
Patient in cardiac arrest who does not meet criteria for BLS Determination of Death and does not have a valid DNR order.

PROCEDURE
- Confirm pulseless and apneic. Apply leads and document rhythm in two monitoring leads for one minute or in one lead if an AED is the only available monitor.
- Determination of death can be made prior to, or immediately after, initiating resuscitation when:
  - Medical (ALL must be present)
    - The presenting rhythm is asystole
    - Event was unwitnessed
    - Effective bystander CPR was not initiated, based on CPR guidelines/paramedic judgment
    - No evidence of potentially reversible cause of arrest (e.g. hyperkalemia or hypothermia)
    - No AED or manual shock delivered
  - Trauma (EITHER may be present)
    - MCI incident where triage principles preclude initiation of CPR
    - Blunt, penetrating or profound multi-system trauma with asystole or PEA
- If patient is in refractory VFib (3 unsuccessful shocks), immediately transport to the nearest available STEMI Receiving Center.
- If determination of death cannot be made, perform ALS resuscitation for 20 minutes on scene.
  - If the above procedures have been completed without ROSC, resuscitation may be discontinued, and determination of death made when ANY of the following are present:
    - Information (e.g. valid DNR or POLST form) becomes available which precludes continuation of resuscitation efforts
    - ETCO2 \( \leq 10\text{mm/Hg} \) and the rhythm is asystole or PEA
- If determination of death can still not be made for medical arrests, continue resuscitation for ten additional minutes (30 minutes total) at which point resuscitation may be discontinued and determination of death made if ROSC has not occurred.

PHYSICIAN CONSULT
- Evidence exists that resuscitative efforts are not desired or appropriate (e.g. family request) and above criteria is not met
- ETCO2 > 10mm/Hg after 30 minutes of resuscitation efforts

- When applicable, notify the appropriate law enforcement agency and remain on the scene until law enforcement or coroner arrives
- Complete the Determination of Death form and leave a copy at the scene if the patient will be transferred to the coroner

DOCUMENTATION- ESSENTIAL ELEMENTS
- Criteria for discretionary determination of death (i.e., DNR or valid POLST form)
- Name and phone number of physician authorizing termination of resuscitation
- When possible, attach copy of DNR to PCR or include type of DNR and physician information

RELATED POLICIES/ PROCEDURES
- Determination of Death BLS 5
- DNR/POLST GPC 7
- Cardiac Policies: Asystole C3; PEA C2; Cardiac Arrest Policy, VFib/Pulseless VTach C1
- Cold Induced Injuries E2
- Trauma Triage and Destination Guideline Policy 4613
# ADULT MEDICATIONS
## AUTHORIZED/ STANDARD DOSE

<table>
<thead>
<tr>
<th>DRUG</th>
<th>CONCENTRATION</th>
<th>STANDARD DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen (Tylenol / Ofirmev)</td>
<td>1000 mg/ 100 ml</td>
<td>Pain: 1000 mg IV over 15 – 20 min.</td>
</tr>
<tr>
<td>Adenosine (Adenocard)</td>
<td>6 mg/ 2 ml</td>
<td>6 mg 1st dose, 12 mg 2nd dose (rapid IV/IO push) followed by 20 ml saline flush after each dose</td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5 mg/ 3ml NS</td>
<td>5 mg/ 6 ml NS; (MDI: Fireline only)</td>
</tr>
</tbody>
</table>
| Amiodarone                  | 150 mg/ 3ml   | VFib or Pulseless VTach: 300 mg IV/ IO push followed by one 150MG push in 3-5 min.  
                             | Perfusing/Recurrent VTach:– 150 mg IV/ IO over 10 min. (15 mg/ min); MR q 10 min. as needed |
| Aspirin (chewable)          | Variable      | 162-325 mg PO                                                                 |
| Atropine                    | 1 mg/ 10 ml   | Bradycardia: 0.5 mg IV/ IO, MR q 3-5 min. to max of 3 mg. 
                             | Organophosphate Poisoning: 2.0 mg slowly IV/ IO; MR 2-5 min. until drying of secretions |
| Calcium chloride 10%        | 1 GM/ 10 ml   | Crush syndrome: 1gm IV/ IO slowly over 5 min. for suspected hyperkalemia (flush line with NS before & after administration) |
| CYANOKIT                    | 5 gm/ vial    | Smoke inhalation: 5 gm IV/IO over 15 minutes; MR x 1 if severe signs; Max. dose = 10 gm |
| Dextrose 10%                | 25 gm/250 ml  | 125 ml bolus IV/IO over 10 minutes; recheck BG and repeat as needed            |
| Diphenhydramine (Benadryl)  | 50 mg/ 1ml    | Allergic reaction: 50 mg IV/ IO/ IM; max 50 mg 
                             | Phenothiazine reaction: 1 mg/ kg slowly IV/ IO; max 50 mg. 
                             | Motion sickness: 1 mg/kg IM/IV to maximum dose of 50 mg; maximum IV rate is 25 mg/minute |
| Epinephrine                 | 1 mg/ 1ml     | Allergic Reaction/ Anaphylaxis: 0.3mg IM or EpiPen®; MR x 1 in 5 minutes 
                             | Bronchospasm/ Asthma/ COPD: 0.3mg IM or EpiPen®; MR x 1 in 5 minutes         |

EpiPen® (0.3mg) auto-injector (or EMS Agency approved equivalent)
<table>
<thead>
<tr>
<th>Drug</th>
<th>Concentration</th>
<th>Indications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine</td>
<td>0.1mg/ 1ml</td>
<td><strong>Cardiac Arrest:</strong> 1mg (10 ml) IV/ IO followed by 20 ml NS flush q 3-5 min.</td>
</tr>
<tr>
<td>Epinephrine (Push-Dose)</td>
<td>0.1mg/ 1 ml</td>
<td>🟢SBP&lt;80 in Pulmonary Edema, Pacing, Bradydysrhythmias, Non-Traumatic Shock, Anaphylaxis, Sepsis: Mix 1mL Epinephrine (0.1mg/mL concentration) with 9mL Normal Saline in a 10mL syringe. Administer 1mL IV/IO every 3-5 minutes, titrate to maintain a SBP &gt;80mmHg</td>
</tr>
<tr>
<td>Fentanyl (Sublimaze)</td>
<td>100 mcg/ 2 ml</td>
<td><strong>Pain Management:</strong> IV/IO: 50 mcg slowly; MR q 5 minutes, max. dose 200 mcg. IN: 1 mcg/kg (administer ½ dose in each nare; max. single dose = 100 mcg). IM: 1 mcg/kg; max. single dose = 100 mcg; MR in 30 minutes at ½ initial dose.</td>
</tr>
<tr>
<td>Glucose Paste</td>
<td>15 GM / tube</td>
<td>30 GM PO</td>
</tr>
<tr>
<td>Glucagon</td>
<td>1 mg/ vial</td>
<td>1 mg IM</td>
</tr>
<tr>
<td>Ipratropium (Atovent)</td>
<td>500 mcg per unit dose (2.5 ml)</td>
<td>500 mcg</td>
</tr>
<tr>
<td>Lidocaine 2% (preservative free)</td>
<td>20 mg / 1 ml</td>
<td>IO insertion: infuse 20-40 mg IO over 30-60 seconds</td>
</tr>
<tr>
<td>Nerve gas Auto-Injector Kit contains: Atropine Pralidoxime Chloride (2 PAM)</td>
<td>2 mg (0.7 ml) 600 mg (2 ml)</td>
<td>Small Exposure to vapors/ liquids: 1 dose of both medications (Atropine &amp; 2-PAM), MR X1 in 10 minutes. Larger exposure to liquids/ vapors: 3 doses initially (both medications)</td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2 mg/2 ml (IV/IO/IM) 5 mg/1 ml (IN)</td>
<td><strong>Cardioversion/ Pacing/Seizure:</strong> 1 mg slow IV/ IO; MR 1 mg q 3 min.; Max dose = 0.05 mg/kg For IN: 5 mg (2.5 mg in each nostril). For IM: 0.1 mg/kg; MR x 1 in 10 minutes. Sedation: see specific policy</td>
</tr>
<tr>
<td>Morphine Sulfate</td>
<td>10 mg/ 1ml</td>
<td><strong>Chest Pain:</strong> 2-5 mg slow IV/IO; MR q 2-3 min. to max of 10 mg Pain Management/ Trauma Patient: 5 mg slow IV/IO, MR q 5 min if SBP &gt;100; max dose 20 mg</td>
</tr>
<tr>
<td>Naloxone (Narcan)</td>
<td>2 mg/ 2 ml</td>
<td>0.4 - 4.0mg IV/IO/IM/IN; MR as necessary</td>
</tr>
<tr>
<td>Nitroglycerine</td>
<td>0.4 mg/ tablet or spray</td>
<td>1 SL; MR q 5 min. if SBP &gt; 100</td>
</tr>
<tr>
<td>Ondansetron (Zofran)</td>
<td>4 mg</td>
<td>4 mg ODT/IM or slow IV over 30 seconds; MR x 1 in 10 minutes</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>50 mEq/ 50 ml</td>
<td>1 mEq/ kg IV/ IO</td>
</tr>
</tbody>
</table>

**NOTE:** If the above concentrations become unavailable, providers may use alternate available concentrations or packaging.
VENTRICULAR ASSIST DEVICE  
(VAD)

ALWAYS USE STANDARD PRECAUTIONS

INDICATION
For assessment, management, treatment, stabilization and/or transport of a patient with a VAD

CRITICAL INFORMATION
- Note unique ASSESSMENTS section below
- The VAD Coordinator (VADC) should be contacted immediately. Dispatch may have VADC contact information. The patient and caregiver will have contact information; it may also be found on the device, a medic alert bracelet, near a phone or other obvious location. The VADC may be on the phone upon EMS arrival.
- The VADC is a valuable resource but is NOT medical control. Request physician consult if necessary.
- If appropriate, request POLST/DNR status

ASSESSMENT - Patient
Patient assessment depends on complaint and presenting signs and symptoms. All VAD patient assessments will include the following:
NOTE: O2 sat and pulse will be absent or greatly diminished
- Neuro status
- Manual blood pressure (will be only one number)
- Skin signs
- ETCO2 monitoring
- Lung sounds
- Capillary refill
- Auscultate device (RUQ) cardiac monitor (ECG rhythm may be abnormal but unless patient is symptomatic, treat the patient, not the monitor)

ASSESSMENT – device
- Involve VADC, patient and family in assessing/troubleshooting device
- A green light indicates the device is powered. It does NOT mean the device is working
- Auscultation of a humming sound at the RUQ indicates the device is working
- Check ALL connections to be certain they are secure and batteries are charged

TREATMENT
- ALS RMC
- If signs of shock present, start IV NS, give 500ml bolus and reassess, including lung sounds.
- If the patient is to be defibrillated, do not place pads over patient’s device
- Withhold chest compressions unless the patient is pulseless, unconscious, and you and the VADC have determined the device has stopped working
- Obtain 12-lead ECG – however, treat the patient, not the monitor

DOCUMENTATION- ESSENTIAL ELEMENTS
- VAD Coordinator name and contact info
- Assessment findings

RELATED POLICIES/ PROCEDURES
- Destination Guidelines Policy GPC 4
  - VAD related complaint: transport directly to a VAD center. If concerns about patient’s stability or destination, refer to GPC 4 and get a physician consult
  - Non-VAD related complaint: transport per GPC 4