

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

NEEDLE CHEST DECOMPRESSION (ALS)

- I. Indications: Signs of a tension pneumothorax which may include any or all of the following:
- A. Absent or diminished lung sounds on the affected side
 - B. Progressive respiratory distress and/or increased resistance to bagging
 - C. Tracheal deviation
 - D. Jugular vein distention
 - E. Signs of shock with chest trauma present
- II. Potential complications:
- A. Creation of a pneumothorax if not already present
 - B. Laceration of blood vessels and nerves
 - C. Laceration of the lung
 - D. Infection from poor aseptic technique
- III. Precautions:
- A. A tension pneumothorax can be precipitated by sealing an open chest wound with an occlusive dressing. This should be checked first to relieve the tension pneumothorax.
 - B. Nerves and blood vessels exist just below each rib. To avoid these you should always insert the needle just over the top of the 3rd rib.
- IV. Equipment:
- A. 14 gauge or larger IV catheter, at least 3.25 inches long
 - B. Alcohol or Betadine prep pads
 - C. 10 cc syringe
 - D. Tape
- V. Procedure:
- A. Attach the 10 cc syringe to the IV catheter
 - B. Locate the 2nd intercostal space mid-clavicular line
 - C. Cleanse the site with alcohol or Betadine
 - D. Insert the IV catheter at the superior border of the 3rd rib
 - E. Push the needle until you feel a pop as you enter the pleural space
 - F. The plunger of the syringe will be pushed outward by pressurized air exiting the chest
 - G. Advance the catheter over the needle until it is flush with the skin
 - H. Discard the needle
 - I. Secure the catheter in place with tape
 - J. *Reassess ventilatory rate status, jugular veins, tracheal position, pulse, blood pressure*

JERSEY COMMUNITY HOSPITAL SYSTEM
POLICY AND PROCEDURE

SPINAL IMMOBILIZATION

I. INDICATIONS

- A. All trauma patients with a neurological deficit.
- B. All trauma victims complaining of head, neck, or back pain.
- C. All unconscious trauma victims.
- D. All trauma victims who may have spinal injury, who also exhibit altered mental states, (e.g., drugs, alcohol).
- E. All trauma victims with facial or head injuries.
- F. All trauma patients with “mechanism of injury” that may have resulted in spinal injury.

II. CONTRAINDICATIONS

- A. none

III. PRECAUTIONS

- A. When in doubt, immobilize.
- B. Scoop stretchers do not adequately support the spine.

IV. EQUIPMENT

- A. Rigid Cervical Collar
- B. Head immobilization devices, (e.g., C.I.D., Bashaw)
- C. Blanket roll
- D. Proper immobilization device, (e.g., short spine board (KED))
- E. Long spine board
- F. Straps or Spider Straps

V. PROCEDURE UTILIZING SHORT SPINE BOARD

- A. First rescuer stations himself behind victim and applies manual immobilization to head and neck.
- B. Neck is held in a neutral position.
- C. Second rescuer applies properly sized rigid C-collar
- D. Position a proper immobilization device behind victim.
- E. Secure victim to device.
- F. Transfer victim to a long spine board.
- G. Secure victim to long spine board.

VI. NOTES:

- A. There are several different devices of this type, you must become familiar with the equipment and strapping procedures of your device.
- B. Short spine board or equivalent to be used when the patient is in a position that does not allow for the use of the long spine board.

VII. PROCEDURE FOR LONG SPINE BOARD

- A. Maintain manual immobilization on the head and spine (in a neutral position).
- B. Apply properly sized rigid C-collar.
- C. Log roll patient and place spine board behind him.
- D. Roll the patient back onto the board and secure him with straps.
- E. Secure head with appropriate immobilization device.

VIII. SPECIAL CONSIDERATIONS (INTERFACILITY TRANSFERS)

- A. Any patient with Mechanism of Injury that could result in spinal injury will be transported in full spinal immobilization. This includes all patients that have been cleared by the transferring facility unless cleared by a Trauma Surgeon.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

PNEUMATIC ANTISHOCK GARMENT (MAST)

I. INDICATIONS (BLS personnel will request an order)

- A. Systolic blood pressure less than 80
- B. Shock like symptoms with systolic of 100 or less
- C. Pelvic fracture
- D. Fracture of lower extremity
- E. Spinal shock
- F. Massive abdominal bleeding
- G. Cardiac arrest secondary to trauma

II. CONTRAINDICATIONS

- A. Pulmonary Edema
- B. Evisceration (may use leg compartments)
- C. Pregnancy (may use leg compartments)

III. PRECAUTIONS

- A. Should only be removed in a hospital under a physician's direction, unless pulmonary edema develops
- B. NEVER allow deflation of the PASG by personnel inexperienced in its use
- C. Remove clothing and fully assess the portions of the body that will be covered by the PASG.
- D. If not able to remove clothing, remove belts and sharp objects from pockets that may damage the PASG or the patient.
- E. Cold weather may cause the suit to lose air. Check pressure frequently to maintain BP at 100-100 systolic

IV. EQUIPMENT

- A. Pneumatic Antishock Garment (MAST)
- B. Blood Pressure Cuff
- C. Stethoscope

V. PROCEDURE

- A. Evaluate need for PASG (including vitals and lung sounds) and leave B/P cuff on the arm
- B. Unfold PASG and lay it flat on a long spine board on the stretcher
- C. Maintaining immobility of the spine, place the patient on the PASG so that the top of the garment is just below the lowest rib
- D. Wrap the PASG around legs and fasten
- E. Wrap abdomen and fasten, (unless contraindicated), being sure the garment does not ride up on ribs
- F. Connect foot pump
- G. Recheck and record vitals
- H. Inflate leg compartments while monitoring blood pressure
- I. If blood pressure not in 100-110 systolic range, inflate abdominal compartment, (unless contraindicated)
- J. When blood pressure is adequate, (100-110 systolic), close stopcocks - Do not attempt to increase the blood pressure beyond 110 systolic.
- K. Continue monitoring patient's blood pressure, adding pressure to the trousers as needed

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

DEFIBRILLATION (ALS)

- I. Indications:
 - A. V-Fib
 - B. V-Tach (pulseless)
- II. Contraindications:
 - A. Conscious patients
- III. Precautions:
 - A. All rescuers/bystanders must be ordered clear of patient and stretcher prior to delivery of shock
 - B. A conductive medium must be used (gel or pads)
 - C. Monitor/defibrillator must be taken to the patient immediately under the following conditions
 - 1. unknown problem
 - 2. man/woman down
 - 3. chest pain
 - 4. possible D.O.A.
 - D. Assure no flammable gasses in area (*including oxygen*)
 - E. Assure no bridge of conduction medium
 - F. Assure patient being defibrillated is actually pulseless
- IV. Complications:
 - A. Spark jumping to another rescuer causing a minor burn or V-Fib
 - B. Damage to myocardial muscle mass
 - C. Skin bridging causing chest wall arc
 - D. Poor skin contact causing a burn
 - E. Tetanic contraction causing loss of IV or other attached equipment
 - F. Explosion in presence of flammable gas

- V. Procedure (CPR in Progress):
- A. Turn on monitor defibrillator
 - B. Place conductive medium on paddles or utilize electrode pads (Fast Patch, Quick Combo)
 - C. Stop CPR
 - D. Determine rhythm
 - E. Recognize V-Fib or pulseless V-tach
 - F. Charge defibrillator to appropriate joule setting
 - *Biphasic 200 joule*
 - *Monophasic 300 joule*
 - G. Place paddles on chest if not using electrode pads
 - H. Recheck rhythm
 - I. Order "stand clear", check to ensure all clear
 - J. Defibrillate
 - K. Continue CPR for 2 minutes
 - L. Check rhythm
 - M. Check pulse

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

CRICOTHYROTOMY (ALS)

I. INDICATIONS

- A. Complete obstructed airway that cannot be relieved by Heimlich maneuvers or direct laryngoscopy
- B. Destructive facial injury precluding the use of advanced airway tubes
- C. Cyanosis
- D. Patient "in extremis"

II. CONTRAINDICATIONS

- A. When other techniques have not been attempted
- B. Patient under the age of 10

III. COMPLICATIONS

- A. Creation of a false passage
- B. Bleeding
- C. Laryngeal and vocal cord damage
- D. Subcutaneous emphysema
- E. Mediastinal emphysema
- F. Perforation of the esophagus

IV. Equipment

- A. Scalpel handle/blade
- B. 6.0-7.0 ET tube
- C. Povidone-iodine solution
- D. 10 cc syringe

OR

- E. Cricothyrotomy kit

- V. PROCEDURE (may vary according to equipment used)
- A. Take universal precautions
 - B. Place patient supine
 - C. Hyperextend the neck (unless cervical injury is suspected).
 - D. Identify the thyroid cartilage (Adam's apple), and the cricoid cartilage with the non-dominant hand.
 - E. Locate the cricothyroid membrane.
 - F. Prep the site with Povidone-iodine solution or alcohol.
 - G. Make a vertical incision through the skin and subcutaneous tissue approximately 2 cm long over the identified cricothyroid membrane.
 - H. Make a horizontal incision through the cricothyroid membrane itself approximately 1 cm long
 - I. Dilate the opening with scalpel handle or a Trousseau dilator
 - J. Insert the endotracheal tube through the opening
 - K. Inflate the cuff
 - L. Ventilate the patient and watch for chest rise
 - M. Auscultate over the lungs and stomach to verify tube placement. Use end tidal CO₂ detector device if available.
 - N. Secure the tube with tape or commercial device.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

ENDOTRACHEAL INTUBATION - ADULT (ALS)

- I. Indications:
 - A. Comatose patients with inadequate airway
 - B. Respiratory arrest

- II. Contraindications:
 - A. Patients with a gag reflex
 - B. Comatose patients ventilating adequately

- III. Complications:
 - A. Teeth or dentures may be broken
 - B. Esophageal Intubation
 - C. Right mainstem bronchial intubation
 - D. Laryngeal injury (soft tissue)

- IV. Precautions:
 - A. Should not take longer than 20 seconds
 - B. Do not use teeth as a fulcrum
 - C. If not successful after 3 attempts, maintain airway and ventilate with 100% oxygen using bag-valve-mask or positive pressure; attempt King if not contraindicated.

- V. Equipment:
 - A. Cuffed ET tube (uncuffed for children age 8 and under)
 - B. Laryngoscope
 - C. Straight or curved blade of appropriate size
 - D. 10 ml. syringe
 - E. Stylet (optional)
 - F. Approved commercial device designed to secure an E.T. tube
 - G. Suction devices
 - H. Bag valve mask
 - I. O2 supply
 - J. Esophageal intubation detector (EID)
 - K. Appropriate size oral airway
 - L. Tape
 - M. Stethoscope
 - N. End Tidal CO2 monitoring device (optional)

VI. Procedure:

- A. Stabilize the neck in a neutral position (trauma patient)
- B. Hyperventilate patient approximately 30 seconds prior to intubation attempt
- C. Select correct size ET tube
- D. Assemble all equipment and check for proper functioning
- E. Grasp laryngoscope in left hand
- F. Insert laryngoscope blade in right side of mouth and sweep the tongue to the left
- G. Visualize the vocal cords
- H. Insert the ET tube until cuff or depth marker is past vocal cords
- I. Inflate cuff
- J. Check placement of ET tube via auscultation of bilateral breath sounds auscultation over epigastrium and EID
- K. Secure tube with commercial device (or other secure method)
- L. Insert oral airway if needed to prevent biting on the tube

VII. Field Extubation: to be utilized in the rare case when an intubated patient awakens and is intolerant of the endotracheal tube.

- A. Assess to determine:
 - 1. If the patient is able to maintain his own airway with adequate spontaneous respirations.
 - 2. If the patient is under the influence of any sedating agents.
 - 3. That the problem which initially required intubation is fully resolved.
- B. Contact Medical Control with the assessment information. The decision to extubate should be made by an EMS physician.
- C. Be aware that there is a risk of laryngospasms upon extubation of the awake patient that may prohibit successful reintubation.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

**ENDOTRACHEAL INTUBATION - ADULT (ALS)
Using Supraglottic Airway Laryngopharyngeal Tube (SALT)**

I. Indications:

- A. Comatose patients with inadequate airway
- B. Respiratory arrest

II. Contraindications:

- A. Patients with a gag reflex
- B. Comatose patients ventilating adequately

III. Complications:

- A. Teeth or dentures may be broken
- B. Esophageal Intubation
- C. Right mainstem bronchial intubation
- D. Laryngeal injury (soft tissue)

IV. Precautions:

- A. Should not take longer than 20 seconds
- B. Do not use teeth as a fulcrum
- C. If not successful after 3 attempts, maintain airway and ventilate with 100% oxygen using bag-valve-mask or positive pressure; attempt combitube if not contraindicated.

V. Equipment:

- A. Cuffed ET tube (uncuffed for children age 8 and under)
- B. 10 ml. syringe
- C. Suction devices
- D. Bag valve mask
- E. O2 supply
- F. Esophageal intubation detector (EID)
- G. Stethoscope
- H. End Tidal CO2 monitoring device (optional)
- I. S.A.L.T.

- VI. Procedure Using Supraglottic Airway Laryngopharyngeal Tube (SALT)
- A. Stabilize the neck in a neutral position (trauma patient)
 - B. Hyperventilate patient approximately 30 seconds prior to intubation attempt
 - C. Select correct size ET tube
 - D. Assemble all equipment and check for proper functioning
 - E. S.A.L.T. can be used as an OPA.
 - F. Use the epiglottic tongue blade (provided in the kit) to control the epiglottis.
 - G. Insert S.A.L.T. over the tongue blade (similar to inserting oropharyngeal airway over a tongue blade in a pediatric patient)
 - H. Attach provided strap to maintain the airway. The patient can be ventilated with bag-mask at this time if needed.
 - I. Pass the appropriate-sized ET tube (not provided in kit) through the S.A.L.T. into the trachea
 - J. Verify placement. If using an esophageal detector device to confirm endotracheal tube placement, this MUST be done prior to positive pressure ventilations.
 - K. Attempt to ventilate with bag-mask. Check for bilateral chest rise and auscultate for breath sounds over BOTH lung fields and for absence of sounds over epigastrium.
 - L. When placement confirmed, inflate cuff (for patients > 8 years of age).
 - M. Place provided securement clamp on ET tube. Move strap from S.A.L.T. to the clamp.
 - N. Secondary tube placement confirmation is required and must be documented. This may be accomplished with an esophageal detector device, end-tidal CO₂ detector or capnography (preferred method)
- VII. Field Extubation: to be utilized in the rare case when an intubated patient awakens and is intolerant of the endotracheal tube.
- A. Access to determine:
 - 1. If the patient is able to maintain his own airway with adequate spontaneous respirations.
 - 2. If the patient is under the influence of any sedating agents
 - 3. That the problem which initially required intubation is fully resolved.
 - B. Contact Medical Control with the assessment information. The decision to extubate should be made by an EMS physician.
 - C. Be aware that there is a risk of laryngospasms upon extubation of the awake patient that may prohibit successful reintubation.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

COMBITUBE AIRWAY (ALS)

I. Indications:

- A. Cardiac/respiratory arrest
- B. Respiratory arrest – comatose with no gag reflex

II. Contraindications:

- A. Patient with an intact gag reflex
- B. Patient under age 16 and/or under 5 feet tall
- C. Patient with known esophageal disease
- D. Patient with a history of esophageal trauma/or ingestion of caustic substance
- E. Patient with a tracheostomy or laryngectomy
- F. Patient with a foreign body obstruction in the trachea

III. Potential Complications:

- A. Damage to the proximal cuff from broken teeth or dentures

IV. Precautions:

- A. DO NOT remove the Combitube in the field unless the patient's gag reflex returns or the patient has been endotracheally intubated. Remove only upon the order of Medical Control.

V. Equipment:

- A. Combitube airway
- B. 100 ml syringe
- C. 15 ml syringe
- D. Water based lubricant
- E. Suction equipment

VI. Procedure:

- A. Hyperventilate with 100% oxygen
- B. Assemble equipment, check cuffs for leaks
- C. Place head in neutral position
- D. Insert device in midline using jaw lift

PROCEDURE CONTINUED

- E. Insert until black rings are at the teeth
- F. Inflate the pharyngeal cuff with 100 ml air (blue pilot balloon)
- G. Inflate the distal cuff with 15 ml air (white pilot balloon)
- H. Ventilate through the blue tube
- I. Auscultate lung sounds and over the epigastrium
- J. If bilateral breath sounds are auscultated,, continue ventilation through blue tube
- K. If there is absent chest rise, no lung sounds and gurgling heard over the epigastrium, begin ventilating through the clear tube labeled #2.
- L. Confirm placement. Auscultate lung sounds and over the epigastrium. Observe for chest rise.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

SUBCUTANEOUS INJECTION (ALS)

I. Indications:

- A. When a relatively slow rate of medication absorption is desired

II. Contraindications:

- A. Patient in shock
- B. Peripheral vasoconstriction

III. Precautions:

- A. Patient must not have allergy to administered medication
- B. Avoid arteries, veins, and nerves

IV. Complications:

- A. Infection
- B. Hematoma
- C. Local tissue irritation
- D. Accidental IV administration

V. Equipment:

- A. 1 ml syringe
- B. Alcohol prep
- C. Medication
- D. 5/8", 25 gauge needle
- E. 4X4 gauze pad
- F. Band-Aid

VI. Procedure:

- A. Receive the order
- B. Confirm the order
- C. Prepare equipment
- D. Explain procedure to the patient
- E. Confirm patient is not allergic to medication
- F. Select medication
- G. Inspect medication for discoloration, particles, and expired date
- H. Draw medication from source/vial/ampule, etc.
- I. Expel any air from syringe
- J. Recap needle
- K. Expose injection site
- L. Prep injection site with alcohol swab
- M. Insert needle at 45° angle to skin

PROCEDURE (CONTINUED)

- N. Aspirate for blood
- O. Inject medication slowly and withdraw needle
- P. Apply pressure to the site
- Q. Apply Band-Aid
- R. Confirm medication administration to medical control
- S. Monitor the patient for the desired therapeutic effect and any possible side effect
- T. Document administration of medication and any changes in patient condition.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

INTRAMUSCULAR INJECTION (ALS)

I. INDICATIONS:

- A. Non-cardiac emergencies where a relatively slow rate of absorption is desired

II. CONTRAINDICATIONS:

- A. patients in shock
- B. patients with suspected AMI

III. PRECAUTIONS:

- A. patient is not allergic to medication
- B. avoid arteries, veins, and nerves

IV. COMPLICATIONS:

- A. local pain and burning
- B. local infection
- C. hematoma
- D. inadvertent IV injection

V. EQUIPMENT:

- A. syringe
- B. 1 1/2", 21-23 gauge needle for adults, 1" 21-23 gauge needle for pediatrics
- C. alcohol prep
- D. 4X4 gauze
- E. medication
- F. Band-Aid

VI. PROCEDURE:

- A. receive order
- B. confirm order
- C. prepare equipment
- D. explain procedure to patient
- E. confirm patient not allergic to medication
- F. select medication
- G. inspect medication for discoloration, particles, and expiration date
- H. withdraw medication from source
- I. expel air from syringe
- J. recap the needle
- K. expose the appropriate site
- L. prep the site with an alcohol swab
- M. insert the needle at a 90o angle
- N. aspirate to assure that a blood vessel has not been entered

PROCEDURE (CONTINUED)

- O. inject the medication in a slow deliberate fashion
- P. apply pressure to the site
- Q. if necessary, apply a Band-Aid
- R. properly dispose of the syringe and needle
- S. confirm the medication administration
- T. monitor the patient for any possible side effects
- U. Document medication administration and any change in patient condition.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

INTRAVENOUS CANNULATION (ALS)

I. INDICATIONS

- A. When an IV lifeline is needed or there is potential need to administer fluids or IV medications.

II. COMPLICATIONS

- A. Infection
- B. Nerve or artery damage
- C. Tissue sloughing
- D. Intra-arterial injection
- E. Air embolism
- F. Anaphylaxis
- G. Pulmonary edema
- H. Catheter embolization

III. PRECAUTIONS

- A. Check all equipment and supplies for expiration dates and sterility
- B. Check all IV solutions for cloudiness
- C. Assure all lines do not contain air bubbles

IV. EQUIPMENT

- A. IV solution (Normal Saline)
- B. Tubing (microdrip, macrodrip)
- C. Over the needle catheter or butterfly
- D. Tourniquet
- E. Iodine swab or alcohol swab
- F. Tape
- G. Arm board (optional)
- H. Personal protective equipment

V. PROCEDURE FOR EXTREMITY CANNULATION

- A. Take BSI precautions
- B. Assemble and prepare equipment
- C. Apply tourniquet proximally
- D. Locate vein and cleanse site with alcohol or Povidine - iodine
- E. Hold vein in place by applying pressure on vein distal to point of entry
- F. Cannulate vein
- G. Advance catheter and remove needle
- H. Remove tourniquet
- I. Attach IV tubing or primed saline lock male adapter
- J. Tape in place
- K. Dispose of IV needle in appropriate Sharps container

VI. PROCEDURE FOR EXTERNAL JUGULAR

- A. Place patient supine, at least 15° head down position
- B. Turn patient head to opposite side unless contraindicated (head/spine injury)
- C. Cleanse site
- D. BSI precautions
- E. Make venipuncture midway between angle of jaw and midclavicular line, tourniqueting vein lightly with one finger above clavicle
- F. Advance catheter, remove needle and attach IV tubing
- G. Secure catheter in place

VII. SALINE LOCK NEEDLE

- A. Indication: when an IV lifeline is needed but the patient does not require IV fluid administration.
- B. Additional Equipment
 - 1. Male adapter
 - 2. Saline for injection
 - 3. 3 cc syringe/needle or prefilled syringe
 - 4. Alcohol preps
- C. Procedure
 - 1. Prime the male adapter by filling with saline for injection.
 - 2. After the IV is established, attach the primed male adapter to the hub of the IV catheter.
 - 3. Tape in place.
 - 4. Cleanse the adapter injection port.
 - 5. Flush with 3 cc saline for injection.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

EXTERNAL PACING (ALS)

I. INDICATIONS:

- A. Symptomatic and hemodynamically unstable bradycardias:
 - 1. sinus or junctional
 - 2. 2^o block, type II
 - 3. 3^o block
- B. Pulseless electrical activity (PEA) with a ventricular rate < 60.
- C. Consider in asystole

II. CONTRAINDICATIONS:

- A. non-symptomatic patient

III. PRECAUTIONS:

- A. Placement of electrodes will effect current threshold
- B. Consider sedation for the conscious patient. The patient's level of consciousness may improve during pacing

IV. PROCEDURE:

- A. Apply standard EKG electrodes
- B. Apply pacing electrodes or Quick Combo pads
- C. Select desired pacing rate (70-80)
- D. *Turn pacer on*
- E. Confirm "sensing" by pacer (usually indicated by a marker on EKG)
- F. When "sensing" is confirmed, begin pacing at lowest energy setting
- G. Increase current slowly until capture occurs
 - 1. electrically indicated by a wide QRS and a tall broad T-wave
 - 2. mechanically indicated by improving cardiac output
 - a) Palpate for a *radial* or femoral pulse and check skin color and temperature. *NOTE: avoid using carotid pulse to confirm mechanical capture. Electrical stimulation causes muscular jerking that may mimic a carotid pulse.*
 - b) Check for improving blood pressure and level of consciousness
 - c) Improved level of consciousness
 - d) Improved skin color, temperature, moisture

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

AUTOMATED DEFIBRILLATION

I. Indications

- A. Unresponsive patients, no pulse, no respirations
- B. Defibrillators must be taken to the patient immediately under the following conditions:
 - 1. unknown problem
 - 2. man/woman down
 - 3. chest pains
 - 4. possible D.O.A.

II. Contraindications

- A. Conscious patients
- B. Patients with a pulse
- C. Patient less than 90 lb

III. Precautions

- A. All rescuers/bystanders must be ordered clear of the patient and stretcher prior to delivery of shock
- B. Assure no flammable gasses in area
- C. Assure patient being defibrillated is actually pulseless
- D. The ambulance must be stopped in order to analyze on the defibrillator

IV. Complications

- A. Spark jumping to another rescuer causing a minor burn or V-Fib
- B. Damage to myocardial muscle mass
- C. Skin bridging causing chest wall arc
- D. Poor skin contact causing a burn
- E. Tetanic contractions causing loss of IV or other attached equipment
- F. Explosion in presence of flammable gas
- G. Inappropriate shocks

V. Procedure

- A. Initiate and maintain CPR until automated external defibrillator (AED) is attached
NOTE: Complete 2 minutes of CPR if not a witnessed arrest.
- B. Turn on power
- C. Initiate analysis of rhythm
- D. Deliver shock, if indicated and follow policy MP-6.8.1

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

NEBULIZER TREATMENT USING ALBUTEROL (PROVENTIL, VENTOLIN)

I. Indications:

- A. Acute attacks of bronchospasm
- B. Reversible obstructive airway disease

II. Possible Hazards and Complications:

- A. Albuterol can produce paradoxical life-threatening bronchospasm
- B. Significant cardiac effects may occur
- C. Hypersensitivity reactions
- D. Use with caution in patients with diabetes, cardiovascular, and convulsive disorders
- E. Use with caution in patients taking tricyclic antidepressants
- F. Other aerosol bronchodilators and epinephrine should not be used with Proventil, or extreme caution should be used

III. Equipment:

- A. Albuterol solution 2.5 mg in 3 ml unit dose
- B. Delivery system - disposable
 - 1. Aerosol elongated mask or mouthpiece if available
 - 2. Nebulizer medication container
 - 3. Oxygen supply tubing

IV. Procedure Sequence:

- A. Obtain patient information and communicate with treating facility - history and physical
- B. Set up delivery equipment
- C. Explain procedure to patient
- D. Position patient in sitting position
- E. Monitor vitals before, during, and after treatment
- F. ECG monitor applied
- G. Oxygen flow rate 6-10 LPM
- H. Add 2.5 mg of Albuterol to delivery set
- I. Place aerosol mask on patient or use hand held nebulizer, and instruct to inhale slowly and deeply through their mouth
- J. Have patient cough post treatment
- K. Re-evaluate breath sound and communicate findings to treating facility
- L. Nebulizer treatments last approximately 6-10 minutes

NOTE: Albuterol can be used for patients 6 years old and over in the above dose and treatment method (may be used for patients less than six years of age if ordered by the EMS Physician).

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

INTRAVENOUS MEDICATION ADMINISTRATION (ALS)

- I. Indications: Emergency situations where a fast rate of absorption is desired.
- II. Contraindications: None in emergency situation.
- III. Precautions:
 - A. Ensure the IV line is patent
 - B. Review the 5 R's
 - 1. right patient
 - 2. right medication
 - 3. right dosage
 - 4. right route
 - 5. right time - includes how fast the drug should be given
- IV. Complications
 - A. Local pain and burning
 - B. Allergic reaction
 - C. Infiltration if IV line not patent
- V. Equipment:
 - A. Medication
 - B. Appropriate size syringe and 19 gauge needle/prefilled syringe
 - C. Alcohol prep
- VI. Procedure Sequence:
 - A. Receives/requests order or operates under standing medical orders
 - B. Takes universal precautions.
 - C. Elicits patient allergies
 - D. Selects the correct medication and administration equipment.
 - E. Checks medication label for correct name, concentration, expiration date.
 - F. Inspects medication for discoloration, particles.

- G. Prepares correct dose.
 - 1. Assembles prefilled syringe, expels air.
 - 2. Draws up correct amount from ampule or vial.
- H. Cleanses injection port.
- I. Stops IV flow above injection port.
- J. Reaffirms correct medication, dose.
- K. Inserts needle into injection port, injects correct dose at appropriate rate.
- L. Opens and flushes IV line, readjusts IV flow rate.
- M. Disposes of needle in appropriate container. (Do not recap needle)
- N. Observes patient for medication effects and documents appropriately.
- O. Maintains aseptic technique throughout procedure.
- P. Document medication administration and changes in patient condition.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

ENDOTRACHEAL MEDICATION ADMINISTRATION (ALS)

- I. Indications:
 - A. Fast rate of absorption is desired.
 - B. Unable to establish IV access.
 - C. Most often used in cardiac arrest.
 - D. Patient with endotracheal tube in place.
- II. Contraindications: None in emergency situation.
- III. Precautions:
 - A. Only specific drugs may be given this route
 - 1. Lidocaine
 - 2. Epinephrine
 - 3. Atropine
 - 4. Narcan
 - B. Usual dose via endotracheal tube is 2-2.5 times the usual dose diluted in 10 cc of saline.
- IV. Complications
 - A. Allergic reaction
 - B. Fluid overload
- V. Equipment:
 - A. Medication
 - B. Appropriate size syringe and 19 gauge needle to draw up the medication/saline
 - C. Saline for injection
- VI. Procedure Sequence:
 - A. Medication Order
 - 1. Receives/requests order or operates under standing medical orders.
 - 2. confirms order
 - B. Takes universal precautions.

- C. Selects correct medication
- D. Checks label for correct name, concentration, expiration date.
- E. Inspects medication for discoloration, particles.
- F. Prepares correct amount of medication.
- G. Hyperventilates patient.
- H. Removes the ventilation device.
- I. Administers the medication down the endotracheal tube.
- J. Replaces the ventilation device and hyperventilates patient.
- K. Monitors the patient for desired effects.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

PERCUTANEOUS TRANSTRACHEAL CATHETER VENTILATION (ALS)

- I. Indications:
 - A. A fully obstructed airway that cannot be cleared by mechanical measures.
 - B. Extensive maxillofacial or upper airway injury that makes ventilation with a bag valve mask or endotracheal intubation unfeasible.
- II. Contraindications:
 - A. Possibility of establishing a less invasive airway.
- III. Precautions:
 - A. Allow time for exhalation through the small lumen catheter.
- IV. Complications
 - A. Inadequate ventilation
 - B. Inadequate exhalation could result in hypercarbia and increased pressure in the lungs causing rupture of alveoli.
 - C. False passage
 - D. Bleeding
 - E. Laryngeal/vocal cord damage
 - F. Subcutaneous emphysema
- V. Equipment
 - A. 14 gauge 2-inch angiocath or larger
 - B. 10cc syringe
 - C. Alcohol or povidone-iodine pads
 - D. Dressing supplies
 - E. Device to deliver ventilations via the angiocath
- VI. Procedure Sequence:
 - A. Takes universal precautions.
 - B. Places the victim supine and hyperextends the head and neck; if spinal injuries are suspected, maintains the neck in a neutral position.
 - C. Locates the cricothyroid membrane and cleanses the site.

- D. Attaches a 14 gauge or larger with the needle catheter to the 10 cc syringe.
- E. Carefully inserts the needle and catheter in the midline through the skin and membrane and directs it downward and caudally at a 45° angle to the trachea.
- F. Maintains a negative pressure on the syringe as the needle and catheter are advanced.
- G. Once in the trachea, advances the catheter over the needle until the catheter hub rests on the skin.
- H. Holds the hub in place to prevent accidental displacement and removes the syringe and needle.
- I. Reconfirms the position of the catheter by aspirating freely with the syringe.
- J. Connects ventilatory equipment to the catheter hub and to the oxygen source.
- K. Ventilate.
- L. Watches the chest rise carefully.
- M. Allows exhalation to happen passively and as fully as possible.
- N. Ventilates the patient at a rate of 20 breaths per minute with an inflation time ratio of 1:2.
- O. Checks for adequacy of ventilation and fastens the hub securely to the skin.
- P. Continues ventilatory support.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

SYNCHRONIZED CARDIOVERSION (ALS)

- I. Indications:
 - A. Supraventricular or ventricular tachycardias resulting in decompensation of the patient.
 - 1. Heart rate greater than 150
 - 2. Symptomatic: cold, clammy, dyspnea, chest pain, hypotension
- II. Contraindications:
 - A. Pulseless rhythms
- III. Precautions:
 - A. Consider sedation for the conscious patient.
 - B. All rescuers/bystanders must be clear of the patient and stretcher prior to delivery of the shock.
 - C. Assure no flammable gases are in the area (*including oxygen*)
 - D. Assure sync button is engaged. *Note: reactivation of sync mode is required after each attempted cardioversion.*
- IV. Complications
 - A. Shock of rescuer or bystander
 - B. Burns
 - C. Explosion if flammable gases are present.
 - D. Conversion to undesirable cardiac rhythm
- V. Equipment
 - A. Cardiac monitor/defibrillator with sync capability
 - B. *Fast Patches*
 - C. Sedative and/or analgesic medication for conscious patient

VI. Procedure Sequence:

- A. Takes universal precautions
- B. Confirms physician order, if applicable
- C. Confirms dysrhythmia indicating synchronized cardioversion
- D. Sedates patient, if necessary
- E. Turns on monitor/defibrillator
- F. Assures synchronizer switch is in the “on” position
- G. *Apply Fast Patches*
- H. *Some defibrillators cannot deliver synchronized cardioversion unless the patient is also connected to monitor leads; in other defibrillators, ECG leads are incorporated into the defibrillation pads. Lead select switch may need to be on lead I, II, or III and not on paddles.*
- I. *Charge to appropriate setting*
Joules Setting
 - *For regular narrow-complex tachycardias, such as reentry SVT and atrial flutter, start with 50 J to 100 J. If initial dose fails, increase in stepwise fashion.*
 - *For irregular narrow-complex tachycardia consistent with atrial fibrillation, use 200 J initial monophasic shock, or 120 to 200 J initial biphasic shock, and then increase in stepwise fashion.*
- J. *Press charge button, clear the patient, and press both shock buttons simultaneously. Be prepared to perform CPR or defibrillation.*
- K. Assures the synchronizer is marking the “R” wave
- L. Instructs personnel to “clear” and clears self
- M. Assures no one is touching patient
- N. Re-verifies rhythm
- O. Presses and holds discharge button until shock is delivered
- P. Rechecks rhythm and patient for changes

If no changes noted, repeats procedure at appropriate joule setting

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

PEDIATRIC INTUBATION (ALS)

- I. Indications:
 - A. Comatose patient with inadequate airway.
 - B. Respiratory or cardiopulmonary arrest
- II. Contraindications:
 - A. Patient with gag reflex
 - B. Patient with adequate ventilations
- III. Precautions:
 - A. Do not use the teeth as a fulcrum.
 - B. Do not delay ventilation for longer than 20 seconds.
 - C. If not successful after 3 attempts, maintain the airway and ventilate with 100% oxygen per pediatric bag valve mask.
 - D. Use uncuffed tube for children age 8 and under.
- IV. Complications
 - A. Damage to teeth, vocal cords, soft tissue
 - B. Esophageal intubation
 - C. Right mainstem bronchial intubation.
- V. Equipment
 - A. Appropriate size endotracheal tube
 - B. Laryngoscope
 - C. Laryngoscope blade - straight
 - D. Stylet
 - E. Tape or device to secure an E.T. tube.
 - F. Suction equipment
 - G. Bag valve mask

- H. Oxygen source
- I. Esophageal intubation detector
- J. Stethoscope
- K. Syringe for cuffed tube (over age 8)

VI. Procedure Sequence:

- A. Takes universal precautions
- B. Hyperventilates the patient with 100% oxygen.
- C. Assembles and checks the equipment.
- D. Pulls back on the plunger of the 10 cc syringe and attaches it to the one-way inflation valve (uses noncuffed tube inpatient younger than 8 years)
- E. If spinal injuries are not suspected, places the head in the sniffing position.
- F. Holds laryngoscope in the left hand, inserts it into the right side of the mouth
- G. Displaces the tongue to the left with a sweeping motion and brings the laryngoscope to the midline.
- H. Advances the blade until it reaches the base of the tongue.
- I. Lifts the laryngoscope forward to displace the jaw without putting pressure on the front teeth.
- J. Suctions the hypopharynx as necessary.
- K. Looks for the tip of the epiglottis and places the blade into the proper position (curved blade into the vallecula, straight blade behind the epiglottis)
- L. Lifts the jaw at a 45° angle to the ground until the glottis is exposed.
- M. Has an assistant apply the Sellick maneuver to visualize the glottis.
- N. Grasps the tube with the right hand and advances it through the right corner of the patient's mouth.
- O. Advances the tube through the glottis opening until the distal cuff disappears past the vocal cords (if cuffed tube used).
- P. Removes the stylet, inflates the distal cuff with 10 cc of air and removes the syringe (if used).
- Q. Verifies proper placement by watching for chest rise, auscultating for breath sounds, watching for condensation in the tube on exhalation, and monitoring for color changes in an end-tidal CO₂ detector.

- R. Hyperventilates the patient with 100% oxygen.
- S. Secures the tube with tape or commercial device.
- T. Periodically rechecks tube placement.
- U. Do not withhold oxygen for > 30 seconds.

**JERSY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

INTRAOSSIOUS INFUSION

- I. Indications for the pediatric patient age 6 or less
 - A. Cardiac arrest
 - B. Multisystem trauma with associated shock
 - C. Unresponsive and in need of immediate drug or fluid resuscitation
 - D. IV access unable to be initiated in 3 attempts or 90 seconds

- II. Contraindications
 - A. Presence of a fracture in the pelvis or extremity proximal to the IO site chosen

- III. Potential Complications
 - A. Tibial fracture
 - B. Compartment syndrome
 - C. Skin necrosis
 - D. Osteomyelitis

- IV. Equipment
 - A. IV solution/tubing
 - B. Intraosseous needle
 - C. Alcohol or Povidine preps
 - D. Tape
 - E. 10 cc syringe filled with saline

- V. Procedure
 - A. Take universal precautions
 - B. Assemble and prepare all equipment
 - C. Grasp the thigh and knee above and lateral to the site to stabilize the tibia. **DO NOT** allow any portion of your hand to rest behind the site.
 - D. Locate the puncture site 1-3 cm distal to the tibial tuberosity and slightly medial.
 - E. Prep the site with alcohol or Povidine.

- F. Angle the needle slightly toward the foot.
- G. Insert the needle firmly through the skin, subcutaneous tissue, and periosteum of the bone with a twisting motion.
- H. Stop advancing the needle when a sudden decrease in resistance is felt.
- I. Withdraw the stylet (may need to unscrew cap).
- J. Slowly inject 10 cc of normal saline and observe for patency:
 - 1. free flow without signs of infiltration
 - 2. the needle can stand upright without support
- K. Attach IV tubing and set to desired rate.
- L. Secure the needle with tape.

JERSY COMMUNITY HOSPITAL EMS SYSTEM**PULSE OXIMETRY**

- I. Indications:
 - A. To evaluate oxygenation of patients
 - B. To alert the prehospital crew of deterioration of oxygen levels and hypoxia
- II. Precautions
 - A. May not give an accurate reading in the presence of carbon monoxide inhalation, shock, hypothermia, excessive movement, nail polish or artificial nails
 - B. To ensure a more accurate reading, correlate the heart rate on the oximeter to the patient's heart rate
 - C. Pulse oximetry should be used in conjunction with proper patient assessment
 - D. Nail polish should be removed prior to obtaining a reading
- III. Equipment
 - A. Pulse oximeter
 - B. Nail polish remover pads
- IV. Procedure
 - A. Remove nail polish if applicable
 - B. Ensure extremity to normal temperature
 - C. Apply pulse oximeter
 - D. Correlate heart rate on oximeter to patient
 - E. Note reading

NOTE: Do not make a decision to administer oxygen based on the pulse OX reading. Administer oxygen based on assessment, MOI, etc.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

FINGER STICK GLUCOSE

I. INDICATIONS

- A. Known diabetic with medical complaints
- B. Unconscious patient

II. CONTRAINDICATIONS

- A. None

III. PRECAUTIONS

- A. A finger stick glucose may not be accurate for readings of less than 40 or greater than 400.

IV. COMPLICATIONS

- A. Infection at finger stick site.

V. EQUIPMENT

- A. Blood glucose monitoring device
- B. Test strips which correlate to your device
- C. Alcohol preps
- D. 2X2 or 4X4 gauze pad
- E. Band-Aid

VI. PROCEDURE

- A. Will vary according to specific type of equipment used by each ambulance agency. (See Policy MP-7.2.1)

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

TWELVE LEAD EKG (ALS)

OBJECTIVE: The twelve lead EKG allows prehospital personnel to proceed beyond simple dysrhythmia recognition. It is designed to assist in the diagnosis of acute myocardial infarction, conduction abnormalities and other electrophysiological problems. It should be utilized for possible cardiac related complaints if the technology exists.

I. INDICATIONS

- A. Chest pain
- B. Syncope
- C. Dysrhythmia

II. POTENTIAL COMPLICATIONS

- A. Potential delay in treatment/transport if a good tracing is hard to obtain.

III. PRECAUTIONS/CONTRAINDICATIONS

- A. Cardiac Arrest
- B. Severely unstable patient unless advised by Medical Control

IV. EQUIPMENT

- A. Physio Control Lifepak 15 or other equipment capable of performing a 12 Lead EKG
- B. Electrodes
- C. Skin prep razor

V. PROCEDURE

- A. Explain the procedure to the patient
- B. Prep the skin
 - 1. Dirt, oil, and sweat can interfere with the tracing
 - 2. Wipe the skin dry, cleanse if needed
 - 3. You may abrade the skin slightly by rubbing briskly with a 4X4 gauze pad to help ensure adherence
 - 4. If the patient is very hairy, shave the area immediately over the electrode site. Use extreme caution to avoid nicks.
- C. Place the 4 limb leads on the limbs.
- D. Place the precordial leads
 - 1. V1 Right of the sternum, 4th intercostal space
 - 2. V2 Left of the sternum, 4th intercostal space
 - 3. V4 Left midclavicular line, 5th intercostal space

4. V3 Midway between V2 and V4
 5. V5 Anterior axillary line same level as V4
 6. V6 Mid axillary line same level as V4
- E. Turn on the machine
 - F. Enter data as appropriate to machine type
 - G. Observe for a clear tracing
 - H. Record the tracing
 - I. Provide the tracing to the treating hospital prior to patient's arrival at the ED if possible.

**RSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

NASOTRACHEAL INTUBATION

I. INDICATIONS

- A. Breathing patients requiring intubation due to airway compromise.
- B. Examples:
 - 1. Trauma with possible spinal cord injury
 - 2. Pulmonary edema/COPD
 - 3. Clenched jaw
 - 4. Fractured mandible

II. Contraindications

- A. Signs of basilar skull fracture
- B. Facial/nasal fractures/facial trauma
- C. Use caution in patients with deviated septum

III. Complications

- A. Trauma to the nasal mucosa and/or other airway structures with potential for bleeding.
- B. Esophageal intubation
- C. Intracranial tube placement in the patient with basilar skull fracture.

IV. Precautions

- A. This is a “blind” technique – the tube can be more easily misplaced.
- B. This technique is more time consuming than orotracheal intubation.
- C. This technique can be used only in patients that are breathing.
- D. A stylet should not be used due to increased risk of injury.
- E. When advancing the tube it may become hung up in the pyriform sinuses noted by a tenting of skin on either side of the trachea. Slightly withdraw the tube, rotate it to midline and again attempt gentle advancement.

V. Equipment

- A. Endotracheal tube
 1. Use an Endotrol tube or bend the tube into a circle while preparing the patient and equipment.
 2. Use a tube 1 mm smaller than the correct orotracheal size for the patient.
- B. 10 cc syringe
- C. Water soluble lubricant
- D. Tape/gauze to secure the tube

VI. Procedure

- A. Prepare equipment and patient
 1. Explain the procedure to the patient.
 2. Check all equipment, lubricate the tube.
 3. Oxygenate/hyperventilate for two minutes if possible.
- B. Select larger/clearer nostril for insertion.
- C. Stand or kneel to the side of the patient with the tube in one hand. Palpate the anterior neck in the area of the larynx with the other hand.
- D. Insert the tube into the nostril with the bevel toward the septum.
- E. Advance the tube gently.
- F. When maximal airflow is heard through the tube, gently and quickly advance it during the next inspiration.
- G. You should observe misting/condensation in the tube. The patient may cough or buck the tube.
- H. Inflate the cuff.
- I. Check the tube placement via auscultation of lung fields, auscultation over the epigastrium and EID.
- J. Secure the tube.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

**ADMINISTRATION OF EPI-PEN FOR ANAPHYLACTIC REACTION
BLS TRANSPORT AND NON-TRANSPORT**

PURPOSE: To establish guidelines for the management of patients with an anaphylactic reaction. This policy should be used for BLS transport and BLS non-transport agencies that have been approved to carry adult and pediatric epi-pens.

I. Indications:

- A. The patient has a history of an allergic reaction or is now having an acute allergic reaction with some of the following symptoms:
 - 1. Flushing, itching or burning of the skin
 - 2. Urticaria (hives)
 - 3. Tightness in the chest
 - 4. Dry cough, wheezing
 - 5. Swelling of the face, neck, hands, feet, and/or tongue
 - 6. Dyspnea (difficulty breathing)

II. Contraindications

- A. Chest pain consistent with angina
- B. Blood pressure greater than 200 systolic

III. Side Effects:

- A. Tachycardia
- B. Dizziness, nausea, and vomiting
- C. Headache

IV. Procedure: NOTE: Assessment of the patient, high flow O₂, and monitoring the patient to achieve the desired effect should not be overlooked.

- A. Take body substance isolation precautions.
- B. Confirm the Epi-pen is required for patient (hypoperfusion, respiratory distress, stridor, wheezing, etc.)
- C. Call Medical Control with a patient report and receive authorization for use of the epi-pen.
- D. Check the medication for cloudiness, discoloration and expiration date.
- E. Remove safety cap and select the appropriate injection site (thigh)

- F. Push injector firmly against site in accordance with the guidelines of the manufacturer instructions.
 - G. Properly discard auto injector.
 - H. Document time, medication and dosage, site and patient's response.
 - I. Begin transport.
NOTE: There should be an ALS intercept anytime the BLS unit uses the epi-pen.
- V. Dosage:
- A. Adult Epi-pen dosage is 0.3 mg
 - B. Pediatric Epi-pen dosage is 0.15 mg. (Pediatric patient is 60 pounds or less)
- VI. An Epi-pen Auto Injector Quality Improvement Form (AP-24-F) must be completed and sent to EMS Office each time Epi-pen is used.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

EPI-PEN AUTO INJECTOR QUALITY IMPROVEMENT FORM

Date: _____

Patient Name: _____

Reason for use: _____

Reassessment of patient after EPI-PEN: _____

Complications with the use of EPI-PEN: _____

Agency Name: _____

Person completing the report: _____

**Forward all reports to Sonny Renken NAEMTP, JCH EMS Department
Fax: (618)498-8491 Email: srenken@jch.org**

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

EZ IO™ Intraosseous Infusion

PURPOSE: Provides an alternative means to gain rapid vascular access in the cardiac arrest patient.

- I. Indications: Adult 40 kg or greater (over 88 lbs) in cardiac arrest
 - A. EZ IO™ may be considered PRIOR to peripheral IV attempts for cardiac arrest (medical or trauma)
- II. Contraindications
 - A. Fracture of the tibia or femur (consider alternate tibia)
 - B. Previous orthopedic procedures (IO within 24 hours, knee replacement)
 - C. Pre-existing medical condition (tumor near site, peripheral vascular disease)
 - D. Infection at insertion site (consider alternate site)
 - E. Inability to locate landmarks (significant edema)
 - F. Excessive tissue at insertion sites (obesity)
- III. Considerations:
 - A. Flow rates: Due to the anatomy of the IO space you will note flow rates to be slower than those achieved with IV catheters:
 - 1. Flush with 10 ml rapid bolus by syringe prior to connecting IV tubing
 - 2. Use a pressure bag for continuous infusions
- IV. Equipment
 - A. EZ IO™ Driver
 - B. EZ IO™ Needle set
 - C. EZ IO™ connect extension set primed
 - D. Alcohol or Betadine Swab
 - E. IV fluid and primed IV tubing
 - F. 10 ml syringe
 - G. Tape or Gauze
 - H. Pressure Bag

- V. Procedure:
- A. Wear approved PPE (gloves; consider eye protection)
 - B. Rule out contraindications
 - C. Locate the insertion site (Proximal tibia) & cleanse site with alcohol or Betadine
 - D. Stabilize the leg with opposite hand near the insertion site
 - E. Position the driver at the insertion site with the needle at a 90 degree angle to the bone surface
 - F. Insert the needle through the skin at the insertion site until the needle tip encounters the bone
 - G. Verify the 5mm marking on the catheter itself. If this mark is not visible, abandon the procedure.
 - H. Continue to insert the EZ IO™ applying light and steady pressure on the driver and powering through the cortex of the bone ensuring the driver remains at a 90 degree angle at all times
 - I. Stop when the needle flange touches the skin or a sudden decrease in resistance is felt
 - J. Stabilize the needle set by holding it in position. Gently and slowly remove the driver by pulling it directly up & off. Do **NOT** rock, twist or turn the driver
 - K. Unscrew the stylet counter-clockwise from the catheter. Remove the stylet while stabilizing hub and place in Sharps container
 - L. Attach primed extension set with 10 mL syringe attached & flush with 10 mL sterile water or saline. Do **NOT** directly attach the syringe to the EZ IO™ catheter
 - M. Verify placement by any or all of the following:
 - 1. The catheter is firmly seated and does not move
 - 2. Blood is noted at the catheter hub when stylet is removed or able to aspirate a small amount of blood or bone marrow from the catheter
 - 3. Drugs or fluids flow without difficulty
 - N. Connect IV tubing to extension set, apply a pressure bag and adjust to desired flow rate
 - O. Apply dressing
 - P. Monitor EZ IO™ site and patient condition and document procedure
 - Q. Ensure the hospital is aware of EZ IO™ placement through verbal report and patient ID bracelet.

VI. Specialized Training:

- A. All staff must complete a training program which includes:
 - 1. PowerPoint presentation or video
 - 2. Demonstration by trainer
 - 3. Demonstrate knowledge and skill through skill validation
 - 4. Complete quiz with score of 85% or greater.

VII. References:

- A. EZ IO™ by Vidacare training program
- B. www.vidacare.com
- C. Paramedic Care Principles and Practice, Volume I, 3rd Edition. Bledsoe, Porter and Cherry 2009.

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

Ventilator Management: CPAP (Continuous Positive Airway Pressure)

PURPOSE: Continuous Positive Airway Pressure (CPAP) and Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, reduce the work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation in patients who suffer from shortness of breath from asthma, COPD, pulmonary edema, CO poisoning, near drowning, CHF, and pneumonia. In patients with CHF, CPAP improves hemodynamics by reducing left ventricular preload and afterload.

- I. Indications: Any patient who is in respiratory distress with signs and symptoms consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia **and** who is:
- A. Awake and able to follow commands
 - B. Is over 12 years old and is able to fit the CPAP mask
 - C. Has the ability to maintain an open airway
 - D. **AND** exhibits two or more of the following:
 - 1. A respiratory rate greater than 25 breaths per minute
 - 2. SPO₂ of less than 94% at any time
 - 3. Use of accessory muscles during respirations
- II. Contraindications
- A. Patient is in respiratory arrest/apneic
 - B. Patient is suspected of having a pneumothorax or has suffered trauma to the chest
 - C. Patient has a tracheostomy
 - D. Patient is actively vomiting or has upper GI bleeding
 - E. Patient has decreased cardiac output, obtundation and questionable ability to protect airway, (e.g., stroke, obtundation, etc.) penetrating chest trauma, gastric distention, severe facial injury, uncontrolled vomiting and hypotension, (90 systolic minimum) secondary to hypovolemia.
- III. Precautions:
Use care if patient:
- A. Has impaired mental status and is not able to cooperate with the procedure
 - B. Had failed at past attempts at noninvasive ventilation
 - C. Has active upper GI bleeding or history of recent gastric surgery
 - D. Complains of nausea or vomiting
 - F. Has excessive secretions
 - G. Has a facial deformity that would prevent an adequate mask seal

IV. Procedure

A. **Steps of the Procedure:**

1. Ensure adequate oxygen supply to ventilation device
2. Continuous pulse oximetry (ETCO₂ can and should be used with CPAP)
3. Ensure the patient is maintained on the cardiac monitor and record rhythm strips with vital signs
4. Place the delivery device over the mouth and nose
5. Secure the mask with provided straps or other provided devices. Be sure to select a sealing face mask and ensure that the mask fits comfortably, seals the bridge of the nose, and fully covers the nose and mouth.
6. Explaining the procedure to patient:
 - a) Patient requires “verbal sedation” to be used effectively. Example: “you are going to feel some pressure from the mask, but this will help you breathe easier.”
 - b) Place delivery device over the mouth and nose, and set oxygen flow at maximum. Ask the patient to hold the mask in place.
 - c) Instruct patient to breathe through his/her nose slowly, and exhale through their mouth as long as possible. It is better not to strap the mask in place but to continue to have the patient hold the mask in place (with your help). This makes it easier to recognize if the patient is tiring, or if the patient’s level of consciousness is decreasing. Secure straps once patient is comfortable with the CPAP.
7. Start at 5cmH₂O pressure and progressively increase pressure by 2-3cmH₂O every 5 minutes to a max of 10cmH₂O pressure. Typically there is better tolerance with gradual progression of pressure.
8. Check for air leaks.
9. Monitor and document the patient’s response to treatment
10. Check and document vital signs every 5 minutes
11. Administer appropriate medications per protocol as necessary
12. Continue to coach patient to keep mask in place and readjust as needed
13. If respiratory status deteriorates, remove device and consider intermittent positive pressure ventilation via BVM and/or definitive airway management.
14. Notify receiving hospital that patient has been placed on CPAP.

V. Removal Procedure

- A. CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask, experiences respiratory arrest or begins to vomit.
- B. Intermittent positive pressure ventilation with a Bag-Valve-Mask, placement of a non-visualized airway and/or endotracheal intubation would be considered if the patient is removed from CPAP therapy.

VI. Special Notes:

- A. Do not remove CPAP until hospital therapy is ready to be placed on patient.
- B. Watch patient for gastric distention that can result in vomiting.
- C. Due to changes in preload and afterload of the heart during CPAP therapy, a complete set of vitals must be obtained every 5 minutes.

John Palcheff, DO., EMS Medical Director

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

TOURNIQUET APPLICATION

Use of tourniquets does not require on-line medical direction; however, there may be situations in which medical direction consultation is advised. The goal of tourniquet application is to control hemorrhage. Overall morbidity and mortality, however, is affected by multiple factors related to type of device, application technique, and duration of application. Fortunately, civilian extremity exsanguination is exceedingly rare.

I. Indications:

- A. To control potentially fatal hemorrhage from wounds or traumatic amputations when significant extremity bleeding cannot be stopped using simpler methods.
- B. Tourniquet may also be indicated in tactical or safety situations, those involving prolonged extrication, remote locations, and multiple casualties.
- C. Tourniquets may be considered when treating patients who have had prolonged compression of an entrapped extremity in order to decrease the life-threatening release of potassium and acids from the ischemic limb.

II. Contraindications

- A. Venous, bony and small vessel bleeding
- B. Tourniquet application is generally unnecessary when wound bleeding is adequately controlled using direct pressure, pressure dressings, elevation, or any other simpler method.
- C. Non-extremity hemorrhage

III. Procedure

- A. Various sizes of blood pressure cuffs are preferred over improvised or manufactured devices
- B. Apply device approximately 3 inches proximal to wound. If the wound is on a joint, or just distal to the joint, apply the tourniquet above the joint
- C. Tighten until bleeding stops (venous oozing is acceptable) and/or distal pulse is absent.
- D. If one tourniquet is not sufficient a second should be applied just proximal to the first.
- E. Do not cover the tourniquet with a dressing.
- F. Once a tourniquet has been applied, do not remove or loosen it unless ordered by medical direction.
- G. Note time of tourniquet application and communicate this to the receiving care providers.
- H. Dress wounds per general wound care procedure
- I. Document application time, location, and patient response on the Patient Care report Form (PCR)

**JERSEY COMMUNITY HOSPITAL EMS SYSTEM
POLICY AND PROCEDURE**

LESS THAN LETHAL WEAPONS PROTOCOL

As law enforcement agencies look for alternative means of subduing dangerous subjects and bringing individuals into custody, they have begun using a set of devices known as “less than lethal” weapons. These include but are not limited to:

- Bean Bag guns
- Teargas / Oleoresin Capsicum (Pepper-spray) Exposure
- Tasers

All levels of providers in the system should do the following when encountering these patients:

- Ensure that the scene has been secured by law enforcement personnel and that the scene is safe to enter.
- Ensure no cross contamination occurs to providers or equipment.
- Ensure that the patient is subdued and is no longer a threat to EMS personnel.

I. Teargas / Oleoresin Capsicum (Pepper-spray) Exposure

BLS CARE

- A. EMS Providers care should be focused on assessing the airway and breathing
- B. Render initial care in accordance with the Routine Patient Care
- C. Oxygen: for agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient cannot tolerate a mask.
- D. Flush eyes (if affected) with sterile water to get rid of gross contamination and to aid in recovery.
- E. Access for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include:
 1. Alcohol intoxication
 2. Drug abuse
 3. Hypoglycemia or other medical disorder
 4. Psychotic disorder
- F. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. Contact Medical Control for ALL refusal issues.
- G. Initiate ALS intercept if needed and transport as soon as possible.
- H. Contact receiving hospital as soon as possible or Medical Control if necessary.

II. Teargas / Oleoresin Capsicum (Pepper-spray) Exposure

ALS CARE

- A. ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient’s perfusion and preparing for or providing patient transport.
- B. ALS Care includes all components of BLS Care
- C. Restrain the patient if needed and contact Medical Control.
- D. Proventil (Albuterol): 2.5 mg in 3mL normal saline 0.5 mg via nebulizer over 15 minutes if the patient is short of breath and wheezing. Repeat Albuterol 2.5mg every 15 minutes as needed.
- E. If the patient has an altered mental status, then the patient must be assumed incompetent to refuse care. Contact Medical Control for ALL refusal issues.
- F. Initiate transport as soon as possible and contact Medical control if needed.

III. Taser-Related Injuries

A taser is an electrical device that is capable of shooting out two small barbed probes that are designed to pierce a subject's skin for the purpose of delivering a subduing pulse of electricity that causes the subject to lose voluntary muscular control. Anecdotal and theoretical consequences of taser use include cardiac arrhythmias and seizures (especially if the subject is under the influence of alcohol and/or illegal drugs).

BLS Care

- A. EMS Providers care should be focused on assessing the airway, breathing and circulation
- B. Oxygen: for agitation, shortness of breath or chest pain: 15 L/min via non-rebreather mask or 6 L/min via nasal cannula if the patient does not tolerate a mask.
- C. Ask law enforcement to remove taser probes. EMS personnel are not to remove the probes. NOTE: If the probes are in a sensitive area such as the face, eye, neck, genitalia, or a female's breast, leave the probes in place and bandage. Transport to the appropriate facility.
- D. Conduct thorough patient assessment and prepare the patient for or provide transport.
- E. Assess for any secondary causes of patient behavior which lead to law enforcement subduing the patient. These secondary causes include.
 - 1. Alcohol intoxication
 - 2. Drug abuse
 - 3. Hypoglycemia or other medical disorder
 - 4. Psychotic disorder
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Critical Thinking Elements

- If law enforcement has removed the probes, treat the probes as biohazards. Exercise caution to prevent accidental needlestick-like injuries.
- Ask law enforcement to eject the cartridge from the taser prior to patient contact.
- Patients who have been subdued using “less than lethal” weapons are commonly agitated and may be combative. If the patient is not yet subdued and/or is violent, do not initiate contact. Safety of the EMS crew is of utmost importance.
- Many of these patients fit into a syndrome known as “excited delirium” that has been associated with adverse medical outcomes, including SUDDEN DEATH, especially when restraints are utilized. Careful monitoring should be exercised when dealing with these patients.

John Palcheff, DO EMS Medical Director

JERSEY COMMUNITY HOSPITAL EMS SYSTEM APPROVED PROCEDURES

Needle Chest Decompression (ALS)-----	AP-1
Spinal Immobilization -----	AP-2
Pneumatic Anti Shock Garment (MAST)-----	AP-3
Defibrillation (ALS)-----	AP-4
Cricothyrotomy (ALS)-----	AP-5
Endotracheal Intubation - Adult (ALS)-----	AP-6
<i>Endotracheal Intubation– Adult (ALS) Using S.A.L.T.</i> -----	<i>AP-6A</i>
Combitube Airway (ALS)-----	AP-7
Subcutaneous Injection (ALS) -----	AP-8
Intramuscular Injection (ALS) -----	AP-9
Intravenous Cannulation (ALS)-----	AP-10
External Pacing (ALS)-----	AP-11
Automated Defibrillation-----	AP-12
Nebulizer Treatment (ALS)-----	AP-13
Intravenous Medication Administration (ALS)-----	AP-14
Endotracheal Medication Administration (ALS) -----	AP-15
Trans tracheal Needle Ventilation (ALS) -----	AP-16
Synchronized Cardioversion (ALS)-----	AP-17
Endotracheal Intubation - Pediatric (ALS)-----	AP-18
Intraosseous Infusion (ALS)-----	AP-19
Pulse Oximetry -----	AP-20
Finger Stick Glucose (ALS) -----	AP-21
Twelve Lead EKG (ALS) -----	AP-22
Nasotracheal Intubation (ALS)-----	AP-23
Administration of Epi-pen for anaphylactic Reaction (BLS transport and non transport)-----	AP-24
Epi-pen Auto Injector Quality Improvement Form -----	AP-24F
EZ IO™ Intraosseous Infusion-----	AP-25
CPAP -----	AP-26
Tourniquet Application -----	AP-27
<i>Less than Lethal Weapons</i> -----	<i>AP-28</i>

General Medical Care

GENERAL MEDICAL ASSESSMENT

FR/BLS/ALS

1. Scene Survey

- a. Identify possible hazards.
- b. Assure safety for patient and responder.
- c. Observe for mechanism of injury/nature of illness.
- d. Make note of any pertinent physical or environmental observations. Note anything suspicious at the scene, i.e. medications, household chemicals, other ill family members.
- e. Assess any discrepancies between the history and the patient presentation.
- f. Initiate appropriate body substance isolation (BSI) precautions.
- g. Assess the number of patients. If appropriate, begin triage, and initiate MCI procedures.
- h. Assess need for additional resources.

2. General Approach to the Stable/Conscious *Pediatric* Patient

- a. Assessments and interventions must be tailored to each child in terms of age, size, and development.
- b. Smile if appropriate to the situation.
- c. Do not lie.
- d. Kneel down to the level of the child, if possible.
- e. Keep your voice at an even, quiet tone; don't yell.
- f. Speak slowly; use simple, age appropriate terms.
- g. Use toys or penlight as distracters; make a game of assessment.
- h. Be cautious in the use of touch. In the stable child, make as many observations as possible before touching (and potentially upsetting) the child.
- i. Keep small children with their caregiver(s); encourage assessment while caregiver is holding the child.
- j. Adolescents may need to be interviewed without their caregivers present if accurate information is to be obtained regarding drug use, alcohol use, LMP, sexual activity, and/or child abuse.

3. Much insight can be gained on a patient's oxygenation, ventilation, and neurologic status prior to making physical contact. This is particularly true for children. Pay particular attention to the elements of the "Pediatric Assessment Triangle" – appearance, work of breathing, and circulation to the skin. While walking up to the patient, observe the following:

a. General appearance, age appropriate behavior. Does the patient have a malnourished appearance? Is a child looking around, responding with curiosity or fear, playing, sucking on a pacifier or bottle, quiet, eyes open but not moving much or uninterested in environment?

b. Inter activeness – How alert is the patient? How readily does a person, object, or sound distract a child or draw his/her attention? Will he/she reach for, grasp and play with a toy or exam instrument such as a penlight or tongue blade? Or, is he/she uninterested in playing or interacting with the caregiver or prehospital professional?

- c. Consolability – Can the child be consoled or comforted by the caregiver or by the prehospital professional? Or, is his/her crying or agitation unrelieved by gentle assurance?
 - d. Look/Glaze – Does he/she fix his/her gaze on a face? Or, is there an empty, blank stare?
 - e. Speech/Cry – Is his/her cry strong and spontaneous, or weak or high-pitched? Is the content of the speech age-appropriate, or confused or garbled?
 - f. Obvious respiratory distress/increased work of breathing: retractions, nasal flaring, accessory muscle use, head bobbing, grunting.
 - g. Color: pink, pale, blushed, cyanotic, mottled.
 - h. Position of the patient. Are the head, neck or arms being held in a position suggestive of spinal injury, chest pain, severe dyspnea, etc.? Is the patient sitting up or tripodding?
 - i. Muscle tone: good vs. limp. Is he/she moving or resisting examination vigorously? Does he/she have good muscle tone? Or, is he/she limp, listless or flaccid?
 - j. Movement: spontaneous, purposeful, or symmetrical.
 - k. Obvious injuries, bleeding, bruising, impaled objects or gross deformities.
 - l. Assess for pain.
 - m. Determine weight – ask child or caretakers or use length/weight tape.
4. Initial Assessment – Assess the patient’s Circulation, Airway, Breathing, and Disability.
- a. Refer to the C, A, B, and D Basic Concepts, and correct life-threatening problems as identified.
 - b. Expose and Examine
 - Expose the patient as appropriate, based on age and severity of illness.
 - Initiate measures to prevent heat loss and hypothermia.
 - c. Check for Medic Alert tags.
5. Form a general impression of the patient’s condition, and identify priority transports.
6. Focused History/Physical Assessment
- a. Tailor assessment to the needs of the patient. Rapidly examine areas specific to the chief complaint.
 - b. Patient History – Acquire during/incorporate into physical exam.
 - c. Signs & Symptoms as they relate to the chief complaint. Include pertinent positives and negatives.
 - Onset
 - Provocation
 - Quality
 - Radiation
 - Symptoms
 - Time
 - d. Allergies to medications, foods, environment.
 - e. Medications: prescribed and over-the-counter; compliance with prescribed dosing regimen; time, date and amount of last dose.

f. Past Medical History

- Pertinent medical or surgical problems.
- Preexisting diseases/chronic illness.
- Previous hospitalizations.
- Currently under medical care?
- For infants, obtain a neonatal history (gestation, prematurity, problems with pregnancy or delivery, congenital anomalies, was infant discharged home at the same time as the mother).

g. Last oral intake of liquid/food, Last menstrual period (when applicable).

h. Events leading to present condition.

- Associated factors such as toxic inhalants, drugs, alcohol.
- Injury scenario and mechanism of injury.
- Treatment given by caregiver.
- Assess pain using 0-10 scale or Wong-Baker faces.

7. Vital signs:

- a. Respirations.
- b. Pulse.
- c. Blood pressure.
- d. Pulse oximetry, Capnography if available.

8. Detailed Physical Exam (illness or injury specific when appropriate)

- a. Systematic head to toe exam performed to detect non-life threatening conditions and to provide care for those conditions/injuries.
- b. Usually performed enroute.
- c. Inspect and palpate each of the major body systems for the following:

- Deformities
- Contusions
- Abrasions
- Penetrations/punctures
- Burns
- Lacerations
- Swelling/edema
- Tenderness
- Instability
- Crepitus

9. Ongoing Assessment

- a. Reassess ABCD's and Vital Signs.
- b. At *minimum*, every 5 minutes for unstable patients and every 15 minutes for stable patients.
- c. Potentially unstable patients are those with vital signs outside the range of normal or those suffering from an illness or injury that may reasonably result in abnormal vital signs.

*The pediatric patient is generally considered one \leq 16 years of age.

SPINAL MOTION RESTRICTION DECISION ALGORITHM

1. Does the patient have a concerning mechanism of injury, including but not limited to:

- a. High speed MVC, ejection
- b. Motorcycle
- c. Falls > 3 times patient's height
- d. Axial Load
- e. Diving Accidents
- f. Penetrating Wound In or Near Spinal Column
- g. Sports Injuries to Head or Neck

If Yes, institute spinal motion restriction.

2. Is the patient unreliable?

- a. Is he/she not calm, cooperative, sober, and alert?
- b. Is there:
 - i. A language barrier/communication barrier
 - ii. A distracting injury (clinically apparent painful injury that is diverting the patient's focus from the provider's assessment)
 - iii. An acute stress reaction
 - iv. Intoxication
 - v. Abnormal mental status
 - vi. A distracting injuries

If Yes, institute spinal motion restriction.

3. Abnormal motor/sensory exam (weakness, sensory abnormality or a history of a temporary deficit)?

If Yes, institute spinal motion restriction.

4. Spinal pain or tenderness?

- a. On palpation of each vertebral body, look for evidence of pain and ask the patient if they are experiencing pain. If evidence of pain along the spinal column is encountered, the patient should be immobilized.

If Yes, institute spinal motion restriction.

5. If the capable patient is found to be pain free, ask the patient to turn their head first to one side (so that the chin is pointing toward the shoulder on the same side as the head is rotating) then, if pain free, to the other. Is there evidence of pain?

If the answer to any of the above is Yes, then institute spinal motion restriction.

If the answer to all of the above is No, then the ALS provider may choose to forego spinal motion restriction.

Maintain a higher index of suspicion if the patient has significant injuries to the trunk or head, the patient is < 5 years old or > 65 years old, a language barrier is present, comorbid illness that places patients at risk for fractures (ankylosing spondylitis, osteoporosis, etc.). If any doubt exists, institute spinal motion restriction.