1. AIRWAY CHECKLIST

1.1 **Airway Checklist Purpose:** To accurately assess and provide for airway patency from initial patient contact to turnover of care

1.2 **Airway Definition:** The airway extends from the nose and mouth to the alveolar ducts where oxygen and carbon dioxide are exchanged. If the exchange of these gases is impeded at any stage, the patient’s airway is compromised

1.3 **Airway Checklist Indications:** Indicated for patients with or at risk for airway compromise. This includes:

- Cardiac/Respiratory Arrest
- Shortness of breath with visible distress
- Significant tachypnea/bradypnea <10 >30 (adults)
- Patients who cannot protect their own airway
- ALTE
- Respiratory depression after receiving sedation or pain management
- Patients treated with an airway adjunct, BVM, suctioning or CPAP for airway compromise

1.4 For all patients whom the airway checklist is indicated, use the checklist concurrently with patient care. Thoroughly document all airway checklist components (initial assessments, reassessments and interventions) in the appropriate fields in the PCR

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Initial</th>
<th>Reassess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory History Obtained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vital Signs (Full Set)</td>
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<td></td>
</tr>
<tr>
<td>SAO₂</td>
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<tr>
<td>ETCO₂</td>
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<tr>
<td>Lung Sounds</td>
<td></td>
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<tr>
<td>Skin Signs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interventions</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If Indicated Did Pt. Receive Oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position Patient Airway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open &amp; Clear Airway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>If Hypoxic Improved Oxygenation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevent Aspiration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offer Ambulance Transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Improved</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. **INTRODUCTION:**

1.1 Competent adults may refuse EMS care and/or transportation

1.2 All potential patients at the scene of an EMS system call must be offered medical care/transport

1.3 Consent to treat and/or transport may be actual, expressed, or implied (the patient is unable to give consent but is in need of medical attention - e.g., an unconscious patient)

1.4 If the individual consents, treat only according to the scope of the consent. Competent adults can give partial consent, (e.g., transportation without treatment). There is no legal duty to provide unwanted treatment or transportation

2. **PATIENT DEFINITION:**

2.1 The definition of 'patient' is any individual that:

- Has a complaint suggestive of potential illness or injury
- Requests evaluation for potential illness or injury
- Has obvious evidence of illness or injury
- Has experienced an acute event that could reasonably lead to illness or injury
- Is in a circumstance or situation that could reasonably lead to illness or injury

Is the individual defined as a patient?

- YES: Continue to section 3
  - Refusal of Care
    - *Note: ALS Personnel only*

- NO: Skip to section 7
  - Refusal of Service
    - *Note: BLS and ALS personnel may honor a Refusal of Service*

**NOTE TO BLS PERSONNEL:** If the individual is defined as a patient and is refusing care, the patient requires an assessment by an ALS provider. Treat as necessary while awaiting the arrival of ALS personnel.
CONSENT AND REFUSAL GUIDELINES

3. **REFUSAL OF CARE** - applies to patients who by direct examination, mechanism of injury, or by initiating a patient relationship by dialing 9-1-1 for medical care for themselves, are refusing medical care/transportation. **Only ALS personnel may honor a refusal of care**

3.1 In order to refuse care a patient must be legally and mentally capable of doing so by meeting all of the following criteria:

3.1.1 Is an adult (18 or over), or if under 18 legally emancipated

3.1.2 Understands the nature of the medical condition, and the risks and consequences of refusing care

3.1.3 Exhibits no evidence of:
   - Altered level of consciousness
   - Alcohol or drug ingestion that impairs judgment

3.1.4 Is oriented to Person, Place, Time, and Situation

3.2 **Actions:**

3.2.1 **If the patient is legally and mentally capable of refusing care:**
   - Honor the refusal
   - Document thoroughly. Complete a PCR and a “Refusal of Care” form

3.2.2 **If the patient cannot legally refuse care or is mentally incapable of refusing care:**
   - Document on the PCR to show that the patient required immediate treatment and/or transport, and lacked the mental capacity to understand the risks/consequences of refusal. (implied consent)
   - Treat only as necessary to prevent death or serious disability and transport
   - Do not request a 5150 hold unless the patient requires a psychiatric evaluation

4. **BASE CONTACT:** A refusal of care may be against the advice of the EMS responders and/or the base hospital physician (AMA); however, a competent adult has the legal right to refuse care. For patients with acute conditions (see #2 and 3 below) every effort should be made to convince the patient to be transported. Be persuasive - get help from:

   - Family members, friends, etc.
   - The Base Physician
   - Consider calling law enforcement especially if the patient is a child

4.1 **Paramedics should contact the Base Physician:**

4.1.1 For any patient being treated and/or transported involuntarily

4.1.2 Whenever the refusal of care and/or transport poses a threat to the patient’s well-being

4.1.3 Additional examples of situations where Base Physician contact should be made include, but are not limited to:

   - Markedly abnormal vital sign
   - Uncontrolled hemorrhage
   - Suspected ischemic chest pain
   - Suspected new onset CVA
   - Any patient meeting critical trauma criteria

   - Any condition for which field personnel believe that admission to an emergency department/hospital may be necessary
   - Any time medical treatment is begun and then the patient refuses transport
CONSENT AND REFUSAL GUIDELINES

5. REQUIRED DOCUMENTATION FOR THE PATIENT REFUSING CARE:

► Physical exam
► Evidence that the patient was alert, oriented and appropriate for their age
► Indications that there were no signs of significant impairment due to drugs, alcohol, organic causes, or mental illness
► Anything else that made you believe that the patient was mentally capable
► The fact that you offered treatment and transportation
► What you told the patient about the nature of the illness/injury and the specific risks of refusal for the medical condition. (Use “quotes” as appropriate)
► The indications that the patient understood these risks
► What the patient specifically said about why he/she is refusing treatment/transport. (Use “quotes” as appropriate)
► Your efforts to encourage the patient to seek care
► The person(s), if any, who remained to look after the patient (the patient’s "support system")
► The name of the interpreter, if applicable

6. OTHER THINGS TO CONSIDER:

6.1 Other situations where a minor may consent to but may not refuse medical care include:

► A minor who is 12 years of age or older, for the treatment of drug or alcohol problems, or infectious, contagious or communicable diseases
► A minor of any age who is pregnant, for medical care related to the pregnancy
► At least 15 years old, living separate and apart from the parent/guardian and managing his or her own financial affairs

6.2 If the parent/guardian is unavailable consent/refusal of care may be obtained over the telephone. Document exactly as you would if the parent/guardian was present on scene. Verify the name and relationship of the individual to the patient. Attempt to have another person validate the consent/refusal with the parent/guardian. Document exactly what was said, use “quotes” as appropriate

6.3 If the patient is 18 or older but there is reason to suspect that the patient has been judged incompetent by a court and placed under a legal conservatorship, seek consent from the designated guardian

6.4 If the parent/guardian is unavailable and treatment can be safely delayed:

► Document thoroughly
► Attempt to reach the parent/guardian by phone. Do not release the child in the custody of a relative or friend unless that individual has been authorized by the parent/guardian to make medical decisions for that child
► Transport to a hospital or leave in the custody of a law enforcement officer.

6.5 If the parent/guardian is unavailable and treatment cannot be safely delayed:

► Treat and transport as necessary to prevent death or serious disability (implied consent)
► Document on the PCR to show that your treatment was reasonable and necessary under the circumstances

6.6 If the parent/guardian is available but refuses to consent for necessary, emergency treatment:

► Explain the risks of refusal
► Be persuasive and/or get help from family members, Base Physician or law enforcement
► Document the situation/statements by parent/guardian thoroughly on the PCR and complete an Alameda County EMS Refusal of Care form
CONSENT AND REFUSAL GUIDELINES

6.7 An individual under arrest or incarcerated is legally capable of consenting or refusing medical care.

6.8 The law presumes that an individual is competent to consent or refuse. The party alleging a lack of capacity has the legal burden of proving it. Document accordingly; anyone forcing treatment on an unwilling patient must be able to prove both the necessity of the treatment and the incapacity of the patient.

6.9 If you cannot complete the refusal of service log due to scene safety issues or upon the insistence of another agency, complete an unusual occurrence form and send it to the EMS Agency.

7. REFUSAL OF SERVICE - applies to those persons who do not meet (see 2.1) the definition of a patient and are refusing all EMS services. The offer of an assessment and transport must be made and refused by the individual. **BLS and ALS personnel may honor a refusal of service.**

7.1 The individual must meet all of the following criteria:

► Does **not** have a complaint suggestive of potential illness or injury
► Does **not** request evaluation for potential illness or injury
► Does **not** have obvious evidence of illness or injury
► Has **not** experienced an acute event that could reasonably lead to illness or injury
► Is **not** in a circumstance or situation that could reasonably lead to illness or injury

7.2 Actions:

► Honor the refusal
► Enter the individual’s name on the “Refusal of Service log” and obtain a signature
► Complete a PCR detailing circumstances of refusal of service
► In an event where multiple people sign a Refusal of Service log, complete one PCR detailing the circumstances of that event (**not one for each patient**)
**CONSENT AND REFUSAL GUIDELINES**

**LEGAL CAPACITY**
- 18 or over
- Emancipated minor:
  - Declaration of emancipation
  - Married
  - On active military duty

**MENTAL CAPACITY**
- Understands:
  - Nature of the medical condition
  - Risks and consequences of refusing care
- Exhibits no evidence of:
  - ALOC
  - Alcohol or drug ingestion that impairs judgment
- Oriented to Person, Place, Time, and Event

**DISPOSITION OF MINORS (see section 6)**
- Minors must be left in the custody of a parent, guardian, conservator or law enforcement
- Consent to leave a minor on-scene can be obtained from a parent, guardian or conservator via telephone
  - Make base contact if appropriate
  - Document the conversation on the appropriate ROC or ROS form
  - Thoroughly document the conversation and circumstances of the encounter on the PCR. Pay special attention to include minimum documentation requirements in section 5 above

**CONSIDER BASE CONTACT FOR PATIENTS WHO REFUSE TRANSPORT**
(see section 4 above)

**LEGAL CAPACITY**
- 18 or over
- Emancipated minor:
  - Declaration of emancipation
  - Married
  - On active military duty

**MENTAL CAPACITY**
- Understands:
  - Nature of the medical condition
  - Risks and consequences of refusing care
- Exhibits no evidence of:
  - ALOC
  - Alcohol or drug ingestion that impairs judgment
- Oriented to Person, Place, Time, and Event

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**CONSIDER BASE CONTACT FOR PATIENTS WHO REFUSE TRANSPORT**
(see section 4 above)

**CONSENT AND REFUSAL GUIDELINES**

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- Emancipated minor:
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  - On active military duty

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- Understands:
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  - Thoroughly document the conversation and circumstances of the encounter on the PCR. Pay special attention to include minimum documentation requirements in section 5 above

**CONSIDER BASE CONTACT FOR PATIENTS WHO REFUSE TRANSPORT**
(see section 4 above)
1. **INTRODUCTION:** 12-lead electrocardiograms (EKGs) are used with a variety of patients and should be used with a number of patient care policies (e.g., ALOC [page 32], Chest Pain/MI [page 35], and CHF/Pulmonary Edema [page 42]). Treatment under these policies should proceed in conjunction with the application of the 12-lead EKG. Our goal is to incorporate the 12-lead EKG into our destination decision making process with regard to the ST-elevation MI (STEMI) patient. The transmission or reporting of the ST-elevation MI should decrease “door-to-intervention” times in our communities’ hospitals.

**Approved STEMI Centers are:**

<table>
<thead>
<tr>
<th>STEMI Centers</th>
<th>ED Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda Hospital</td>
<td></td>
</tr>
<tr>
<td>Kaiser Hayward</td>
<td></td>
</tr>
<tr>
<td>Kaiser Richmond (Out of County)</td>
<td></td>
</tr>
<tr>
<td>Kaiser Walnut Creek (Out of County)</td>
<td></td>
</tr>
<tr>
<td>St. Rose Hospital</td>
<td>(510) 264-4251</td>
</tr>
<tr>
<td>Summit Medical Center</td>
<td>(510) 869-8797</td>
</tr>
<tr>
<td>Valley Care Medical Center</td>
<td>(925) 416-6518</td>
</tr>
<tr>
<td>Washington Hospital</td>
<td>(510) 608-1367</td>
</tr>
</tbody>
</table>

*Only ALS personnel who are employed by an agency with an approved 12-lead EKG program and who have received the required training may perform a 12-lead EKG. [see 12-LEAD EKG PROGRAM (#4210) in the Administrative Manual for training and program requirements]. 12-lead EKG is required for ALS transport providers.*

2. **INDICATIONS:** Any patient with known or suspected Acute Coronary Syndrome (ACS)

   - chest pain
   - discomfort or tightness radiating to the jaw, shoulders or arms
   - nausea
   - ROSC
   - diaphoresis
   - dyspnea
   - anxiety
   - syncope / dizziness
   - other “suspicious symptoms”
   - known treatment for ACS

3. **EKG CRITERIA FOR STEMI:** convex, “tombstone,” or flat ST segment elevation in two or more contiguous leads. Use the machine reading “acute MI” or the equivalent, as the principal determinant for STEMI assessment.
4. PROCEDURE:

4.1 Attach EKG leads to the patient (limb leads to the upper arms and ankles, and six chest leads). Perform an EKG as indicated in #3 above
   ► V1: right 4th intercostal space
   ► V2: left 4th intercostal space
   ► V3: halfway between V2 and V4
   ► V4: left 5th intercostal space, mid-clavicular line
   ► V5: horizontal to V4, anterior axillary line
   ► V6: horizontal to V5, mid-axillary line
   ► V4R: right 5th intercostal space, mid-clavicular line (use in all suspected inferior MIs)

4.2 If the EKG machine is reading “Acute MI” or the equivalent, or definite new left bundle branch block, **immediately transmit the EKG and notify the receiving STEMI Center**. Use the machine reading as the principal determinant for STEMI assessment. Use your clinical judgment for situations outside of those listed above

4.3 Include the following information in your report:
   ► Age and sex
   ► Interpretation of the 12-lead EKG (leads, amount of ST elevation in millimeters, “confidence” in your 12-lead assessment)
   ► Location of reciprocal changes (if applicable)
   ► Symptoms (including presence or absence of chest pain)
   ► Presence of new left bundle branch block. Presence of imposters (early repolarization left bundle branch block, left ventricular hypertrophy, pericarditis or paced rhythms).
   ► Significant vital signs and physical findings
   ► Time of onset
   ► Estimated time of arrival to receiving STEMI Center

4.4 Transport patients with ST elevation in two or more contiguous leads and symptoms of ACS to the closest, most appropriate STEMI Center. Personnel should consider traffic and weather conditions, as well as the patient’s choice of facility or physician

4.5 Attach a copy of the EKG to the hospital copy and the file copy of the PCR

4.6 Serial 12-lead EKGs, en route, are required in patients with strong symptomology and are encouraged in all other patients

4.7 Follow your agency’s procedure for QI purposes
INTRAOSSEOUS INFUSION PROCEDURE – ADULT

1. PURPOSE: To obtain rapid circulatory access to provide necessary intravenous fluids or medications

2. INDICATIONS:
   - Approved for use in the adult patient only >8 years old and >40 kg. (If less than 40 kg, "INTRAOSSEOUS INFUSION PROCEDURE - PEDIATRIC" on page 136)
   - Consider for use in any unconscious or seriously ill or injured patient in whom IV access cannot be established in a very timely fashion
   - Any medications or fluids that can be given in a peripheral vein can be given intraossseous.

3. CONTRAINDICATIONS:
   - Inability to locate tibial landmarks
   - Fracture or recent surgery in the tibia to be used
   - Infection over the insertion site

4. POSSIBLE COMPLICATIONS:
   - Compartment syndrome
   - Failed infusion
   - Growth plate injury
   - Bone infection
   - Skin infection
   - Bony fracture

5. PREPARATION:
   - Place the patient in the supine position
   - Put a small towel roll under the knee
   - Consider use of MS for analgesia (see “Pain Management” page 39)

6. PROCEDURE:
   6.1 Locate the anatomical site (one centimeter inferior and medial to the anterior tibial tuberosity) – STEP 1
   6.2 Prepare the skin with chlorhexidine. STEP 2
   6.3 Consider MS for analgesia (see “Pain Management” page 39)
   6.4 Load the needle onto the driver
   6.5 Firmly stabilize the leg near (not under) the insertion site
   6.6 Firmly press the needle against the site at a 90° angle and operate the driver. Use firm, gentle pressure. STEP 3
   6.7 As the needle reaches the bone, stop and be sure that the 5mm marking on the needle is visible; if it is, continue to operate the driver
   6.8 When a sudden decrease in resistance is felt and the flange of the needle rests against the skin, remove the driver and the stylet from the catheter. STEP 4
   6.9 Do not attempt to aspirate bone marrow (may clog needle & tubing)
   6.10 Use a syringe to rapidly infuse 10 mL NS. (Note: this is an important step)
      - If the patient is responsive to pain the clinician may consider use of 40mg (2 mL) 2% lidocaine slowly (1 ml over 30 seconds) for anesthetic effect prior to the 10ml normal saline flush and it may be necessary to administer additional lidocaine following the saline flush.
   6.11 If no infiltration is seen, attach the IV line and infuse fluids and/or medications as normal STEP 5
   6.12 IV bag will need to be under pressure. STEP 6
   6.13 Secure the needle
INTRAOSSEOUS INFUSION PROCEDURE – PEDIATRIC

1. **PURPOSE:** To obtain rapid circulatory access to provide necessary intravenous fluids or medications

2. **INDICATIONS:**
   - Approved for use in the pediatric patient >3 kg and <40 kg. (If greater than 40 kg, "INTRAOSSEOUS INFUSION PROCEDURE - ADULT" on page 135)
   - Consider for use in any unconscious or seriously ill or injured patient in whom IV access cannot be established in a very timely fashion
   - Any medications or fluids that can be given in a peripheral vein can be given intraossseous.

3. **CONTRAINDICATIONS:**
   - Inability to locate tibial landmarks
   - Fracture or recent surgery in the tibia to be used
   - Infection over the insertion site

4. **POSSIBLE COMPLICATIONS:**
   - Compartment syndrome
   - Failed infusion
   - Growth plate injury
   - Bone infection
   - Skin infection
   - Bony fracture

5. **PREPARATION:**
   - Place the patient in the supine position
   - Put a small towel roll under the knee
   - Consider use of MS for analgesia (see “Pain Management” page 62)

6. **PROCEDURE:**
   6.1 Locate the anatomical site (one centimeter inferior and medial to the anterior tibial tuberosity) – STEP 1
   6.2 Prepare the skin with chlorhexidine. STEP 2
   6.3 Consider MS for analgesia (see “Pain Management” page 62)
   6.4 Load the needle onto the driver
   6.5 Firmly stabilize the leg near (not under) the insertion site
   6.6 Firmly press the needle against the site at a 90° angle and operate the driver. Use firm, gentle pressure. STEP 3
   6.7 As the needle reaches the bone, stop and be sure that the 5mm marking on the needle is visible; if it is, continue to operate the driver
   6.8 When a sudden decrease in resistance is felt STOP, remove the driver and the stylet from the catheter. STEP 4
   6.9 Do not attempt to aspirate bone marrow (may clog needle & tubing)
   6.10 Use a syringe to rapidly infuse 5 mL NS. (Note: this is an important step)
   6.11 If no infiltration is seen, attach the IV line and infuse fluids and/or medications as normal STEP 5
   6.12 IV bag will need to be under pressure. STEP 6
   6.13 Secure the needle
SPINAL INJURY ASSESSMENT

1. INTRODUCTION:
   1.1 Spinal immobilization devices have been proven to cause:
   ► Delayed on-scene time
   ► Airway compromise
   ► Decreased respiratory function
   ► Increased intracranial pressure
   ► Dissociation of high cervical injuries
   ► Tissue ischemia and necrosis
   ► Pain

1.2 Omit SMR if all assessment criteria are safely assessed and normal

1.3 Consider spinal motion restriction (SMR) for a patient who is suspected of having a traumatic unstable spinal column injury. Have high index of suspicion for pediatrics and patients with degenerative skeletal/connective tissue disorders (i.e. osteoporosis, elderly, previous spinal fractures, etc)

1.4 Victims of penetrating trauma (stabbings, gunshot wounds) to the head, neck, and/or torso SHOULD NOT receive SMR unless there is one or more of the following:
   ► Obvious neurologic deficit to the extremities
   ► Significant secondary blunt mechanism of injury (e.g.- fell down stairs after getting shot)
   ► Priapism
   ► Neurogenic shock
   ► Anatomic deformity to the spine secondary to injury

2. Pediatric Patients and Car Seats:
   2.1 Infants restrained in a rear-facing car seat may be immobilized and extricated in the car seat. The child may remain in the car seat if the immobilization is secure and his/her condition allows (no signs of respiratory distress or shock)

   2.2 Children restrained in a car seat (with a high back) may be immobilized and extricated in the car seat; however, once removed from the vehicle, the child should be placed in SMR

   2.3 Children restrained in a booster seat (without a back) need to be extricated and immobilized following standard SMR procedures

3. Helmet removal: Safe and proper removal of the helmet should be done by two people following steps outlined in an approved trauma curriculum
A Reliably Patient is cooperative, sober and alert without:

- Significant Distracting Injuries
- Language Barrier

SPINAL PAIN/TENDERNESS

- Palpate vertebral column thoroughly

MOTOR/SENSORY EXAM:

- Wrist or finger extension (both hands)
- Plantarflexion (both feet)
- Dorsiflexion (both feet)
- Check gross sensation in all extremities
- Check for abnormal sensations to extremities (e.g., parathesias)

A significant mechanism of injury that could lead to an unstable spine injury refers to violent forces that are capable of damaging the spinal column. In high-risk patients (e.g., pediatrics, elderly, osteoporotic, degenerative disorders, etc.) less forceful mechanisms can cause significant injury.
1. INTRODUCTION: The term spinal motion restriction (SMR) better describes the procedure used to care for patients with possible unstable spinal injuries. SMR includes:
   ► Reduction of gross movement by patient
   ► Prevention of duplicating the damaging mechanism to spine
   ► Regular reassessment of motor/sensory function

2. PURPOSE: To decrease the risk of negative effects caused by traditional spinal immobilization while still providing appropriate care to patients with possible spinal injury by implementing alternative methods to achieve SMR

3. INDICATIONS: Any patient identified by Alameda County’s Spinal Injury Assessment to warrant spinal motion restriction. The spinal injury assessment should be performed prior to application of SMR.

4. PROCEDURE: If patient experiences negative effects of SMR methods used, alternative measures should be implemented.
   4.1 Methods/tools to achieve SMR that are allowable: (less invasive to more invasive) lateral, semi-fowler’s or fowler’s position with cervical collar only, soft collars, pillows, vacuum splint or mattress, children’s car seats, KED, backboards with adequate padding, head immobilizers and straps
   4.2 Provide manual stabilization restricting gross motion. Alert and cooperative patients may be allowed to self-limit motion if appropriate with or without cervical collar
   4.3 Apply cervical collar (consider withholding use with patients with suspected head injuries and/or high cervical injuries)
   4.4 If needed, extricate patient limiting flexion, extension, rotation and distraction of spine
   4.5 Considerations for patient movement when decision to SMR has been made:
      ► Keeping with the goals of restricting gross movement of spine and preventing increased pain and discomfort, self-extrication by patient is allowable
      ► Pull sheets, other flexible devices, scoops and scoop-like devices can be employed if necessary. Hard backboards should only have limited utilization
   4.6 Apply adequate padding or vacuum mattress to prevent tissue ischemia and increase comfort
   4.7 Place patient in position best suited to protect airway
   4.8 Regularly reassess motor/sensory function (include finger abduction, wrist/finger extension, plantar/dorsal flexion and sharp/dull exam if possible)
   4.9 Consider the use of SpO2 and EtCO2 to monitor respiratory function

5. SPECIAL CONSIDERATIONS
   5.1 Patients with acute or chronic difficulty breathing: SMR has been found to limit respiratory function an average of 17% with the greatest effect experienced by geriatric and pediatric subjects restricted to a hard backboard.
      ► Use SMR with caution with patients presenting with dyspnea and position appropriately
   5.2 Pediatric patients:
      5.2.1 Consider use of padded pediatric motion restricting board
      5.2.2 Avoid methods that provoke increased spinal movement
      5.2.3 If choosing to apply SMR to patient in car seat, ensure that proper assessment of patient posterior is performed
   5.3 Combative patients: Avoid methods that provoke increased spinal movement and/or combativeness
SEDATION

1. GENERAL INDICATIONS:
   1.1 To reduce combative behavior that endangers patient or caregivers
   1.2 As an adjunct to pain relief for ALS procedures such as cardioversion and/or cardiac pacing
   1.3 Fracture and/or disclocation management while repositioning a injured limb
   1.4 Use CAUTION with:
      ▶ Concomitant use of morphine and midazolam can cause significant respiratory depression, hypotension and lower level of consciousness. Administer concomitantly only when absolutely indicated. Administer lower doses of one or both agents
      ▶ Elderly patients are especially sensitive to the effects of midazolam. They should receive a lower dose and especially close monitoring
      ▶ A very small proportion of patients may have a paradoxical effect (i.e. - increased agitation)

2. CONTRAINDICATIONS:
   2.1 Absolute:
      ▶ Sensitivity to midazolam
      ▶ Systolic BP < 90 mmHg (adult) - except for patients who need TCP or cardioversion
   2.2 Relative:
      ▶ Nausea/vomiting
      ▶ Suspected drug/alcohol intoxication
      ▶ Head injury
      ▶ Concomitant narcotic administration - (this is a RELATIVE contraindication and is not intended to prevent the use of necessary narcotic analgesia, when indicated)
      (These MAY be the proximate cause for the condition that requires proposed sedation. The best judgment of the paramedic is necessary to evaluate the need for sedation)

3. PROCEDURE:
   3.1 Give supplemental oxygen
   3.2 Institute continuous cardiac monitoring
   3.3 Continuously monitor the patient using the Airway Checklist, including ETCO₂
   3.4 Establish IV access if possible
   3.5 Be prepared to provide airway/ventilation management
   3.6 Ensure that receiving hospital personnel are aware that patient has been sedated
   3.7 Intranasal use of midazolam for sedation requires Base Physician consult

<table>
<thead>
<tr>
<th>INDICATIONS:</th>
<th>MEDICATION – DOSE / ROUTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODERATE SEDATION INDICATIONS</td>
<td>MIDAZOLAM: (see weight-based chart)</td>
</tr>
<tr>
<td>✅ To reduce combative behavior that endangers patient or caregivers</td>
<td>Adult:</td>
</tr>
<tr>
<td>✅ Anticipated:</td>
<td>✅ IV: 1-2 mg SLOWLY - loading dose. Titrate to desired degree of sedation. May repeat x 2, q 5 minutes, to a total maximum dose of 6 mg</td>
</tr>
<tr>
<td></td>
<td>✅ IM: 2-4 mg - if unable to establish IV access. May repeat x 1, q 30 minutes</td>
</tr>
<tr>
<td></td>
<td>Pediatric (&gt; 5kg or &lt;40kg)</td>
</tr>
<tr>
<td></td>
<td>✅ IV: 0.05 mg/kg SLOWLY - loading dose. Titrate to desired degree of sedation. May repeat x 2, q 5 minutes, to total maximum dose of 3 mg</td>
</tr>
<tr>
<td></td>
<td>✅ IM: 0.1 mg/kg - if unable to establish IV access. May repeat x 1, q 30 minutes</td>
</tr>
</tbody>
</table>
**SEDATION**

<table>
<thead>
<tr>
<th>INDICATIONS:</th>
<th>MEDICATION – DOSE / ROUTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROFOUND SEDATION INDICATIONS</strong></td>
<td>MIDAZOLAM: (see weight-based chart below)</td>
</tr>
<tr>
<td>✓ Airway management – anatomic or physiologic state that interferes with essential airway management (e.g.: trismus.)</td>
<td><strong>Adult:</strong></td>
</tr>
<tr>
<td><strong>Special Considerations</strong></td>
<td>✓ IV/IO: 2 mg SLOWLY - loading dose. Titrulate to desired degree of sedation - may repeat 1-2 mg x 2, q 5 minutes, to a MAXIMUM of 0.1 mg/Kg</td>
</tr>
<tr>
<td>✓ Intubation is not necessarily mandated in the sedated patient who requires airway management (see Advanced Airway Management procedure page 119)</td>
<td>✓ IM: 0.1 mg/kg, may repeat x 1, q 30 minutes.</td>
</tr>
<tr>
<td>✓ Greater than maximum dose requires Base Physician consult</td>
<td><strong>Pediatric</strong> (&gt; 5kg or &lt;40kg):</td>
</tr>
<tr>
<td></td>
<td>✓ IV/IO: 0.05 mg/kg SLOWLY - loading dose. Titrate to desired degree of sedation - may repeat x 2, q 5 minutes</td>
</tr>
<tr>
<td></td>
<td>✓ IM: 0.1 mg/kg may repeat x 1, q 30 minutes</td>
</tr>
</tbody>
</table>

**MIDAZOLAM - WEIGHT- BASED CHART**

**PEDIATRIC > 5 kg or < 40 kg**

<p>| Weight | Dose |</p>
<table>
<thead>
<tr>
<th>kg</th>
<th>lbs</th>
<th>0.05 mg/kg</th>
<th>0.1 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>11</td>
<td>0.25 mg</td>
<td>0.5 mg</td>
</tr>
<tr>
<td>10</td>
<td>22</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>33</td>
<td>0.75</td>
<td>1.5</td>
</tr>
<tr>
<td>20</td>
<td>44</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>25</td>
<td>55</td>
<td>1.25</td>
<td>2.5</td>
</tr>
<tr>
<td>35</td>
<td>77</td>
<td>1.75</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**ADULT > 40 kg**

<p>| Weight | Dose |</p>
<table>
<thead>
<tr>
<th>kg</th>
<th>lbs</th>
<th>0.1 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>88</td>
<td>4 mg</td>
</tr>
<tr>
<td>45</td>
<td>99</td>
<td>4.5 mg</td>
</tr>
<tr>
<td>50</td>
<td>110</td>
<td>5 mg</td>
</tr>
<tr>
<td>55</td>
<td>121</td>
<td>5.5 mg</td>
</tr>
<tr>
<td>60</td>
<td>132</td>
<td>6 mg</td>
</tr>
<tr>
<td>65</td>
<td>142</td>
<td>6.5 mg</td>
</tr>
<tr>
<td>70</td>
<td>154</td>
<td>7 mg</td>
</tr>
<tr>
<td>75</td>
<td>165</td>
<td>7.5 mg</td>
</tr>
<tr>
<td>80</td>
<td>176</td>
<td>8 mg</td>
</tr>
<tr>
<td>90</td>
<td>198</td>
<td>9 mg</td>
</tr>
<tr>
<td>&gt;100</td>
<td>&gt;220</td>
<td>10 mg</td>
</tr>
</tbody>
</table>
THERAPEUTIC HYPOTHERMIA

1. **INTRODUCTION:** Implementation of therapeutic hypothermia for comatose cardiac arrest patients with Return of Spontaneous Circulation (ROSC) is a procedure endorsed by the American Heart Association and outlined in the 2003 Advisory Statement by the Advanced Life Support Task Force of the International Liaison Committee on Resuscitation (ILCOR). Mild hypothermia is thought to reduce cerebral oxygen demand post arrest, and reduce the damage caused by inflammatory responses that occur once cerebral perfusion is restored. Inducing mild hypothermia in comatose patients post out-of-hospital cardiac arrest has been shown to improve neurological function and decrease mortality.

2. **INDICATIONS:**
   2.1 Males and females ages 18 and over
   2.2 Return of spontaneous circulation, sustained for a minimum of 5 minutes after arrest
   2.3 Persistent coma post cardiac arrest (VF, pulseless VT, PEA, Asystole): unresponsive, not following verbal commands, not presenting with any purposeful movements, GCS < 8. Brainstem reflexes and posturing movements may be present
   2.4 SpO2 > 85%
   2.5 Blood glucose > 50 mg/dL

3. **CONTRAINDICATIONS:**
   3.1 Traumatic cardiac arrest
   3.2 Responsive post arrest with GCS ≥ 8, and/or rapidly improving GCS
   3.3 Pregnancy
   3.4 DNR

4. **PROCEDURE:** In conjunction with normal procedures for care of cardiac arrest patients:
   4.1 Consider causes for comatose state such as hypoglycemia or hypoxemia. If patient has no obvious underlying cause for coma and meets the indication criteria and none of the contraindication criteria begin cooling procedures
   4.2 Expose patient and apply eight (8) cold packs:
      ► 2 on head
      ► 2 on the neck over the carotid arteries
      ► 1 in each axilla
      ► 1 on each femoral artery at groin
   4.3 Consider other cooling measures (e.g. removal of the patient’s clothes, turn on ambulance AC in the patient compartment and direct air flow over the patient)
   4.4 Continue with standard of care, and monitor patient for shivering and/or improved GCS
   4.5 Obtain a 12-lead ECG
   4.6 Advise the emergency department personnel upon arrival that you have initiated the cooling process
   4.7 If patient begins to shiver consider base contact for administration of benzodiazepines or if patient becomes responsive, discontinue therapeutic hypothermia

5. **TRANSPORT CONSIDERATION:** All ROSC patients should be taken to a STEMI center.
TRANSCUTANEOUS PACING - TCP

1. **INDICATIONS:** This procedure should be used on patients experiencing symptomatic bradycardia (see Adult and Pediatric Bradycardia - #7225 and #7315). This includes patients with “failed” pacemakers. Note: Bradydysrhythmias in children are usually due to respiratory causes

   Consider alternate causes of the dysrhythmia and treat appropriately prior to initiation of TCP:
   - Hypoxia
   - Trauma
   - Drug overdose
   - Electrolyte imbalance (not treatable in the field setting)
   - Hypothermia

2. **RELATIVE CONTRAINDICATIONS** - unless approved by the Base Physician

   In general, TCP is not effective in:
   - 2.1 Asystole
   - 2.2 Bradyasystolic arrest

3. TCP should not be delayed pending IV access or while waiting for atropine to take effect in an unstable patient. TCP should be initiated simultaneously with atropine in this setting

4. **PROCEDURE:**

   4.1 Consider administering midazolam (see sedation procedure) and/or morphine sulfate 1-2 mg IV. Decrease dose of one or both agents with concomitant midazolam administration or age > 65

   4.2 If unable to start IV, consider administering IM

   4.3 Place pads on the patient

   4.4 Set initial TCP rate at 80 beats per minute (bpm)

   4.5 Begin output at 0 milliamps (mA). Increase by 10 mA until capture/pulses are noted. Once capture is confirmed, continue pacing at a slightly higher output level (10%)

   4.6 If capture is maintained but the patient remains symptomatic of inadequate tissue perfusion (BP < 90 systolic, altered level of consciousness) consider increasing the rate by 10 bpm until 100 bpm is reached

   4.7 If perfusion remains a problem, consider dopamine. **Contact the Base Physician for consultation if perfusion remains a problem and/or alteration of TCP settings**