Cooperating Agencies: Missoula Fire Department

Missoula Emergency Services

EMS Reference Guide

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Provider Levels Ledger:

All Providers: EMTs with/without endorsements
E: Medication Endorsed EMT
A: Advanced EMT
P: Paramedic

EMS Reference Guide

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All Providers

Airway Management - General

INDICATIONS:

Goal of maintainting O2 saturation 90-99%

DELIVERY SYSTEMS

Nasal Cannula:

Used when small amounts of oxygen are desired. Flow rates are generally 4-6 liters/minute. It provides between 24-40% inspired oxygen.

Non Re-breather Mask (NRB):

Used when higher concentrations of oxygen are needed. It provides approx 90% inspired oxygen.

CPAP

(See Reference Guide: Airway Management - CPAP)

Neb Kits:

In-line CPAP, Mask, handheld (See Medication Protocol)

Bag Valve Mask (BVM)

Used when respiratory drive is compromised and patient needs ventilatory assistance. Proper facial seal and head positioning are required to deliver maximum inspired oxygen and effectively ventilate the patient. Capnography and chest rise and fall should be monitored to ensure proper ventilation.

PEDIATRIC DELIVERY SYSTEMS

"Blow-By" Oxygen:

Typically used in infants or toddlers or those who cannot tolerate a cannula or mask.

SIMPLE ADJUNCTS

Nasopharyngeal Airway (NPA)

Used in patients who are unconscious or have an altered LOC and are unable to maintain their own airway and who will not accept an OPA.

Oropharyngeal Airway (OPA)

Used in patients who are unconscious or have an altered LOC and are unable to maintain their own airway.

NOTES & PRECAUTIONS:

If unable to establish or maintain an airway, transport the patient to the closest hospital. This includes patients entered into the Trauma System.

E A P

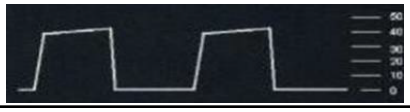
Airway Management - Capnography

INDICATIONS:

For all Patients who have had an advanced airway placed (Intubation/Supraglotic Device) or using nasal capnography in suspected

PROCEDURE:

A. Attach capnography sensor to airway device between tube and BVM and to Monitor
B. Note initial CO2 Level (NORMAL 35-45)
C. Less than 10 mmhg is indicative of ineffective CPR
D. Should be continuously monitored document all levels and changes
E. Nasal capnography as indicated.

NORMAL: "Square box" waveform; baseline CO2 = 0; ETCO2 = 35-45 mm Hg Management: Monitor	
DISLODGED ADJUNCT / ESOPHAGEAL INTUBATION: Loss of waveform, Loss of ETCO2 reading Management: Reassess airway adjunct and capnography line	
"SHARK FIN" with/without prolonged expiration Bronchospasm (asthma, COPD, allergic rxn): Management: Bronchodilators (Albuterol, Atrovent, or epinephrine)	
RISING BASELINE = Patient is rebreathing CO2: Management: Check equipment for adequate oxygen inflow Allow intubated patient more time to exhale	
HYPERVENTILATION: Rapid RR; shortened waveform; baseline ETCO2 = 0; ETCO2 < 35 mm Hg Management: Biofeedback if conscious, decrease assisted ventilation rate if unconscious/intubated	
PATIENT BREATHING AROUND ET TUBE: angled, sloping down stroke on waveform Broken cuff or tube is too small Management: Assess patient, oxygenation, ventilation;	

NOTES & PRECAUTIONS:

A. ALL PATIENTS WHO HAVE AN ADVANCED AIRWAY PLACED MUST HAVE CAPNOGRAPHY
B. CONTINUOUSLY MONITOR FOR CHANGES
C. DO NOT ATTEMPT TO NORMALIZE ETCO2 READINGS POST ROSC.

All Providers

Airway Management- CPAP

INDICATIONS:

Consider in respiratory distress in the conscious patient suffering from:

A. Presumed Pulmonary Edema
B. Severe Reactive Airway Disease (Asthma, COPD)
C. Severe dyspnea. SEE PRECAUTIONS

PROCEDURE:

A. ENSURE PATIENT CAN MAINTAIN OWN AIRWAY
B. ENSURE PATIENT'S SYSTOLIC BP IS AT LEAST 90 MMHG
C. Assemble equipment and assure proper function
D. Ensure adequate oxygen supply
E. Assess and document work of breathing and initial SPO2
F. Explain the procedure to the patient
G. Reassure the patient
H. Place mask over mouth and nose
I. Secure mask with provided straps
J. Start with low level 5cm of H20 increasing to max of 10 cm H2O (EMT); 15 cm H20 (AEMT/P)
K. Monitor patient's respiratory status and vital signs with frequent reassessment
L. If rapid improvement is not noted be prepared for respiratory arrest
M. In line nebulizers may be used with CPAP

NOTES & PRECAUTIONS:

A. Patient must be alert and able to maintain own airway to be a candidate for CPAP
B. If Patient is currently on CPAP use same or higher level of CPAP
C. Constantly monitor for aspiration
D. Consider Zofran to prevent vomiting
E. Consider in conjunction with Pulmonary Edema Medications
F. Suspected pneumothorax

P

Airway Management - Endotracheal Intubation

INDICATIONS:

A. Respiratory arrest.

B. Pending airway failure or inability to maintain airway with other adjuncts.

PROCEDURE:

A. Open airway and pre-oxygenate with cricoid pressure.

B. Assemble and check all equipment, including cardiac monitor, suction, and pulse oximeter.

C. Intubate in a controlled, but timely manner.

D. Verify placement with ETCO2 detection device and a careful five-point check. Watch for chest expansion; use continual ETCO2
monitoring and pulse oximetry to confirm patient status.

E. Secure the tube utilizing ETT securing device. Record ET Tube depth at the teeth or gum line.

F. Ventilate and monitor patient's vital signs including SpO2.

G. Administer Versed® 0.1 mg/kg IVP up to a maximum of 2.5 mg as needed for agitation.

H. Administer Vecuronium 0.1 mg/kg as needed for combativeness and long transport.

DOCUMENTATION:

The following items should be documented in the PCR:

A. Visualization of the cords (if applicable).

B. Number of attempts.

C. 5-point check and equal chest expansion.

D. Any other devices/ techniques used.

E. ETCO2 device used/reading.

F. Any changes during patient contact.

G. Reconfirmation of placement after patient movement.

NOTES & PRECAUTIONS:

A. Recheck tube placement with every major movement of the patient, movement of equipment, or if a significant change in vital signs
occurs.

B. DO NOT rely solely on monitoring equipment to determine the efficacy of intubation. Auscultate for lung sounds and/or re-visualize
with laryngoscope.

PEDIATRICS NOTES & PRECAUTIONS:

A. If able to maintain airway with BVM, consider not intubating.

E A P

Airway Management - King Airway

INDICATIONS:

Use of the King LTD airway is indicated if endotracheal intubation can not be performed and the patient needs a secure airway.

CONTRAINDICATIONS:

A. Intact gag reflex
B. Airway obstruction.
C. Known or suspected caustic ingestion.
D. Known esophageal disease.

PROCEDURE:

A. Attach pulse oximeter and monitor oxygen saturation.
B. Pre-oxygenate prior to King LTD insertion.
C. Estimate patient's height (for sizing of King LTD airway) and place head in neutral position.
D. Use for patients within height range:
   a. 35-45 inches - Size 2 (Green)
   b. 41 - 51 inches - Size 2.5 (Orange)
   c. 4 - 5 feet tall -7 Size 3 (Yellow)
   d. 5 - 6 feet tall -7 Size 4 (Red)
   e. 6 - 7 feet tall -7 Size 5 (Purple)
E. Ensure that both balloons are completely deflated.
F. Lubricate distal end of King LTD airway.

G. Insert King LTD into mouth posteriorly against the hard palate and in the midline. Advance gently until the proximal cuff is just visible under the base of the tongue. Inflate the cuffs using the supplied color-coded syringe. The King LTD may rise as it seats itself in the airway.
H. Attach BVM to the tube and ventilate patient. Evaluate breath sounds and air movement over stomach. Monitor oxygen saturation,
chest rise, and attach continuous ETCO2 monitor.
I. If unable to ventilate the patient after placement deflate balloons and adjust depth of tube to optimize ventilation.
J. After successful placement, continue to monitor for adequate ventilations and possible displacement or balloon failure.

NOTES & PRECAUTIONS:

A. It is important that the tip of the device be maintained in the patient's midline. Keeping the tip at midline assures that the distal tip is properly
B. Depth of insertion is key to providing a patent airway. A shallow initial insertion will require deflation of the cuffs to advance the tube deeper.
C. It is extremely important to open the airway and ensure that the tip of the King Airway advances past the base of the tongue.

P

Airway Management - Needle Cricothyrotomy

INDICATIONS:

For pediatric patients 12 years and younger. This technique is to be used only when other attempts to establish an airway have been unsuccessful

PROCEDURE:

A. Assemble equipment. 14 ga angiocath, 3mL syringe, 8.0 ETT adapter (all equipment in needle cricothyrotomy bag). Will also need O2 and a
BVM.
B. Place the patient in a supine position with support under the shoulders and mild hyperextension of the neck unless C-Spine injury is suspected.
C. Palpate the neck in the midline and locate the slight depression just below the notch of the thyroid cartilage. This is the position of the cricothyroid membrane.
D. Prepare the area with antiseptic solution.
E. Stabilize the airway between thumb and forefingers.
F. Insert the needle with catheter into the cricothyroid membrane at a 30 degree angle caudally (toward the pts feet).
G. When the needle is through the membrane, retract needle and advance catheter slightly until secure in the trachea. Then attach a 3mL
syringe and aspirate for air to ensure proper tracheal placement.
H. Advance the catheter over the needle and then remove the needle.
I. Attach the 8.0 ETT adapter to the hub of the catheter and begin ventilations with the BVM with ETCO2 attached.
J. Secure the cannula with tape after confirming correct placement by auscultation for breath sounds (5 point check). Observe for kinking of
cannula.
K. Consider sedation with Versed.

NOTES & PRECAUTIONS:

A. Hazards in performing this procedure are primarily those of damage to nearby structures - major vessels to either side of the midline, to the vocal
cords if the puncture is made too high, or a through and through injury of the trachea if the puncture is made too deeply.
B. Palpation of the cricothyroid membrane is very difficult in the infant and young child. The key to success is immobilization of the trachea
C. Needle cricothyrotomy is only a temporizing measure providing oxygenation not adequate ventilation.

All Providers

Airway - Suctioning

INDICATIONS:

When patient is exhibiting respiratory difficulty secondary to secretions in airway or the potential for aspiration exists.

PROCEDURE:

A. Oral Suctioning

1. Pre-oxygenate patient with 100% oxygen.
2. Assemble equipment: Suction unit with tonsil tip or dental tip, personal protective equipment (gloves, goggles, and gown).
3. Attach required monitoring equipment.
4. Turn suction unit on and confirm mechanical suction is present.
5. Insert tip without suction.
6. Cover thumbhole to begin suction if using a tip other than dental tip.
7. Do not suction more than 15 seconds (adult), 5 seconds (child).
8. Monitor patient's oxygen saturation.
9. Re-oxygenate patient after suction attempts.

B. Tracheal Suctioning

1. Pre-oxygenate patient with 100% oxygen.
2. Assemble equipment: Suction unit, correct size suction catheter, sterile rinse, personal protective equipment (gloves, goggles, gown).
3. Attach required monitoring equipment.
4. If patient is being ventilated with BVM prior to suctioning, have someone else remove the bag from end of ET tube prior to suction attempt.
5. Insert catheter into the ET tube without applying suction.
6. Advance catheter as far as possible.
7. Withdraw slowly using intermittent suction while rotating catheter.
8. Do not suction more than 15 seconds (adult), 5 seconds (child).
9. Monitor patient's oxygen saturation.
10. Rinse catheter in sterile saline.
11. Re-oxygenate patient after suction attempts.

C. Suctioning with Meconium Aspirator

1. If meconium is lightly stained and newborn is vigorous do not suction infant.
2. Assemble equipment: Suction unit, appropriate size ET tube, personal protective equipment (gloves, goggles, and gown.)
3. Attach required monitoring equipment.
4. Turn suction unit on and confirm mechanical suction is present.
5. After infant has been intubated, attach meconium aspirator to end of ET tube.
6. Cover thumbhole to begin suctioning while slowly withdrawing the ET tube.
7. Do not suction more than 15 seconds (adult), 5 seconds (child).
8. Monitor patient's oxygen saturation and heart rate and stop if patient becomes bradycardic.
9. Re-oxygenate patient after suction attempts.
10. If patient has not been intubated and meconium is thick, at the least, aggressive oropharyngeal suctioning should be carried out with the largest diameter suction device available.

NOTES & PRECAUTIONS:

Oral and tracheal suctioning is potentially traumatic and dangerous, not only because of the possible trauma to the oropharynx and airway but because of the risk of bradycardia, hypoxia, and an increased delay in resuscitation.

P

Airway Management - Surgical

INDICATIONS:

Failed Airway - unable to ventilate or intubate.

Management of an airway when standard airway procedures cannot be preformed or have failed in an adult patient.

CLINICAL CONTRAINDICATIONS

Significant trauma to trachea or larynx suspicious of tear or fracture
Massive neck edema obstructing landmark identification
Ability to *effectively* ventilate/oxygenate

PROCEDURE:

A. Have suction and supplies available and ready
B. Place patient supine with neck in a neutral position have partner hold manual stabilization if necessary
C. Locate the cricothyroid membrane utilizing anatomical landmarks
D. Prep Area with antiseptic swabs
E. Stabilize the thyroid membrane with non dominate hand
F. Insert scalpel into cricothyroid membrane
G. Follow scalpel with pre loaded bougee to maintain landmark
H. Widen incision slightly to allow 5.5-6.5 ET or Shiley tube to pass.
I. Pass tube just until cuff passes into the trachea. Be sure cuff is fully inserted into trachea
J. Inflate cuff with 5-10 ml of air while holding manual stabilization of tube
K. All standard methods of tube confirmation should be used (equal chest rise, end tidal capnography, auscultation of breath sounds)
L. After tube placement confirmed secure tube
M. Document time procedure, and patient response in Patient Care Report

NOTES & PRECAUTIONS:

A. This technique should be used if intubation and superglotic devices fail
B. If patient is able to be ventilated/oxygenated via BLS airway methods you may not need a surgical airway
C. Be ready to preform surgical airway in dynamic airway injuries (Burns, edema to the neck, trauma to the neck etc.)

All Providers

Carboxyhemoglobin Monitoring

INDICATIONS:

EMS/Fire Victims: When suspected exposure to byproducts of combustion has occurred such as smoke inhalation, known or suspected exposure to carbon monoxide, or patients with Hazardous Materials exposures.

Firefighters: During rehabilitation period of IDLH exposure firefighters shall record CO levels during entry and exit of rehab area on the vital sign sheet. Any firefighter who had been reported as lost, injured or has an SCBA equipment malfunction shall have his CO level recorded and properly documented on the appropriate log or pre- hospital care report of applicable.

PROCEDURE:

A. Remove patient from IDLH atmosphere or area (consider SCBA for rescuer). Obtain history.

B. If HazMat exposure, follow appropriate decontamination, evacuation and patient treatment protocols.

C. Assess ABC's. Secure airway and assist ventilations if necessary. If in respiratory distress, follow Respiratory Distress protocol.

D. Obtain serial vital signs and attach carboxyhemoglobin monitor (Life pack 15).

E. Attach ECG and establish IV access if needed.

CARBON MONOXIDE FINDINGS AND TREATMENT:

CO Level	Treatment:
Under 4% and asymptomatic	No treatment required.
5-10% and asymptomatic	Administer 100% oxygen via NRB mask. Consider OLMC.
5-10% and symptomatic	Administer 100% oxygen via NRB mask and transport.
Above 10%	Administer 100% oxygen via NRB mask and transport.
Pediatric or pregnant patient with CO above 9%.	Treat as above and contact OLMC.

CARBOXYHEMOGLOBIN MONITORING

NOTES & PRECAUTIONS:

A. Pulse oximetry should not be used as a determination of oxygenation in patients with elevated carboxyhemoglobin levels.

B. Smokers may have elevated baseline CO levels of between 5-10%. Obtaining history of smoking in these patients is needed.

C. Any evidence of neurological compromise, altered mental status, or cardiac symptoms along with any suspected CO event require transport and appropriate hospital destination.

D. If suspected cyanide poisoning, treat per Burn Protocol (See Protocols: Burn Management).

E. ADVOCATE FOR A CYANIDE KIT in the presence of smoke inhalation including vape.

All Providers

Cardiac Arrest Pit Crew Approach

Position 3 Airway

1. Bring in airway bag and set up at patient's head
2. Place non-rebreather mask on patient at 15-25 lpm
3. Set up equipment to control airway
4. When gear ready intubate or king tube per your scope
5. Ventilate with metronome
6. Attach ETCO2 to tube and monitor
7. Secure tube
8. Place C-collar on patient
9. Inform CTL airway secured
10. Ventilate with metronome
11. DO NOT NORMALIZE ETCO2 AFTER ROSC

Position 2 Compressor

1. Bring No equipment
2. Access patent rapidly
3. Begin High quality (full depth and full recoil compressions at a rate of 100/minute)
4. Keep rhythm with metronome
5. After Quick look by CTL count to 200 compressions and let CTL know when you are at 175
6. When more unit arrive have a plan for rotation

After ROSC

1. Take Vitals

Position 1 Code Team Leader (CTL)

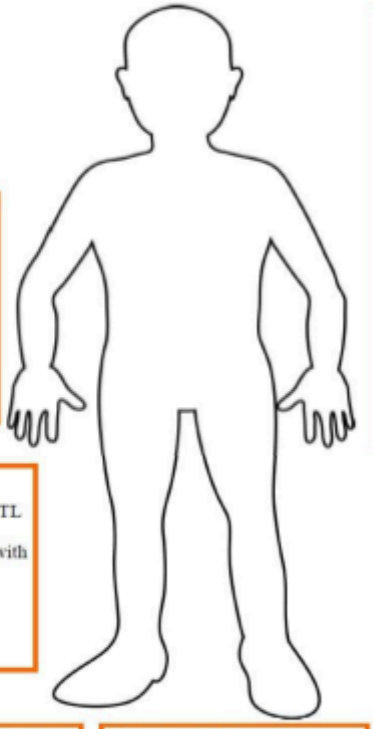
1. Bring in LP15 and Thomas pack
2. Set up in your work area
3. Turn on monitor
4. Push CPR button and select adult with airway
5. Push lead and go to code screen Paddles, SP02 and CO2
6. Place Fast Patches without interrupting CPR
7. Pre-charge Monitor
8. Start oral Countdown from 15-0
9. Feel for Femoral Pulse
10. Instruct Compressor to stop CPR
11. Interpret rhythm
12. Shock if V-Fib/PVT
13. Instruct compressor to start compression and count to 200 informing you when he is at 175
14. Establish IV or IO if in your scope
15. Start ACLS drug therapy if in your scope
16. Rhythm check every 2 minutes
17. EPI every 4 minutes
18. Correct Hs and Ts if possible
19. Refer to Pre and Post ROSC Check sheets

Position 4 2nd Compressor

1. After being assigned this role by CTL work with current compressor on a rotation plan
2. While compressing follow steps 3-6 in Position 2

After ROSC

1. Acquire and transmit 12 lead



Position 5 Femoral Pulse

1. After being assigned this role by CTL find femoral pulse
2. If possible mark location of pulse with pen
3. Hold IV bag above patient
4. After ROSC continuously monitor femoral pulse until relieved by ER staff

Position 6 CTL Assistant

1. After being assigned this role by CTL establish IV/IO access if not done yet
2. Prepare and administer medications as directed by CTL
3. Any other duties as assigned by CTL

Position 8 Extrication Specialist

1. Ensure cot is ready at front door,
2. Ensure backboard or scoop stretcher with straps are in house and board is placed under patient's legs
3. Ensure Lucas Device is in the house
4. Move Furniture if needed
5. Have an extrication plan
6. Inform CTL what extrication plan is

Position 9 Family care

1. Ensure family is close but out of way of resuscitation team
2. Console family offer to contact Chaplin
3. Answer any questions about patient care family has
4. After patient leaves scene assist family with travel to ER

Position 7 Timer/Scribe

1. Notify CTL you will take over timing responsibilities upon completion of current compression cycle
2. Start 2 minute timer
3. Give oral warnings of 1 minute, 1:30 and oral count down of 1:45-0
4. Scribe medication and shock delivery with times on cardiac arrest sheet
5. Inform CTL every 4 minutes EPI is due
6. After ROSC start 10 minute timer for post ROSC care letting CTL when 5 minutes has passed

All Providers

Cardiac Arrest Pit Crew Approach (pg 2)

PRE-ROSC CHECK SHEET

Primary Actions

☐	Verbally identify Code Team Leader (CTL)
☐	Make room to work!
☐	Start compression-only CPR. Quick Rhythm check and shock ASAP
☐	Start metronomte. **MANDATORY USE**
☐	Place NRB
☐	Defibrillations every 2 minutes
☐	15 second warning to change compressors and pre-charge monitor
☐	Control patient's airway with ETT or King
☐	Treat underlying causes: 6 H's and 6 T's (see below)

Secondary Actions

☐	Family receiving care and is close to the arrest setting.
☐	Individual is collecting patient information.

6 H's and 6 T's

☐	Hypovolemia	Fluid challenge
☐	Hypoxia	Verify tube placement. Connect to O2 supply.
☐	Hydrogen ion (acidosis)	Sodium Bicarbonate
☐	Hypo/Hyperglycemia	Glucose Check
☐	Hypo/Hyperkalemia (K+)	Sodium Bicarbonate
☐	Hypo/Hyperthermia	Check temperature
☐	Tablets/Toxins/Tricyclics	Verify medications for possible OD
☐	Tamponade	Fluid challenge to increase preload
☐	Tension pneumothorax	Needle decompression
☐	Thrombosis (pulmonary)	Rapid transport
☐	Thrombosis (coronary=MI)	ROSC+12-lead and cardiac activation
☐	Trauma	Control bleeding and rapid transport

Primary Vitals

☐	Pulse check: continuously for 10 minutes. *ONLY FOR PRESUMED HEART DISEASE!*
☐	12-lead: Transmit 12 lead to receiving Hospital
☐	B/P: Maintain >90. Clear lungs 1-2L NS,
☐	ETCO2: Should be >20. AVOID HYPERVENTILATION!
☐	Place patient on backboard or scoop stretcher
☐	Place Lucas Device on patient
☐	Sp02: Between 94-96% Check 02 cylinder supply.
☐	Recheck vitals in the back of MESI

Secondary Actions

☐	C-collar placement.
☐	Don't try to normalize ETCO2 readings.
☐	Evaluate for post-resuscitation ETT placement if not already in place.
☐	Continue to search for potential cause 6 H's and 6 T'

Hospital Contacts

☑	Saint Patrick's ER 329-0222
☐	Community ER 327-4171 option 1

All Providers

Cardiac - 12-Lead ECG Monitoring

INDICATIONS:

12- Lead ECG monitoring should be considered:

A. For the stable patient with suspected ACS.

B. Confirmation of arrhythmias that can indicate electrolyte abnormalities (e.g. hyperkalemia).

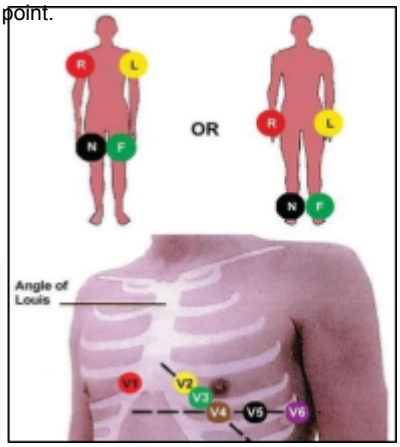
PROCEDURE:

A. Acquiring the 12-lead:

1. Attach the 12-lead cable to the monitor.
2. Attach the electrodes to the pads and place on patient for 12-lead acquisition.
3. Press the "12-Lead" button at the bottom left of screen
4. Input age and sex if not done already
5. Tell patient to remain still.
6. Push selector knob to start
7. The machine will begin analyzing the ECG and immediately print two copies of it. Make sure that you have a "clean" tracing.
8. If not clean try again
9. Press 12 lead button. You will not have to repeat the steps for the patient's age and gender at this point.
10. Give one of the two printed copies to the transporting unit.

B. Printing copies:

1. Press the menu button.
2. Select print.
3. Select 12 lead
4. Press selector knob
5. Repeat as necessary



All Providers

Cardiac - Defibrillation

INDICATIONS:

Cardiac arrest with V-fib or pulseless V-tach

CONTRAINDICATIONS:

1. Any rhythm with a pulse
2. Asystole
3. PEA

PROCEDURE:

1. Assess Patient ensure cardiac arrest
2. Start CPR
3. Place fast patches as indicated on package
   ADVISORY/AED MODE FOR NON-PARAMEDICS. FOLLOW PROMPTS AS INDICATED.
4. Stop CPR to assess rhythm
5. Ensure patient is in pulseless V-Tach or V-Fib only
6. Follow current ACLS guidelines for defibrillation joules for biphasic units
7. Charge to appropriate Joules
8. Ensure everyone is clear of the patient
9. Shock at appropriate Joules
10. Immediately resume CPR

P

Cardiac - Pacing

INDICATIONS:

Transcutaneous pacing should be considered in bradycardia with evidence of inadequate perfusion, altered mental status, chest pain, hypotension, and other signs of shock.

PROCEDURE:

A. Ensure ECG pads are attached and monitor displays a rhythm.

B. Attach pacing electrodes to anterior and posterior chest just to the left of the sternum and spinal column, respectively. Alternatively pads may be placed in the standard anterior and lateral position as with defibrillation. If there is difficulty in obtaining capture, try alternative position.

C. Begin pacing at a rate of 60 and 60mA.

D. Increase current by increments of 10mAs while observing monitor for evidence of electrical capture. Confirm mechanical capture by checking pulses and BP.

E. If patient is comfortable at this point, continue pacing. If patient is uncomfortable, consider Versed®

F. If the patient remains unconscious during pacing, assess capture by observing the monitor and evaluating pulse and blood pressure changes. In the event of electrical capture and no pulses, follow PEA protocol (See Protocols: Cardiac Arrest).

G. If there is no response to pacing and drugs, consult with OLMC. If a change in pacing rate is desired, contact OLMC.

PEDIATRIC PATIENTS:

Use above guidelines except:

A. Give Versed 0.1 mg/kg IV to a MAX of 2.5mg. (May repeat once after 5 minutes.) If still more needed, call OLMC.

B. Use anterior/posterior pad placement first for patients less than 1 year.

C. Begin pacing at .5-1mA/kg.

D. Increase current in increments of 10 mAs while observing monitor for evidence of electrical capture.

E. Confirm mechanical capture by checking pulses and BP.

F. Contact OLMC for adjustments to rate based on age and response to pacing.

P

Cardiac - Synchronized Cardioversion

INDICATIONS:

Unstable patients with tachydysrhythmia (**Afib RVR Less than 48 hours**, Aflutter RVR SVT, VTach with a pulse)

CONTRAINDICATIONS:

A. Afib for more than 48 hours without OLMC approval

PROCEDURE:

1. Ensure patient is attached properly to Lifepack with Fast Patches and IV is established
2. Have all cardiac arrest equipment ready in case patient arrests before during or after cardioversion (IV medications, intubation supplies)
3. Consider Pain management and/or sedation
4. Explain procedure to patient
5. Push synchronized button on Lifepack
6. Ensure synchronized button is green and you see QRS markers on screen
7. Set energy level to approved ACLS guidelines
8. Clear patient and ensure all responders are clear of patient
9. Charge to appropriate ACLS level
10. Press and Hold Shock button until shock delivered
11. Note energy dosage, time, Patient condition and rhythm before and after cardioversion
12. Acquire and transmit a 12 lead EKG
13. If patient does not convert return to step 1 and try again following ACLS guidelines
14. After second attempt with no improvement contact medical control

NOTES & PRECAUTIONS:

If patient has had Afib for more than 48 hours you must contact medical control before attempting cardioversion.

P

Central Venous Device

Clinical Indications:

· Need for vascular access using a patient's current externally accessible central venous device.

· For multi-lumen lines, PICC lines, Hickman's and Groshong catheters.

Procedures:

1. Apply gloves.

2. Gather all equipment required: antiseptic, 10cc syringe of Normal Saline, IV solution and tubing, extra syringes

3. If thumb or slide clamps are present, assure they are in the locked position before beginning. Clamps need to closed before removing any syringe of adapter from the hub. Always clean the hub with antiseptic while changing syringes or adapters.

4. Clean hub with alcohol swab and attach a syringe of saline.

5. Aspirate 5cc of blood return and discard. Flush with 5-10cc of Normal Saline.

6. Regardless of the type of PICC line access, if resistance is met, assume the lumen is obstructed and repeat procedure on the second lumen if available. Also repeat the procedure on the second lumen if aspirating for blood is unsuccessful.

7. If a clamp is present, close it, remove the syringe, clean the hub, attach a new syringe, open the clamp and aspirate 5cc of blood to discard.

8. Establish IV fluids at minimum TKO rate or desired infusion rate and secure the line.

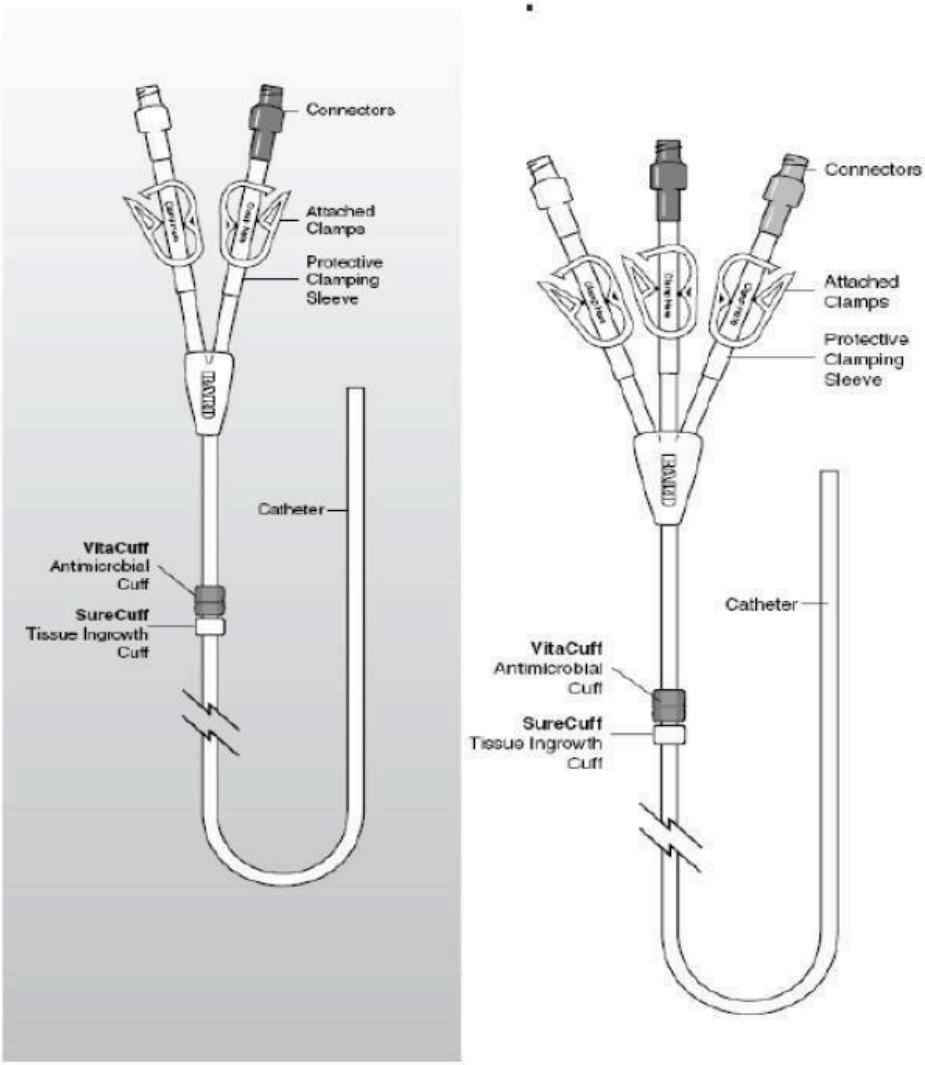
Accessing a Subcutaneous Implanted Port

1. Don mask and sterile gloves.
2. Palpate port to locate septum.
3. Stabilize device with thumb and index finger.
4. Cleanse area around port with 3 separate antiseptic swabs/pads.
5. While stabilizing port, insert Huber needle at 90 degree angle through skin into the septum. Apply pressure until needle comes into contact with metal backing of device.
6. Aspirate for blood to confirm placement. If no blood return, attempt to irrigate with saline and aspirate blood again.
7. Add new syringe of saline and flush with saline.
8. Assess for swelling around device. If swelling occurs, STOP INJECTION.
9. Tape down Huber needle "wings".
10. Apply transparent dressing.

P

Central Venous Device (pg. 2)

11. Hickman Catheter



All Providers

Child Birth

Childbirth / Fundal Massage

Clinical Indications:

- Imminent delivery with crowning

Procedure:

1. Delivery should be controlled so as to allow a slow controlled delivery of the infant. This will prevent injury to the mother and infant.
2. Support the infant's head as needed.
3. Check the umbilical cord surrounding the neck. If it is present, slip it over the head. If unable to free the cord from the neck, double clamp the cord and cut between the clamps.
4. Suction the airway if indicated.
5. Grasping the head with hands over the ears, gently aim the baby down to allow delivery of the anterior shoulder.
6. Gently aim the baby up to allow delivery of the posterior shoulder.
7. Slowly deliver the remainder of the infant. See Protocol: Newborn Resuscitation if necessary
8. After pulsation of the umbilical cord stops or 2 min; clamp the cord 2 inches from the abdomen with 2 clamps and cut the cord between the clamps.
9. Record APGAR scores at 1 and 5 minutes.
10. The placenta will deliver spontaneously, usually within 5 minutes of the infant. Do not force the placenta to deliver. Transport placenta to receiving hospital.
11. Continue rapid transport to the hospital.

Clinical Indications for Fundal Massage:

- Post partum hemorrhage AFTER placental delivery

Procedure for Fundal Massage:

1. Assure complete delivery of placenta.
2. Place absorbent material underneath pelvis of patient to facilitate the estimation of blood loss.
3. Place the ulnar aspect of your non dominant hand perpendicular to the abdomen, parallel and just superior to the symphysis pubis.
4. Exert moderate pressure up and in toward the spine.
5. With your dominant hand find the uterine fundus and begin a "kneading" motion using moderate pressure.
6. This procedure will be uncomfortable to the patient but should not be painful.
7. Uterine massage should result in uterine contracture and the feeling of a firm "grapefruit" sized mass.
8. Continue procedure until bleeding subsides.
9. Document patient condition, procedure and response on PCR.

NOTES & PRECAUTIONS:

- For continuous hemorrhage see Protocol: Postpartum Hemorhage.

All Providers

APGAR Score

Apgar Scale

	0 Points	1 Points	2 Points
A - Appearance (Skin Color)	Blue/Pale	Normal, Except for extremities	Normal over entire body
P - Pulse	Absent	Below 100	Above 100
G - Grimace (Reflex Irritability)	No Response	Grimace	Sneeze, Cough, pulls away
A - Activity	Absent	Arms and Legs Flexed	Active Movement
R - Respiration	Absent	Slow, Irregular	Good, strong cry

NOTES & PRECAUTIONS:
APGAR score should be done at 1 minute after birth then 5 minutes after birth.

All Providers

Crush Injuries

INDICATIONS:

For Patients who have been crushed or entrapped for more than 30 minutes

TREATMENT:

A. Start Oxygen per Airway Management protocol.

B. Monitor vital signs, ECG and oxygen saturation.

C. Establish venous access.

D. Protect patient from environment (rain, snow, direct sun,etc). If applicable, begin warming methods to prevent hypothermia. (warm blankets, heated air with blower, warm IV fluids)

E. Plan extrication activities to allow for periodic patient assessment. Plan for occasional extrication equipment "shut down" to assess vital signs.

F. Track vitals, IV fluids, and medications during extrication. Treat pain per protocol.

G. Evaluate degree of entrapment and viability of extremities. (absent pulse, blanched skin, capillary refill, diminished sensation,

H. If extrication of a limb will be prolonged, direct mechanical crush injuries are present (tissue is crushed), and patients condition is

deteriorating, strongly consider calling OLMC to arrange on-scene amputation.

I. Carefully assess collateral injuries that may have occurred during event.

J. If patient is trapped in a heavy dust environment, consider methods to provide filtered oxygen to the patient. If patient is in respiratory distress, consider dust impaction injuries and prepare to administer nebulized Albuterol per OLMC direction.

K. During extrication of a severely trapped patient who is at risk for crush syndrome, administer I000 - 2000 cc IV bolus, then maintain at 500 cc/hr.

L. Consider the administration of Sodium Bicarbonate prior to release to buffer acid release from anaerobic metabolism. Contact

CONSIDER 500-1000 MG OF CALCIUM CHLORIDE FOR CARDIAC ARREST POST EXTRICATION

NOTES & PRECAUTIONS:

A. Do not allow any unauthorized personnel into extrication area (inner circle) without proper protective equipment and thorough

briefing to include evacuation signal.

B. Notify the receiving Trauma Center through OLMC early in the extrication process to facilitate receiving advanced medical resources if needed.

C. Technical Rescue Team Leader should coordinate all extrication activities, especially the release of patient, with Medical Branch

Director.

D. Keep patient well-hydrated and warm during extrication efforts.

E. Constantly evaluate the risks associated with your position, and the possibility of complicating factors (HazMat, wind, rain or

runoff, gas leaks, etc...).

CUPS

CUPS Pediatric	
C – Critical	**Absent airway, breathing or circulation** (cardiac or respiratory arrest or severe traumatic injury)
U – Unstable	**Compromised airway, breathing or circulation** (unresponsive, respiratory distress, active bleeding, shock, active seizure, significant injury, shock, near-drowning, etc.)
P – Potentially Unstable	**Normal airway, breathing & circulation but significant mechanism of injury or illness** (Post-seizure, minor fractures, infant <3 months with fever, etc.)
S – Stable	**Normal airway, breathing & circulation** **No significant mechanism of injury or illness** **(small lacerations or abrasions, infant ≥3 months with fever)**

NOTES & PRECAUTIONS:

CUPS is a pneumonic device to assist in assessment of pediatric patients

All Providers

FAST Assessment

INDICATIONS:

Any altered mental status patient regardless of age.

CONTRAINDICATIONS:

None

PROCEDURE:

F **- Face :** Have patient smile and look for drooping

A **- Arms:** Have patient hold out both arms and see if one drifts downward. Also you may ask patient to squeeze hand to assess for equal grip.

S **- Speech:** Have patient repeat simple phrase and assess speech for slurring and correct repeating of phrase

T **- Time:** Onset of symptoms and/or last time seen normal

NOTES & PRECAUTIONS:

- If patient cannot talk or is severely altered; impress upon family the need to accompany patient to hospital in a timely manner for follow up questions by ER staff.

All Providers

GCS

Glasgow Coma Score		
Infants		**Children/Adults**
Eye Opening		
Spontaneous	4	Spontaneous
To speech/sound	3	To speech
To pain	2	To pain
No response	1	No response
Verbal Response		
Coos or babbles	5	Oriented
Irritable crying	4	Confused
Cries to pain	3	Inappropriate words
Moans to pain	2	Incomprehensible
None	1	None
Motor Response		
Spontaneous	6	Obeys commands
Withdraws touch	5	Localizes pain
Withdraws pain	4	Withdraws pain
Abnormal flexion	3	Abnormal flexion
Abnormal extension	2	Abnormal extension
No response	1	No response

NOTES & PRECAUTIONS:

All patients should have GCS noted in report especially patients who refuse further treatment/transport.

All Providers

Glucometer Use

INDICATIONS:

Any altered mental status patient.

CONTRAINDICATIONS:

None

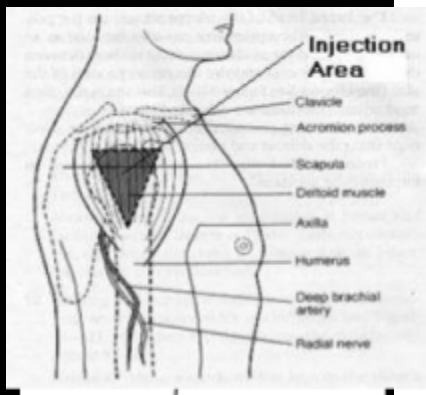
PROCEDURE:

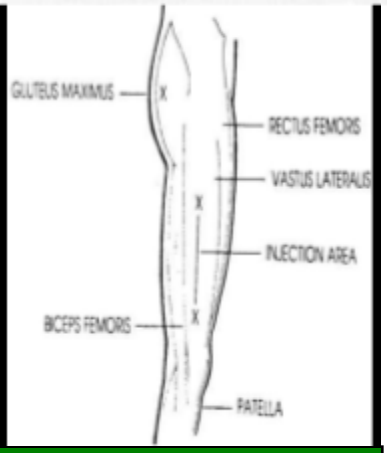
1. Clean finger with alcohol wipe
2. Insert glucometer strip into glucometer
3. Ensure finger is completely dry of alcohol
4. Take out safety on lancet
5. Hold lancet on cleaned finger and depress plunger. Discard sharps in sharps container.
6. Squeeze finger slightly if needed to get proper amount of blood
7. Place strip on tip of blood
8. Ensure blood is pulled into strip by hearing beep from glucometer
9. Provide treatement based off of protocols.

NOTES & PRECAUTIONS:

- Before allowing a patient to refuse transport/further care include glucometer reading in vitals check

E A P





Intramuscular Injection

Indication:
Any medication requiring IM injection.

Procedure:

1. Recognize the need for IM injection for medication
2. Ask yourself the 5 Rs of medication administration
   A. Right patient
   B. Right Drug
   C. Right Dose
   D. Right Time
   E. Right Route
3. If the answer to all 5 is yes continue to step 4
4. Draw up appropriate amount of medication in 1 or 3cc syringe. Ensure you have proper needle size for an injection usually 22g 1.5 " for adults and 23 g 5/8" for children
5. Find appropriate site. Usually deltoid on adults and thighs for kids.
6. Clean site thoroughly with alcohol pad
7. Advise patient to relax
8. Plunge needle into muscle
9. Pull back on syringe plunger to ensure no blood return if blood is in syringe do not inject medicine due to you are possibly in a vein. If this happens go back to step 3 and
   use all new equipment and medication.
10. If no blood slowly inject medication into site.

11. After medication is injected dispose of sharps properly and put Band-Aid over
12. Document time, medication, site, effects of medication positive or negative on patient's condition

NOTES & PRECAUTIONS:

- Ensure you are doing the 5 Rs of medication every time before administration of any medication.
- Time of action for medications increase vs Intranasal or IV administration.
- Max IM dose not to exceed 5cc in any one location.'Intramuscular Injection

E A P

INTRAOSSEOUS ACCESS/INFUSION

INDICATIONS:

A. Intraosseous infusion is indicated in emergency situations when life-saving fluids or drugs should be administered and IV cannulation is

difficult, impossible or too time-consuming to perform.

B. If a peripheral IV cannot be established after two attempts or within 60-90 seconds of elapsed time.

C. IO placement may be considered prior to peripheral IV attempts in cases of cardiopulmonary or traumatic arrest.

IO PROCEDURE:

A. Determine patient's weight.

B. Assemble all necessary equipment

1. The EZ-IO PD® needle should be used on patients who weigh between 3-39 kg (approximately 6-87 lbs.).
2. The Standard EZ-IO AD® needle should be utilized on patients who weigh > 40 kg (approximately 88 lbs. or greater).
3. The EZ-IO Baratric (yellow) >40kg excessive tissue, humerous.

C. Insertion sites: distal tibia, proximal tibia, humourel head.

1.Clean Site
2. Instert per manufacture recommendations.
3. Aspirate for bone marrow/blood. (absence of return of blood/marrow doesn't indicate a misplaced IO)
4. Flush site/ look for induration
5. If no induration, secure site and start infusion or medication infusion.

D. Pain Management

Consider Lidocaine per medication protocol if pain present.

CONTRAINDICATIONS:

A. Fracture of the bone selected for IO insertion.

B. Previous significant orthopedic procedures (IO within 24 hours, prosthesis)

C. Infection at the site of insertion.

D. Excessive tissue at insertion site with the absence of landmarks.

Notes & Precautions

A. Osteomyelitis, growth plate injury (in pediatric Patients) and extravasation of fluid with compression of popliteal vessels or the tibial nerve

B. DO NOT attempt more than one IO in each tibia

C. Any ALS medication can be administered IO

D. DO NOT give hypertonic saline through IO

E A P

Intravenous Access/Infusion

INDICATIONS:

A. NS/LR is indicated for replacement of fluid volume.
B. Medication administration.

PROCEDURE for IV Access:

A. IV access:
1. Locate site and clean site.
2. Establish IV access and prepare appropriate fluid or saline lock.
3. IVs will be started using regular drip sets, unless otherwise indicated.

PROCEDURE for IV Medication Infusions:

A. Using a Buretrol® or Soluset® type device:
1. Establish IV access and prepare solution.
2. Connect the Buretrol® between the solution bag and the IV tubing.
3. Place one hour's solution into the Buretrol® and close the connection between the Buretrol® and the solution bag. Note: The number of microdrops/minute=the number of ccs/hr.
4. Begin infusing solution at the appropriate rate.
5. If desired, additional solution may be placed in the Buretrol®. The Buretrol® should never contain more than one hour of solution.

B. Utilizing a macro/micro drip set:
1. Begin infusing solution at the appropriate rate.

C. Using an infusion pump:
1. Establish IV access and prepare solution.
2. Connect IV tubing to infusion pump according to manufacturer's directions.
3. Begin infusing solution at the appropriate rate.

NOTES & PRECAUTIONS:

- Fluid rescusitation should be used with caution in patients with renal impairment (hyperkalemia), cardiac and respiratory disorders (fluid overload), or extremes of age.

All Providers

Pelvic Wrap/Binders

INDICATIONS:

A. For pelvic instability in the presence of trauma.

B. For pelvic pain without instability as a comfort measure.

PROCEDURE:

A. Fold the sheet smoothly lengthwise to about 9 inches wide (do not roll) and apply underneath the pelvis, centered on the greater trochanters. Assure the patients pockets are empty (if applicable) to avoid placing pressure on the objects into the patient.

B. Tighten the sheet around the pelvis and adjust the tension to try to return the pelvis to normal anatomical position.

C. Secure using a knot or clamps if available.

D. Apply binders per manufactuters' recommendations. (Do not use for dislocated hip)

E. Check CMS before and after.

F. Provide pain management and fluid recuscitation if necessary.



NOTES & PRECAUTIONS:

A. Blood loss in a pelvic fracture can be significant. Monitor closely and treat per Shock Protocol.

B. Consider placing prior to extrication from a vehicle if feasible.

C. The Pelvic Sling is contraindicated in isolated hip fractures

All Providers

Restraints Physical and Chemical

Clinical Indications:

Patients with potential threat to self or others.

Procedure:

1. Planning:

A. Request assistance from Law Enforcement.

B. EMS personnel are not to knowingly place themselves at risk during the process of restraining a patient.

C. Obtain necessary resources to manage scene and patient.

D. Assess patient for any condition that may contribute to violent behavior. Treatment for identified conditions is to be initiated according to protocol immediately after controlling the situation and patient behavior.

E. Consult Medical Control as soon as possible regarding the application and use of restraints.

F. Verbal de-escalation techniques are to be implemented and documented. If verbal de-escalation fails, providers may need to implement physical and or chemical restraint measures.

- **Consider appropriate type of restraint. In cases of extreme agitation: CHEMICAL RESTRAINTS PREFERRED**
- **Use and document physical restraint only as necessary for protection for yourself or the patient.**

2. Application of restraints:

A. Obtaining and preparing appropriate restraints

- padded leather restraints
- soft restraints (i.e. posey, Velcro or seatbelt type)
- any method utilized must allow for quick release

B. Assessing the safety of the situation

- Complete a visual check for potential weapons
- If there is suspicion of weapon involvement request involvement of Law Enforcement prior to engaging in patient interaction.
- Providers should remove any potential weapons from their person. (i.e., pens, flashlights, trauma shears etc.)

C. Assigning a contact for the out of control person

- Minimize the number of people speaking to the out of control person.
- Continue use of verbal de-escalation

D. Designating who will direct and cue team members in the application of restraints

- Assign each limb and the head to specific team members
- Give the signal to go hands-on (this may be a non-verbal signal)
- Supervise the application of restraints
- Give the verbal signal for hands-off (RELEASE)
- No team member is to release their designated limb until directed

E. Conduct a preliminary debriefing

- Assess team members and patient for any injuries
- Re-assess restraints for appropriate application

All Providers

Restraints Physical and Chemical (pg 2)

3. Reassessment / Chemical Adjuncts:

A. Following the application of physical restraints EMS personnel must assess the patient to determine the need for administration of an anxiolytic, or sedative to prevent continued forceful struggling against the restraint. Continued forceful struggling against the restraint can lead to hyperkalemia, rhabdomyolysis, or cardiac arrest.

B. Chemical adjuncts to physical restraints are to be administered in accordance with patient care protocols and / or on line medical direction.

C. Post restraint assessment must include hemodynamic, respiratory, and neurologic systems. Restrained extremities should be evaluated for

4. Documentation:

A. In addition to standard information, the Medical Incident Report must document the following:

i. Complete assessment of patient
ii. Objective description of patient behavior (competence)
iii. Use and effectiveness of verbal de-escalation techniques
iv. Reason for physical restraint
v. Explanation offered to the patient
vi. Type of restraint used and time applied
vii. Post restraint serial extremity evaluation
viii. Post evaluation of the patient's respiratory status
ix. Condition of the patient enroute and on transfer to Emergency Department Staff.

5 Unapproved restraint devices / patient positioning:

A. The following forms of restraint are NOT to be utilized by EMS personnel:

i. "Sandwiching" patients between backboards, scoop-stretchers, or mattresses, as a restraint
ii. Restraining a patient's hands and feet behind the patient (i.e. hog-tying)
iii. Methods or other material applied in a manner that could cause respiratory, vascular, or neurological compromise, including the use of "choke holds".
iv. Locking handcuffs
v. Hard plastic ties or any restraint device requiring a key to remove

B. Patients should NOT be transported in the prone position. EMS personnel must ensure that the patient's position does not compromise the patient's respiratory, circulatory, or neurological systems, and does not preclude any necessary medical intervention to protect the patient's airway should vomiting occur.

6 Law Enforcement Restraint:

A. Occasionally it is necessary for Law Enforcement to apply restraint devices that are not approved for EMS use in order to protect the safety of the patient and the public. As soon as the situation is controlled EMS personnel are to exchange these devices for those that are approved for EMS use. In the event that restraint exchange cannot safely occur, Law Enforcement must accompany patient during transport.

NOTES & PRECAUTIONS:

Document all restrained patients thoroughly

Also see Protocol: Psychological/Emotional emergency

Never a transport a patient who is retrained by police without a police officer present who can remove or unlock restraints. Pateints should not be "hog tied" or restrainted in fashion that interferes with their airways or breathing (prone position or "sandwiched").

All Providers

Splinting

Contact OLMC:

Prior to reducing dislocations.

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, dislocation, sprain, or injury.
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters.
- Fractures and dislocations are to be splinted in the position found, however, realignment may be necessary to facilitate packaging a patient, correct ciculatory compromise neurolgic deficit, or to allow transportation.

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint.
2. Remove all clothing, jewelry or restricting items from the extremity.
3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed.
4. Do not secure the splint directly over the injury or device.
5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.
6. Document pulses, sensation, and motor function after placement of the splint. If there has been deterioration in any of these 3 parameters, remove the splint and reassess.
7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, place traction splint. (See Reference Guide: Traction Splint)
8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

Notes & Precautions

- Consider Pain Management (See Protocol: Pain Management)

All Providers

Tourniquet

INDICATIONS:

Life threatening arterial hemorrhage and bleeding not responsive to standard treatment. Consider in blast injury with Crush injury, amputation, GSW's, multiple patient scenes and mass casualty incidents.

CONTRAINDICATIONS:

Bleeding adequately controlled with standard measures.

PROCEDURE:

A. BSI and scene safety.

B. Remove clothing. **If the scene is unsafe or the patient is in extremis apply tourniquet as high on the limb as possible and over clothing**

C. Apply the CAT tourniquet 2-4 inches above the wound

D. If the wound is more than 2-4 inches below the knee or elbow, initially place the tourniquet 2-4 inches above the wound. If bleeding is not controlled, apply a second tourniquet above the joint. Do not remove the first tourniquet.

E. Route the band around the limb and through the inside slit of the buckle. **For the lower extremity, pass the band back through the outside slit of the buckle.**

F. Pull the band tight and securely fasten the Velcro back on itself. Do not cover up the windlass.

G. Twist the windlass **until bleeding stops** and distal pulse is eliminated.

H. Place the windlass in the clip locking it in place.

I. Secure the windlass with the strap and **record time of application**. Consider taping the windlass and strap.

J. Reassess for bleeding and distal pulse.

K. If bleeding continues apply a second tourniquet side by side proximal to the tourniquet in place and above the joint if necessary.

L. Pack and dress the wound below the tourniquet.

M. Reassess for bleeding and distal pulse each time the patient is moved.

NOTES & PRECAUTIONS:

A. Damage to tissue is unlikely if the tourniquet is left on for 2 hours or less, however correctly applied tourniquets may still cause nerve and tissue damage.

B. Tourniquets applied too loosely will obstruct venous return, but not arterial flow and may paradoxically increase bleeding.

C. Correctly applied tourniquets are painful. Follow pain management protocol after application.

D. Do not cover the tourniquet

All Providers

Traction Splint

Clinical Indications:
Mid shaft femur fracture with no lower leg, hip, pelvis ankle or foot involvement on the same side

Procedure:

1. After preforming head to toe trauma exam and ensuring only mid shaft femur fracture and exposing the affected leg.
2. Assess patient for circulation, sensation, and movement in affected and unaffected leg.
3. Apply traction splint per manufacturer recommendation.
4. Note time traction splint was placed.
5. Assess patient for circulation, sensation, and movement in affected and unaffected leg.
6. Provide pain control and fluid resuscitation as needed.

NOTES AND PRECAUTIONS

- ALWAYS CHECK CSM BEFORE AND AFTER SPLINTING