Clinical Indications for 12-lead ECG:

- Suspected cardiac patient or suspected stroke patient
- Resuscitated cardiac arrest patients
- Suspected tricyclic overdose
- Electrical injuries
- Syncope/ near syncope/ unconscious patients
- Unexplained diaphoresis
- Dizziness, faintness, weakness
- Unexplained abdominal/ epigastric pain/ discomfort
- Any patient age ≥35 years with chest pain
- Potential atypical cardiac presentations (female, diabetic, geriatric)

Procedure:

1. Assess patient and monitor cardiac status.
2. Administer oxygen as patient condition warrants.
3. If patient is unstable, definitive treatment is the priority. If patient is stable or stabilized after treatment, perform a 12-lead ECG.
4. Prepare ECG monitor and connect patient cable with electrodes.
5. Enter the required patient information (patient name, etc.) into the 12-lead ECG device.
6. Expose chest and prep as necessary. Modesty of the patient should be respected.
7. Apply chest leads and extremity leads using the following landmarks:
   - RA -Right arm (may be placed on proximal arm, upper humerus)
   - LA -Left arm (may be placed on proximal arm, upper humerus)
   - RL -Right leg (may be placed on proximal arm, upper thigh)
   - LL -Left leg (may be placed on proximal arm, upper thigh)
   - V1 -4th intercostal space at right sternal border
   - V2 -4th intercostal space at left sternal border
   - V3 -Directly between V2 and V4
   - V4 -5th intercostal space at midclavicular line
   - V5 -Level with V4 at left anterior axillary line
   - V6 -Level with V5 at left midaxillary line
8. Instruct patient to remain still.
9. Press the appropriate button to acquire the 12-lead ECG.
10. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12 Lead acquisition will be interrupted until the noise is removed.
11. Once acquired, transmit the ECG data, if possible, to the appropriate hospital.
12. Contact the receiving hospital to notify them that a 12-lead ECG has been sent.
13. Monitor the patient while continuing with the treatment protocol.
15. Each 12-lead ECG acquired must be uploaded to the PCR. If unable to download or digitally transfer data, print each 12-lead ECG, scan, and attach to PCR.
16. Any time a 12-lead ECG is acquire, serial 12-lead ECG’s should be considered for comparison.
17. Electrodes should not be ‘pre-loaded’ onto cables prior to a call. Electrodes should only be removed from their packaging and attached to the cables just prior to application.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
STANDARD PLACEMENT OF LIMB LEADS FOR DIAGNOSTIC 12-LEAD ECG

Torso placement of limb leads should be reserved for monitoring (non-diagnostic) purposes only.
Automated External Defibrillation (AED)

Clinical Indications:
- Patients in cardiac arrest (pulseless, non-breathing).
- Age < 8 years, use Pediatric Pads if available.

Contraindication:
* Pediatric patients who are so small that the pads cannot be placed without touching one another.

Procedure:
1. Upon arrival at the patient’s side initiate chest compressions and request additional resources. If multiple rescuers available, one rescuer should provide uninterrupted chest compressions while the AED is being prepared for use. If the arrest occurs while transporting a patient, stop the ambulance, pull over in a safe location, initiate chest compressions and the AED procedure, and request additional resources.
2. Apply defibrillator pads per manufacturer recommendations. Use alternate placement when implanted devices (pacemakers, AICDs) occupy preferred pad positions.
3. Remove any medication patches on the chest and wipe off any residue.
4. If necessary, connect defibrillator leads: white to the anterior chest pad and the red to the posterior pad.
5. Activate AED for analysis of rhythm.
6. **Stop CPR and clear the patient** for rhythm analysis. Keep interruption in CPR as brief as possible.
7. If shock is advised, resume compressions while AED is charging. As soon as the defibrillator has charged **assertively state “CLEAR”** and quickly visualize that no one, including yourself, is in contact with the patient prior to defibrillation. Depress the “shock” button and, immediately after the shock is delivered, resume chest compressions. The sequence of defibrillation charges is preprogrammed for monophasic defibrillators. Biphasic defibrillators will determine the correct joules accordingly.
8. Begin CPR (chest compressions and ventilations) immediately after the delivery of the defibrillation.
9. After 2 minutes of CPR, analyze rhythm and defibrillate if indicated. Repeat this step every 2 minutes.
10. If “no shock advised” appears, perform CPR for two minutes and then reanalyze.
11. Upon arrival of ALS EMS personnel, provide an SBAR verbal report and provide assistance as needed.
12. **Keep interruption of CPR compressions as brief as possible.** Adequate CPR is a key to successful resuscitation.
14. **AED use by first responders, other healthcare providers, or bystanders must be documented in the patient call report (PCR) Flow Chart as occurring prior to arrival (PTA) of EMS.**

Certification Requirements:
* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Clinical Indications:

- Cardiac arrest with ventricular fibrillation or pulseless ventricular tachycardia

Procedure:

1. Ensure that Chest Compressions are adequate and interrupted only when absolutely necessary.

2. Clinically confirm the diagnosis of cardiac arrest and identify the need for defibrillation.

3. Apply defibrillation pads to the patient’s chest in the proper position
   - Initial: anterior-lateral position (AL)
   - Alternate: anterior-posterior (AP)

For patients with implanted pacers/defibrillators, pads can be in AP or AL positions. The presence of implanted pacers/defibrillators should not delay defibrillation. Attempt to avoid placing paddles or pads directly above device.

4. Set the appropriate energy level

5. Charge the defibrillator to the selected energy level. **Continue chest compressions while the defibrillator is charging.**

6. Hold Compressions, assertively state “CLEAR”, and quickly visualize that no one, including yourself, is in contact with the patient.

7. Deliver the counter shock by depressing the shock button. The pause between the last compression before the shock and the first compression after the shock should be limited to as close to five seconds as possible.

8. Immediately resume chest compressions and ventilations for 2 minutes. After 2 minutes of CPR, analyze rhythm and check for pulse only if appropriate for rhythm.

9. Repeat the procedure every two minutes as indicated by patient response and ECG rhythm.

10. Keep interruption of CPR compressions as brief as possible. Adequate and effective CPR is a key to successful resuscitation.

11. In the event that the patient is not in a shockable rhythm, the charge should be ‘dumped’ following the procedure for the monitor/defibrillator being used.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Dual Sequential External Defibrillation

**Clinical Indications:**

- Any patient who has persisted in ventricular fibrillation/tachycardia, without even transient interruption of fibrillation, despite at least 4 external counter shocks.
- At least one of the four previous shocks was delivered using different pads applied so as to produce a different current vector than the first set and all other indicated treatment modalities have been implemented.
- Two system cleared paramedics have verified the persistence of the arrhythmia as persistent ventricular fibrillation without even transient interruption.

**Procedure:**

1. Ensure quality of CPR is not compromised during prolonged efforts.
2. Prepare the sites for attachment of an additional set of external defibrillation pads by drying the sites and minimizing interference of hair or other obstacles to good pad adhesion.
3. Apply a new set of external defibrillation pads adjacent to, but not touching the pad set currently in use.
4. Assure that controls for the second cardiac monitor are accessible to Medical Branch.
5. Medical Branch will verify that the resuscitation protocol has been fully executed up to this point.
6. On rhythm check, Medical Branch will confirm the rhythm:
   - If a shockable rhythm is detected, CPR will resume immediately. Medical Branch will verify that both cardiac monitor/defibrillators are attached to the patient, that all pads are well adhered, and direct the simultaneous charging of both attached cardiac monitors. Chest compressions will continue while the defibrillators are charging. When both monitors are charged to maximum energy, Medical Branch will announce “Stop CPR”, verify quickly that all persons are clear, and then both shock buttons as synchronously as possible. CPR will resume as soon as both shocks are delivered.
   - If a non-shockable rhythm is present care will resume according to the appropriate protocol.
7. Additional documentation is necessary in the PCR to clarify when a dual sequential external defibrillation is administered. This should be accomplished by the addition of a “General Comments’ entry in the Flow Chart of the PCR immediately following the defibrillation entry.

**Certification Requirements:**

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Patients with symptomatic bradycardia (less than 60 per minute) with signs and symptoms of inadequate cerebral or cardiac perfusion such as:
  - Chest Pain
  - Hypotension
  - Pulmonary Edema
  - Altered Mental Status, Confusion, etc.
  - Ventricular Ectopy

Procedure:

1. Attach standard four/five-lead electrodes.

2. Apply defibrillation/pacing pads to chest and back:
   - One pad to left mid chest next to sternum
   - One pad to mid left posterior chest next to spine.

3. Rotate selector switch to pacing option.

4. Adjust heart rate to 70 BPM for an adult and 100 BPM for a child.
   - For Philips MRx monitor, after setting rate and output, press ‘start’.

5. Note pacer spikes on ECG screen.

6. If not already in place for airway management, place an EtCO2 sensor and monitor capnography waveforms and capnometry values. An increase in EtCO2 values will be an early indicator of mechanical capture.

7. Slowly increase output until capture of electrical rhythm on the monitor.

8. If unable to capture while at maximum current output, stop pacing immediately.

9. If capture observed on monitor, check for corresponding pulse and assess vital signs.

10. Consider the use of sedation or analgesia if patient is uncomfortable.

11. Document the dysrhythmia and the response to external pacing in the PCR; if unable to digitally transfer the data from the cardiac monitor into the PCR, pre- and post-pacing ECG strips should be printed, scanned, and attached to the PCR.

12. External pacing has been shown to provide no benefit in the setting of cardiac arrest and should not be used in the case of a pulseless patient.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Cardiopulmonary Resuscitation (CPR)

Clinical Indications:

- Basic life support for the patient in cardiac arrest

Procedure:

1. Within 10 seconds, assess the patient’s level of consciousness (shake and shout) and check pulse.
2. Check for carotid pulse in adults and older children, brachial pulse for infants. If no pulse or if you are unsure if there is a pulse, begin continuous chest compressions based on the chart below:

<table>
<thead>
<tr>
<th>Age</th>
<th>Location</th>
<th>Depth</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>Over sternum, between nipples</td>
<td>1/3 depth of anterior/posterior</td>
<td>100 – 120 per minute</td>
</tr>
<tr>
<td></td>
<td>(inter-mammary line), 2-3 fingers</td>
<td>depth</td>
<td>(metronomes set for 116 per minute)</td>
</tr>
<tr>
<td>Child</td>
<td>Over sternum, just cephalad from xyphoid</td>
<td>1/3 depth of anterior/posterior</td>
<td>100 – 120 per minute</td>
</tr>
<tr>
<td></td>
<td>process, heel of one hand</td>
<td>depth</td>
<td>(metronomes set for 116 per minute)</td>
</tr>
<tr>
<td>Adult</td>
<td>Over sternum, just cephalad from xyphoid</td>
<td>≥2 inches</td>
<td>100 – 120 per minute</td>
</tr>
<tr>
<td></td>
<td>process, hands with interlocked fingers</td>
<td></td>
<td>(metronomes set for 116 per minute)</td>
</tr>
</tbody>
</table>

3. Go to Cardiac Arrest Procedure. Continue continuous chest compressions and begin ventilations in the age appropriate Cardiac Arrest Protocol.
4. Provide 8 - 12 breaths per minute with the BVM. Use EtCO₂ to guide your ventilations as directed in the Cardiac Arrest Protocol. Ventilations should be timed with the Res-QPOD flashing lights.
5. Chest compressions should be provided in an uninterrupted manner. Only brief interruptions (≤5-10 seconds) should be undertaken for rhythm analysis and defibrillation. Compressors should be rotated at two (2) minute intervals. **Full recoil must be allowed for each compression.**
6. Utilize feedback from monitor/defibrillators, Q-CPR, and metronome to guide compressions.
7. Document the time and procedure in the Patient Care Report (PCR) Flow Chart that CPR is initiated, to include restarting after a loss of ROSC. Documentation must include who performed CPR, to include fire department personnel and bystanders. Additionally, when CPR is terminated, either for a discontinuation of efforts or ROSC, this must be documented in the PC Flow Chart.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.

Procedure 5

This procedure has been altered from the original NCCEP Procedure by the Johnston County EMS System Medical Director
Cardioversion

Clinical Indications:

- Unstable patient with a tachydysrhythmia (rapid atrial fibrillation, supraventricular tachycardia, ventricular tachycardia)
- Patient is not pulseless (the pulseless patient requires unsynchronized cardioversion, i.e., defibrillation)

Procedure:

1. Ensure the patient is attached properly to a monitor/defibrillator capable of synchronized cardioversion.

2. Have all equipment prepared for unsynchronized cardioversion/defibrillation if the patient fails synchronized cardioversion and the condition worsens.

3. Consider the use of pain or sedating medications.

4. Set energy selection to the appropriate setting. First cardioversion is at 100J then max settings.

5. Set monitor/defibrillator to synchronized cardioversion mode.

6. Make certain all personnel are clear of patient.

7. Press and hold the shock button to cardiovert. Stay clear of the patient until you are certain the energy has been delivered. NOTE: It may take the monitor/defibrillator several cardiac cycles to "synchronize", so there may be a delay between activating the cardioversion and the actual delivery of energy.

8. Note patient response and perform immediate unsynchronized cardioversion/defibrillation if the patient’s rhythm has deteriorated into pulseless ventricular tachycardia/ventricular fibrillation, following the procedure for Defibrillation-Manual.

9. If the patient’s condition is unchanged, repeat steps 2 to 8 above, using escalating energy settings.

10. Repeat until maximum setting or until efforts succeed. Consider discussion with medical control if cardioversion is unsuccessful after 2 attempts.


Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the local EMS System. Assessment should include direct observation at least once per certification cycle, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications for Blind Insertion Airway Device (BIAD) Use:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances require a more advanced airway.
- A situation in which it is more appropriate to utilize a King airway due to patient access or expected difficulty with intubation.
- Patient must be unconscious.

Procedure:

1. Preoxygenate the patient. Do not hyperventilate.
2. Select the appropriate tube size for the patient.
3. Lubricate the tube.
4. Grasp the patient’s tongue and jaw with your gloved hand and pull forward.
5. Gently insert the tube rotated laterally 45-90 degrees so that the blue orientation line is touching the corner of the mouth. Once the tip is at the base of the tongue, rotate the tube back to midline. Insert the airway until the base of the connector is in line with the teeth and gums.
6. Inflate the pilot balloon with 45-90 ml of air depending on the size of the device used. Utilize inflation chart. DO NOT OVER INFLATE.
7. Ventilate the patient while gently withdrawing the airway until the patient is easily ventilated.
8. Auscultate for breath sounds and sounds over the epigastrium and look for the chest to rise and fall.
9. The large pharyngeal balloon secures the device.
10. Confirm tube placement using capnography and breath sounds. If unsure of placement, remove airway device and ventilate with BVM / OPA.
11. Secure airway with commercial device or tape, then place a cervical collar.
12. Once the airway is secured, ensure that the BVM mask travels with the patient at all times in case of BIAD failure.
13. Airway should be monitored continuously through waveform capnography and pulse oximetry.
14. Ventilations should be controlled at 8-12 per minute. Do not hyperventilate.
15. An Airway Evaluation Form should be completed with any BIAD use.
16. Document King LT size, time, result, and placement location by the centimeter (cm) mark either at the patient’s teeth or lips on the patient care report (PCR). Additionally, document all devices/methods used to confirm device placement and positive or negative lung sounds before and after every patient movement.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Nasotracheal Intubation

Clinical Indications:

* A spontaneously breathing patient in need of intubation (inadequate respiratory effort, evidence of hypoxia or carbon dioxide retention, or need for airway protection).
* Rigidity or clenched teeth prohibiting other airway procedures.
* Patient must be 12 years of age or older.

Procedure:

1. Premedicate the patient with nasal spray.
2. Select the largest and least obstructed nostril and insert a lubricated nasal airway to help dilate the nasal passage.
3. Preoxygenate the patient. Lubricate the tube. The use of a BAAM device is recommended.
4. Remove the nasal airway and gently insert the tube keeping the bevel of the tube toward the septum.
5. Continue to pass the tube listening for air movement and looking for to and fro vapor condensation in the tube. As the tube approaches the larynx, the air movement gets louder.
6. Gently and evenly advance the tube through the glottic opening on the inspiration. This facilitates passage of the tube and reduces the incidence of trauma to the vocal cords.
7. Upon entering the trachea, the tube may cause the patient to cough, buck, strain, or gag. Do not remove the tube! This is normal, but be prepared to control the cervical spine and the patient, and be alert for vomiting.
8. Auscultate for bilaterally equal breath sounds and absence of sounds of the epigastrium. Observe for symmetrical chest expansion. The 15mm adapter usually rests close to the nostril with proper positioning.
9. Inflate the cuff with 5-10 cc of air.
10. Confirm tube placement using EtCO₂ monitoring.
11. Secure the tube. Place a cervical collar to help prevent dislodgement of the tube.
12. Reassess airway and breath sounds after transfer to the stretcher and during transport. These tubes are easily dislodged and require close monitoring and frequent reassessment.
13. It is required that the airway be monitored continuously through EtCO₂ waveform capnography and pulse oximetry.
14. It is required that an Airway Evaluation Form be completed with all intubations.
15. Document ET tube size, time, result, and placement location by the centimeter (cm) mark at the patient’s nare on the patient care report (PCR) Flow Chart. Additionally, document all devices/methods used to confirm device placement and positive or negative lung sounds before and after every patient movement.

Certification Requirements:

* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Endotracheal Intubation

Clinical Indications:

- Inability to adequately ventilate a patient with a Bag Valve Mask or longer EMS transport distances may require a more advanced airway.
- An unconscious patient without a gag reflex who is apneic or is demonstrating inadequate respiratory effort.

Procedure:

1. Prepare, position, and oxygenate the patient with 100% oxygen.
2. Select proper ET tube (and stylette, if used), have suction ready.
3. Using laryngoscope, visualize vocal cords. (Use Sellick maneuver/BURP to assist you).
4. Limit each intubation attempt to 30 seconds with BVM between attempts.
5. Visualize tube passing through vocal cords.
6. **Confirm and document tube placement using EtCO₂ monitoring.**
7. Inflate the cuff with 3-to10 cc of air; secure the tube to the patient’s face.
8. Auscultate for bilaterally equal breath sounds and absence of sounds over the epigastrium. If you are unsure of placement, remove tube and ventilate patient with bag-valve mask.
9. Consider using a Blind Insertion Airway Device if intubation efforts are unsuccessful.
10. After the tube is secure, place a cervical collar to help stabilize the patient’s head and neck to prevent dislodgement of the tube.
11. **Document ETT size, time, result (success), and placement location by the centimeter marks either at the patient’s teeth or lips on/with the patient care report (PCR) Flow Chart.** Document all devices and procedures used to confirm initial tube placement. Also document positive or negative breath sounds before and after each movement of the patient.
12. Consider placing an NG or OG tube to clear stomach contents after the airway is secured with an ET tube.
13. **It is required that the airway be monitored continuously through EtCO₂ waveform capnography and pulse oximetry.** Obtain and record readings upon placement, after every patient movement, during transport, and upon arrival at the facility. If there is any doubt as to the placement of the ET tube, withdraw it immediately and begin BVM ventilations.
   - **Verify placement of the ETT after every patient move.**
14. **It is required that an Airway Evaluation Form be completed with all intubations**

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Continuous Positive Airway Pressure (CPAP)

Clinical indications for Continuous Positive Airway Pressure (CPAP) use:

- CPAP is indicated in patients for whom inadequate ventilation is suspected. This could be as a result of pulmonary edema, pneumonia, COPD, asthma, etc. In asthmatic patients, continuous monitoring is required to reduce the risk of respiratory depression or arrest.

Clinical contraindications for Continuous Positive Airway Pressure (CPAP) use:

- Decreased Mental Status.
- Hypotension
- Facial features or deformities that prevent an adequate mask seal.
- Excessive respiratory secretions.

Procedure:

1. Assemble the equipment and ensure adequate oxygen supply to ventilation device.
2. Explain the procedure to the patient.
3. Consider placement of a nasopharyngeal airway.
4. Place a nasal-type EtCO₂ sensor over the patient’s face prior to applying the CPAP face mask.
5. Choose the appropriate PEEP setting:
   - 5 – 10 cmH₂O for Pulmonary Edema, Near Drowning, possible aspiration or pneumonia
   - 5 cm H₂O for COPD or Asthma.
6. Place the delivery mask over the mouth and nose. Oxygen should be flowing through the device at this point.
7. Secure the mask with provided straps until minimal air leak occurs, using the least amount of pressure to make a seal.
8. Evaluate the response of the patient assessing breath sounds, oxygen saturation, and general appearance.
9. Titrate oxygen levels to the patient’s response. Many patients respond to low FIO2 (30-50%).
10. Encourage the patient to allow forced ventilation to occur. Observe closely for signs of complications. The patient must be breathing for optimal use of the CPAP device.
11. Monitor the patient’s condition for improvement, including respiratory rate, mental status, and SpO₂.
   - If the patient’s condition is improving continue to monitor.
   - If the patient’s condition is not improving, adjust the PEEP setting.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Cricothyrotomy (Quick Trach)

Clinical Indications:

- Surgical Airway as indicated by the Failed Airway Protocol
- Management of an airway when standard airway procedures cannot be performed or have failed in a patient > 12 years old

Procedure:

1. Pre-oxygenate patient when possible
2. Assemble all available additional personnel
3. Locate cricothyroid membrane at the inferior portion of the thyroid cartilage (with head in neutral position, membrane is approximately 3 finger widths above the sternal notch).
4. Have assistant hold skin taut over membrane and locate the midline.
5. Prep area with betadine if possible.
6. Hold the needle bevel up at a 90 degree angle, aimed inferiorly as you approach the skin.
7. Puncture the skin with the needle and continue with firm, steady pressure while aspirating for air with the syringe.
8. As soon as air is aspirated freely, stop advancing the needle/airway assembly.
9. Modify the angle to 60 degrees from the head and advance to level of the stopper.
10. Remove the stopper while holding the needle/airway assembly firmly in place. Do not advance the needle further. (NOTE: if the patient is obese and no air can be aspirated with the stopper in place, you may remove the stopper and continue advancing until air is aspirated. Be aware that without the stopper, risk of perforating the posterior aspect of the trachea is greatly increased.)
11. Hold the needle and syringe firmly and slide only the plastic cannula along the needle into the trachea until the flange rests on the neck. Carefully remove the needle and syringe.
12. Secure the cannula with the neck strap.
13. Apply the EtCO₂ detector, then the connecting tube to the EtCO₂ detector and connect the other end to the BVM.
14. Confirm placement with the use of breath sounds, pulse ox, and EtCO₂.
15. Ensure 100% FiO₂ to BVM via supplemental O₂.
16. Document the time the procedure was performed, the indications, and the patient’s response in the patient care report (PCR) Flow Chart.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Endotracheal Tube Introducer (Bougie)

Clinical Indications:

- Patients meet clinical indications for oral intubation
- Initial intubation attempt(s) unsuccessful
- Predicted difficult intubation

Contraindications:

- Three attempts at orotracheal intubation (utilize failed airway protocol)
- Age less than eight (8) or endotracheal tube (ETT) size less than 6.5 mm

Procedure:

1. Prepare, position and oxygenate the patient with 100% oxygen;
2. Select proper ETT without stylet, test cuff, and prepare suction;
3. Lubricate the distal end and cuff of the ETT and the distal 1/2 of the Endotracheal Tube Introducer (Bougie) (note: failure to lubricate the Bougie and the ETT may result in being unable to pass the ETT);
4. Using laryngoscopic techniques, visualize the vocal cords if possible using Sellick’s/BURP as needed;
5. Introduce the Bougie with curved tip anteriorly and visualize the tip passing the vocal cords or above the arytenoids if the cords cannot be visualized;
6. Once inserted, gently advance the Bougie until you meet resistance or “hold-up” (if you do not meet resistance you have a probable esophageal intubation and insertion should be re-attempted or the failed airway protocol implemented as indicated);
7. Withdraw the Bougie ONLY to a depth sufficient to allow loading of the ETT while maintaining proximal control of the Bougie;
8. Gently advance the Bougie and loaded ETT until you have hold-up again, thereby assuring tracheal placement and minimizing the risk of accidental displacement of the Bougie;
9. While maintaining a firm grasp on the proximal Bougie, introduce the ETT over the Bougie passing the tube to its appropriate depth;
10. If you are unable to advance the ETT into the trachea and the Bougie and ETT are adequately lubricated, withdraw the ETT slightly and rotate the ETT 90 degrees COUNTER clockwise to turn the bevel of the ETT posteriorly. If this technique fails to facilitate passing of the ETT you may attempt direct laryngoscopy while advancing the ETT(this will require an assistant to maintain the position of the Bougie and, if so desired, advance the ETT);
11. Once the ETT is correctly placed, hold the ETT securely and remove the Bougie;
12. Confirm tracheal placement according to the intubation protocol, inflate the cuff with 3 to 10 cc of air, auscultate for equal breath sounds and reposition accordingly;
13. When final position is determined secure the ETT, reassess breath sounds, apply EtCO₂ monitor, and record and monitor readings to assure continued tracheal intubation.
14. Document use of the Bougie in the Flow Chart of the PCR as a General Comment to indicate the time of the procedure with the results.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Tracheostomy Tube Change

Clinical Indications:

- Presence of tracheostomy site.
- Urgent or emergent indication to change the tube, such as obstruction that will not clear with suction, dislodgement, or inability to oxygenate/ventilate the patient without other obvious explanation.

Procedure:

1. Have all airway equipment prepared for standard airway management, including equipment of orotracheal intubation and failed airway.
2. Have airway device (endotracheal tube or tracheostomy tube) of the same size as the tracheostomy tube currently in place as well as 0.5 size smaller available (e.g., if the patient has a #6.0 Shilley, then have a 6.0 and a 5.5 tube).
3. Lubricate the replacement tube(s) and check the cuff.
4. Remove the tracheostomy tube from mechanical ventilation devices and use a bag-valve apparatus to pre-oxygenate the patient as much as possible.
5. Once all equipment is in place, remove devices securing the tracheostomy tube, including sutures and/or supporting bandages.
6. If applicable, deflate the cuff on the tube. If unable to aspirate air with a syringe, cut the balloon off to allow the cuff to lose pressure.
7. Remove the tracheostomy tube.
8. Insert the replacement tube. Confirm placement via standard measures except for esophageal detection (which is ineffective for surgical airways).
9. If there is any difficulty placing the tube, re-attempt procedure with the smaller tube.
10. If difficulty is still encountered, use standard airway procedures such as oral bag-valve mask or endotracheal intubation (as per protocol). More difficulty with tube changing can be anticipated for tracheostomy sites that are immature – i.e., less than two weeks old. Great caution should be exercised in attempts to change immature tracheotomy sites.
11. Document procedure, confirmation, patient response, and any complications in the PCR

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment for this skill should include direct observation at least once per certification cycle.
Ventilator Operation

Clinical Indications:
- Management of the ventilation of a patient during a prolonged or interfacility transport of an intubated patient.

Procedure:
1. Transporting personnel should review the operation of the ventilator with the treating personnel (physician, nurse, or respiratory therapy) in the referring facility prior to transport if possible.
2. All ventilator settings, including respiratory rate, FiO₂, mode of ventilation, and tidal volumes should be recorded prior to initiating transport. Additionally, the recent trends in oxygen saturation experienced by the patient should be noted.
3. Prior to transport, specific orders regarding any anticipated changes to ventilator settings as well as causes for significant alarm should be reviewed with the referring medical personnel as well as medical control.
4. Once in the transporting unit, confirm adequate oxygen delivery to the ventilator.
5. Frequently assess breath sounds to assess for possible tube dislodgment during transfer.
6. Frequently assess the patient’s respiratory status, noting any decreases in oxygen saturation or changes in tidal volumes, peak pressures, etc.
7. Note any changes in ventilator settings or patient condition in the PCR.
8. Consider placing an NG or OG tube to clear stomach contents.
9. It is required that the airway be monitored continuously through EtCO₂ waveform capnography and pulse oximetry.
10. If any significant change in patient condition, including vital signs or oxygen saturation or there is a concern regarding ventilator performance/alarm, remove the ventilator from the endotracheal tube and use a bag-valve mask with 100% O₂. Contact medical control immediately.
11. If at all possible, if the patient being transported on a ventilator is being transferred from another ambulance, the personnel familiar with the ventilator should accompany the JCEMSS ambulance.

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Foreign Body Airway Obstruction

Clinical Indications:

- Sudden onset of respiratory distress, often with coughing, wheezing, gagging, or stridor due to a foreign-body obstruction of the upper airway.

Procedure:

1. Assess the degree of foreign body obstruction
   - Do not interfere with a mild obstruction allowing the patient to clear their airway by coughing.
   - In severe foreign-body obstructions, the patient may not be able to make a sound. The victim may clutch his/her neck in the universal choking sign.

2. **For an infant**, deliver 5 back blows (slaps) followed by 5 chest thrusts repeatedly until the object is expelled or the victim becomes unresponsive.

3. **For a child**, perform a subdiaphragmatic abdominal thrust (Heimlich Maneuver) until the object is expelled or the victim becomes unresponsive.

4. **For adults**, a combination of maneuvers may be required.
   - First, subdiaphragmatic abdominal thrusts (Heimlich Maneuver) should be used in rapid sequence until the obstruction is relieved.
   - If abdominal thrusts are ineffective, chest thrusts should be used. Chest thrusts should be used primarily in morbidly obese patients and in the patients who are in the late stages of pregnancy.

5. If the victim becomes unresponsive, begin CPR immediately but look in the mouth before administering any ventilations. If a foreign-body is visible, remove it.

6. **Do not perform blind finger sweeps in the mouth and posterior pharynx. This may push the object farther into the airway.**

7. In unresponsive patients, EMT-Intermediate and EMT-Paramedic level professionals should visualize the posterior pharynx with a laryngoscope to potentially identify and remove the foreign-body using Magil forceps.

8. Document the methods used and result of these procedures in the patient care report (PCR) as a General Comment in the Flow Chart to indicate the time of the procedure and results.

**Certification Requirements:**

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Patients experiencing bronchospasm.

Procedure:

1. Gather the necessary equipment.
2. Assemble the nebulizer kit and explain the procedure to the patient as you assemble the nebulizer. Utilize the nebulizer mask with the nebulizer as this ensures that the patient receives more of the medication, especially while talking/answering questions.
3. Instill the premixed drug (such as Albuterol or other approved drug) into the reservoir well of the nebulizer.
4. Apply a nasal cannula type EtCO₂ sensor to the patient prior to applying the nebulizer mask.
5. Connect the nebulizer device to oxygen at 4 - 6 liters per minute or adequate flow to produce a steady, visible mist.
6. Instruct the patient to inhale normally through the mask of the nebulizer.
7. The treatment should last until the solution is depleted. Tapping the reservoir well near the end of the treatment will assist in utilizing all of the solution.
8. Monitor the patient for medication effects. This should include the patient’s assessment of his/her response to the treatment and reassessment of vital signs, ECG, SpO₂, EtCO₂, and breath sounds.
10. The administration of nebulized medications may also be accomplished during CPAP administration. During treatment utilizing portable oxygen sources, the nebulizer must be operated from an oxygen source separate from CPAP.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Impedance Threshold Device (ITD)
(Res-Q-Pod®)

Clinical Indications:

✶ The ITD should be utilized to assist with control of ventilatory rate and improve cardiac preload for patients who are receiving CPR.

✶ It may be utilized with an endotracheal tube, BIAD or with a BVM.

Contraindications:

✶ The ITD should not be utilized for patients who have spontaneous respirations. It should be removed from the endotracheal tube/BVM once spontaneous respirations have returned.

Procedure:

1. Ensure airway is adequate per airway/failed airway protocol.

2. Place the ITD between the EtCO₂ detector and ET tube (for intubated patients), between the EtCO₂ detector and BIAD (for patients being ventilated with a BIAD), or between the BVM and mask (for patients ventilated with the BVM with or without an OPA).

3. Move the switch to the “on” position so that the respiratory timing lights flash.

4. Provide a steady ventilation after each flash of the LED timing lights.

5. Perform chest compressions per the CPR procedure.

6. Once there is return of spontaneous circulation and the EtCO₂ climbs above 40, remove the ITD. Allow the EtCO₂ value to control your respiratory rate (bag faster if EtCO₂ >50, bag slower if EtCO₂ <30). The ITD should also be removed if the patient has spontaneous respirations.

7. Upon removal of the ITD for a patient who regains spontaneous circulation but still must be ventilated, maintain the ITD close by in case of re-arrest, as well as to continue to utilize the respiratory timing lights.

8. Carefully monitor the placement of the endotracheal tube after movement of the patient, placement of the ITD, and/or removal of the ITD.


Certification Requirements:

✶ Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Impedance Threshold Device (ITD)  
(Res-Q-Pod®)
Chest Decompression

Clinical Indications:

- Patients with hypotension (SBP <90), clinical signs of shock, and at least one of the following signs:
  - Jugular vein distention.
  - Tracheal deviation away from the side of the injury (often a late sign).
  - Absent or decreased breath sounds on the affected side.
  - Hyper-resonance to percussion on the affected side.
  - Increased resistance when ventilating a patient.

- In patients with penetrating trauma to the chest or upper back, or gunshot wound to the neck or torso, who are in respiratory distress, a weak or absent radial pulse may be substituted for blood pressure measurement as above; signs of tension pneumothorax listed above may also be present.

- Patients in traumatic arrest with chest or abdominal trauma for whom resuscitation is indicated. These patients may require bilateral chest decompression even in the absence of the signs above.

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Administer high flow oxygen.
3. Identify and prep the site:
   - Locate the second intercostal space in the mid-clavicular line on the same side as the pneumothorax.
   - If unable to place anteriorly, lateral placement may be used at the fourth ICS mid-axillary line.
   - Prepare the site with providone-iodine ointment or solution, or similar solution.
4. Pass the chest decompression needle/catheter through a finger cut from an exam glove prior to insertion. Secure the glove finger with tape or a rubber band. (Note – don’t waste much time preparing the flutter valve; if necessary control the air flow through the catheter hub with your gloved thumb or a saline lock.)
5. Insert the catheter (14 gauge x 3.25 inch for adults, 18 gauge x 1.25 inch for peds) into the skin over the third rib and direct it just over the top of the rib (superior border) into the interspace.
6. Advance the catheter through the parietal pleura until a “pop” is felt and air or blood exits under pressure through the catheter, then advance catheter only to chest wall. NOTE: Due to ambient noise, the escape of air through the catheter may not be heard. A 10cc syringe filled with 5cc of normal saline may be attached to the catheter, prior to insertion, and the escape of air from the chest cavity will cause air bubbles to be visible in the syringe.
7. Remove the needle, leaving the plastic catheter in place.
8. Secure the catheter hub to the chest wall with rolled / folded dressings and tape.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation once per certification cycle.
Pulse Oximetry

Clinical Indications:

- Patients with suspected hypoxemia.
- Assessment of blood oxyhemoglobin

Procedure:

1. Apply probe to patient’s finger or any other digit as recommended by the device manufacturer.

2. Allow machine to register saturation level.

3. If this data is not transferred from the monitor into the PCR, record time and initial saturation percent in the Vital Signs. If at all possible as not to compromise patient care, document a ‘room air’ reading if possible in the patient care report (PCR). That this is a ‘room air’ reading needs to be clarified as a General Comment in the Flow Chart.

4. Verify pulse rate on machine with actual pulse of the patient.

5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.

6. Document percent of oxygen saturation every time vital signs are recorded and in response to therapy to correct hypoxemia.

7. In general, normal saturation is 97-99%. If below 94%, suspect a respiratory compromise.

8. Use pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.

9. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings. Supplemental oxygen is not required if the oxyhemoglobin saturation is ≥94%, unless there are obvious signs of heart failure, dyspnea, or hypoxia.

10. Factors which may reduce the reliability of the pulse oximetry reading include:
   a. Poor peripheral circulation (blood volume, hypotension, hypothermia)
   b. Excessive pulse oximeter sensor motion
   c. Fingernail polish (may be removed with acetone pad)
   d. Carbon monoxide bound to hemoglobin
   e. Irregular heart rhythms (atrial fibrillation, SVT, etc.)
   f. Jaundice
   g. Placement of BP cuff on same extremity as pulse ox probe.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Advanced Airway Suctioning

Clinical Indications:

- Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient currently being assisted by an airway adjunct such as a nasotracheal tube, endotracheal tube, King LT airway, tracheostomy tube, or a cricothyrotomy tube.

Procedure:

1. Ensure suction device is in proper working order.
2. Preoxygenate the patient as is possible.
3. Attach suction catheter to suction device, keeping sterile plastic covering over catheter.
4. Using the suprasternal notch and the end of the airway, measure the depth desired for the catheter (judgment must be used regarding the depth of suctioning with cricothyrotomy and tracheostomy tubes).
5. If applicable, remove ventilation devices from the airway.
6. With the thumb port of the catheter uncovered, insert the catheter through the airway device.
7. Once the desired depth (measured in #4 above) has been reached, occlude the thumb port and remove the suction catheter slowly.
8. A small amount of Normal Saline (10 ml) may be used if needed to loosen secretions for suctioning.
9. Reattach ventilation device (e.g., bag-valve mask) and ventilate the patient.
10. Document time and result in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Basic Airway Suctioning

Clinical Indications:

* Obstruction of the airway (secondary to secretions, blood, or any other substance) in a patient who cannot maintain or keep the airway clear.

Procedure:

1. Ensure suction device is in proper working order with suction tip in place.

2. Preoxygenate the patient as is possible.

3. Explain the procedure to the patient if they are coherent.

4. Examine the oropharynx and remove any potential foreign bodies or material which may occlude the airway if dislodged by the suction device.

5. If applicable, remove ventilation devices from the airway.

6. Use the suction device to remove any secretions, blood, or other substance.

7. The alert patient may assist with this procedure.

8. Reattach ventilation device (e.g., bag-valve mask) and ventilate or assist the patient

9. Record the time and result of the suctioning in the patient care report (PCR).

Certification Requirements:

* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Any patient requesting a medical evaluation that is too large to be measured with a Broselow-Luten Resuscitation Tape.

Procedure:

1. Scene size-up, including universal precautions, scene safety and environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction. Scene size-up is an ongoing process and EMS providers should maintain situational awareness.

2. Assess need for additional resources.

3. Initial assessment includes a general impression as well as the status of a patient’s airway, breathing, and circulation.

4. Assess mental status (e.g., AVPU) and disability (e.g., GCS).

5. Control major hemorrhage and assess overall priority of patient’s needs.

6. Perform a focused history and physical examination based on patient’s chief complaint.

7. Assess need for critical interventions.

8. Complete critical interventions and perform a complete secondary exam to include a baseline set of vital signs as directed by protocol.

9. Maintain an on-going assessment throughout transport; to include patient response/possible complications of interventions, need for additional interventions, and assessment of evolving patient complaints/conditions.

10. Document all findings and information associated with the assessment, performed procedures, and any administration of medications on the PCR. All procedures and medication administrations should be listed in the Flow Chart, along with clarifications, which would be listed as a General Comment.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Pain Assessment and Documentation

Clinical Indications:

★ Any patient with pain.

Definitions:

★ Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage.

★ Pain is subjective and is based upon the patient’s perspective, i.e. ‘whatever the patient says it is’.

Procedure:

1. Initial and ongoing assessment of pain intensity and character is accomplished through the patient’s self report.
2. Pain should be assessed and documented in the PCR during initial assessment, before starting pain control treatment, and with each set of vitals.
3. Pain should be assessed using the appropriate approved scale.
4. Three pain scales are available: the 0 – 10, the Wong - Baker “faces”, and the FLACC.

★ 0 – 10 Scale: the most familiar scale used by EMS for rating pain with patients. It is primarily for adults and is based on the patient being able to express their perception of the pain as related to numbers. Avoid coaching the patient; simply ask them to rate their pain on a scale from 0 to 10, where 0 is no pain at all and 10 is the worst pain ever.

★ Wong – Baker “FACES” scale: this scale is primarily for use with pediatrics but may also be used with geriatrics or any patient with a language barrier. The faces correspond to numeric values from 0-10. This scale can be documented with the numeric value.

★ FLACC scale: this scale has been validated for measuring pain in children with mild to severe cognitive impairment and in pre-verbal children (including infants).

Certification Requirements:

★ Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Pediatric Assessment

Clinical Indications:

- Any child that can be measured with the Broselow-Luten Resuscitation Tape or similar color coded measuring device.

Procedure:

1. Scene size-up, including universal precautions, scene safety and environmental hazards assessment, need for additional resources, by-stander safety, and patient/caregiver interaction. Scene size-up is an ongoing process and EMS providers should maintain situational awareness.

2. Assess patient using the pediatric triangle of ABCs:
   - Airway and appearance: speech/cry, muscle tone, inter-activeness, look/gaze, movement of extremities
   - Work of breathing: absent or abnormal airway sounds, use of accessory muscles, nasal flaring, body positioning
   - Circulation to skin: pallor, mottling, cyanosis

3. Initiate spinal precautions if suspicious of spinal injury

4. Establish responsiveness appropriate for age (AVPU, GCS, etc.)

5. Using the Broselow-Luten or similar, color coded tape, establish a weight-size for the patient.

6. Assess disability (pulse, motor function, sensory function, papillary reaction)

7. Perform a focused history and physical exam. Recall that pediatric patients easily experience hypothermia and thus should not be left uncovered any longer than necessary to perform an exam.

8. Record vital signs (BP > 3 years of age, cap refill < 3 years of age)

9. Include immunizations, allergies, medications, past medical history, last meal, and events leading up to injury or illness where appropriate.

10. Treat chief complaint as per protocol.

11. Drug dosing will be accomplished using the Johnston County EMS System Pediatric Drug Dosing Chart and NOT the Broselow-Luten tape drug dosages.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Blood Glucose Analysis

Clinical Indications:

★ Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, etc.).

Procedure:

1. Gather and prepare equipment.
2. Blood samples for performing glucose analysis can be obtained through a finger-stick.
3. Explain the procedure to the patient.
4. Cleanse and prep the site; ensure that the site is dry.
5. Obtain a venous blood sample by piercing the skin with a lancet.
6. Place correct amount of blood on the reagent strip.
7. Document the glucometer reading and treat the patient as indicated by the analysis, presentation, and protocol.
8. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.
9. Check for continued bleeding and apply an adhesive dressing over the test site.
10. Perform Quality Assurance on glucometers at least once every 7 days, if any clinically suspicious readings are noted, and/or as recommended by the manufacturer and document in the log.
11. Blood glucose readings have been shown to be inaccurate in cardiac arrest situations and blood glucose analysis should be deferred until after circulation has been restored.

Certification Requirements:

★ Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
**Clinical Indications:**

- Capnography shall be utilized with all invasive airway procedures including endotracheal and/or nasotracheal intubation, cricothyrotomy, or Blind Insertion Airway Devices (BIAD).
- Capnography should also be used with CPAP.
- Capnography should also be used on all patients experiencing respiratory distress, any patient treated under the cardiac, seizure, trauma, hypotension, and diabetic protocols, and any patient who has received opioids for pain management.

**Precautions:**

- In low perfusion states, such as cardiac arrest, carbon dioxide (CO₂) will not wash out through the lungs as it would normally and provides a low EtCO₂ reading unless adequate CPR is being performed.
- A patient that has recently consumed carbonated beverages may cause a false positive reading if ventilation is attempted through a tube placed in the esophagus – this will also be short lived.
- EtCO₂ should always be used in conjunction with other assessments for endotracheal tube placement, such as lung sounds, chest rise, absence of gastric sounds, tube fogging, and pulse oximetry.

**Procedure:**

1. Attach capnography sensor to the BIAD, endotracheal tube, or as a nasal type sensor.
2. Note EtCO₂ level and waveform changes. These will be documented on each patient as listed in the Clinical Indications listed above.
3. The capnography sensor shall remain in place with the patient and be monitored throughout the prehospital care and transport.
4. Any loss of CO₂ detection or waveform indicates an airway/perfusion problem and should be documented.
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.
6. Document the procedure and results on/with the Patient Care Report (PCR) and the Airway Evaluation Form.

**Certification Requirements:**

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Suspected Stroke Patient

Procedure:

1. Assess and treat suspected stroke patients as per protocol.
2. The Cincinnati Stroke Screen should be completed for all suspected stroke patients.
3. Establish the “Last Known Well” (LKW) time for the patient. This will be presumed time of onset. If the patient woke up with signs/symptoms, then the time the patient went to sleep will be considered as the LKW time. LKW is expressed as a specific time, not a period of time, i.e. As “14:45”, not “45 minutes ago”. LKW must be documented in the PCR Flow Chart and in the specialty stroke page.
4. Perform the screen through physical exam:
   - Look for facial droop by asking the patient to smile.
   - Assess for decreased hand grip strength on one side.
   - Have patient, while sitting upright or standing, extend both arms parallel to floor, close eyes and turn their palms upward. Assess for unilateral drift of arm.
5. One of these exam components must be positive to answer “yes” on the screening form.
6. Evaluate blood glucose level results
7. If the “Last Known Well” time is less than 24 hours, blood glucose is between 60 and 400, and at least one of the physical exam elements is positive, follow the Johnston County EMS System Suspected Stroke Protocol and Destination Plan, alerting the receiving hospital of a possible stroke patient as early as possible.
8. All sections of the Cincinnati screen must be completed
9. The completed Stroke Screening procedure should be documented in the PCR.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Orthostatic Blood Pressure Measurement

Clinical Indications:

- Patient situations with suspected blood, fluid loss, or dehydration with no indication for spinal immobilization.
- Patients ≥ 8 years of age, or patients larger than the Broselow-Luten tape
- Orthostatic Vital Signs are not sensitive nor specific for volume loss/dehydration and may include syncope in some cases. Assessment of orthostatic vital signs are not routinely recommended.

Procedure:

1. Gather and prepare standard sphygmomanometer and stethoscope, or utilize an automatic sphygmomanometer.
2. With the patient supine, obtain pulse and blood pressure.
3. Have the patient sit upright.
4. After 30 seconds, obtain blood pressure and pulse.
5. If the systolic blood pressure falls more than 30 mmHg or the pulse rises more than 20 bpm, the patient is considered to be orthostatic.
6. If a patient experiences dizziness upon sitting or is obviously dehydrated based on history or physical exam, formal orthostatic examination should be omitted and fluid resuscitation initiated.
7. Document the results and resultant treatments in the PCR.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Temperature Measurement

Clinical Indications:

- Monitoring body temperature in a patient with suspected infection, hypothermia, hyperthermia, or to assist in evaluating resuscitation efforts.

Procedure:

1. Multiple methods of temperature management are acceptable; refer to manufacturer’s instructions for these devices as necessary:
   a. For adult patients that are conscious, cooperative, and in no respiratory distress, an oral temperature is preferred (step 2 below).
   b. For adult or pediatric patients being evaluated for a suspected infectious disease, utilization of the touchless temporal thermometer is indicated (step 3 below).
   c. Alternative methods: for infants or adults that do not meet the criteria above, a tympanic temperature may be performed (step 4 below). Rectal temperature measurement (step 5) is also acceptable, as is esophageal temperature probe in the setting of induced hypothermia; follow the Gastric Tube Insertion procedure (Paramedic Only) to place the esophageal probe.

2. To obtain an oral temperature, ensure the patient has no significant oral trauma and place the thermometer under the patient’s tongue with appropriate covering. Have the patient seal his or her mouth closed around thermometer. Leave the device in place until there is indication an accurate temperature has been recorded (per the “beep” or other indicator specific to the device).

3. To obtain a touchless temporal reading, point the device towards the patient’s temple with the device 2-3 inches from skin surface (temporal artery reading) in an enclosed area without wind. Pull the trigger and the unit will beep and give an immediate reading. Additional readings may be obtained after 15 seconds.

4. To obtain a tympanic (ear) temperature, ensure there is no ear trauma, cover the thermometer with an appropriate cover, place the device gently in the external auditory canal, press the button and the unit will beep within seconds and provide a reading.

5. To obtain a rectal temperature, ensure the patient has not suffered any rectal trauma by history and/or brief exam as appropriate for patient’s complaint. Cover the thermometer with an appropriate cover, apply lubricant, and insert into rectum no more than 1 to 2 cm beyond the external anal sphincter.

6. Record time, temperature, method (oral, tympanic, temporal, esophageal, rectal), and scale (C° or F°) in Patient Care Report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Paramedic Wellness Check

Indications:

* When patient safety needs to be ensured for patients who are evaluated by paramedics for presumed non-urgent situations and not initiated by 911. This includes patients who are referred by other EMS providers, those identified by query of patient records, and those referred by external entities.

Contraindications:

* Any patient for whom an emergency medical condition exists that would normally be treated under standards Johnston County EMS System protocols, policies, and procedures.

Procedure:

1. Ensure scene safety and at all times make Central aware of your location. When possible remain available for dispatch to calls.
2. Politely introduce yourself to the patient and family.
3. Determine the nature of the visit and record in electronic database (diabetes, CHF, falls, prevention, pediatric asthma, high-risk refusal follow up, or other).
4. For all patients, determine the name of the primary care physician.
5. Assist all patients with medication compliance. If pill minders or refills are needed, note this in the electronic database. It is appropriate to communicate these needs with the primary care physician when possible. Paramedics may not pick up or in other ways transport prescription medications without specific authorization from medical control.
6. If the patient is diabetic, ensure daily blood glucose logs are being maintained. Asymptomatic patients with more than two consecutive blood glucose measurements above 300 should contact their primary care physician within 24 hours. A phone call follow up by the paramedic to ensure glucose is not rising is appropriate. If the blood glucose is rising by more than 50 mg/dl and/or any reading is above 500, transport to the emergency department shall be recommended.
7. If the patient has CHF, ensure the patient has a scale and is performing weight checks. Asymptomatic patients with unexplained weight gain of more than 4 pounds should be referred to their primary care physician within 24 hours.
8. For patients with concerns over falls prevention, ensure there are no loose rugs, handrails are present on all steps and restroom facilities have available handrails and slip resistant surfaces in showers/bath tubs. If these items are needed, note this in the patient call report (PCR).
9. For pediatric asthma patients, assure medications are available. If smoking in home or potential pet allergens is identified, discuss this with the patient’s family and include this in your electronic patient care report.

Certification Requirements:

* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Decontamination

Clinical Indications:

- Any patient who may have been exposed to significant hazardous materials, including chemical, biological, or radiological weapons.

Procedure:

1. In coordination with HazMat and other Emergency Management personnel, establish hot, warm and cold zones of operation.

2. Ensure that personnel assigned to operate within each zone have proper personal protective equipment.

3. In coordination with other public safety personnel, assure each patient from the hot zone undergoes appropriate initial decontamination. This is specific to each incident; such decontamination may include:
   - Removal of patients from Hot Zone
   - Simple removal of clothing
   - Irrigation of eyes
   - Passage through high-volume water bath (e.g., between two fire apparatus) for patients contaminated with liquids or certain solids. Patients exposed to gases, vapors, and powders often will not require this step as it may unnecessarily delay treatment and/or increase dermal absorption of the agent(s).

4. Initial triage of patients should occur after step #3. Immediate life threats should be addressed prior to technical decontamination.

5. Assist patients with technical decontamination (unless contraindicated based on #3 above). This may include removal of all clothing and gentle cleansing with soap and water. All body areas should be thoroughly cleansed, although overly harsh scrubbing which could break the skin should be avoided. Manage patients for hypothermia after decontamination.

6. Place triage identification on each patient. Match triage information with each patient’s personal belongings which were removed during technical decontamination. Preserve these personal affects for law enforcement.

7. Monitor all patients for environmental illness.

8. Treat and transport patients per applicable protocol.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Presence of an epidural catheter in a patient requiring transport

Procedure:

1. Prior to transport, ensure catheter is secure and that transport personnel are familiar with medication(s) being delivered and devices used to control medication administration.
2. No adjustments in catheter position are to be attempted.
3. No adjustments in medication dosage or administration are to be attempted without direct approval from on-line medical control.
4. Report any complications immediately to on-line medical control.
5. Document the time and dose of any medication administration or rate adjustment in the patient care report (PCR) Flow Chart.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
CNS Ventricular Catheter Maintenance

Clinical Indications:

- Transport of a patient with an intra-ventricular catheter in place

Procedure:

1. Prior to transport, ensure the catheter is secure.
2. Prior to transport, determine from the referring hospital/physician the desired patient position (e.g., supine, head of bed elevated 30 degrees, etc.).
3. Prior to transport, determine the height at which the drain is to be maintained, given the patient position desired from #2 above (if applicable).
4. Do not manipulate or move the drain.
5. If the patient or height of the drain is altered, immediately correct based on the pre-determined configuration in step 2 and 3 above.
6. Report any problems immediately to on-line medical control.
7. Document the time and any adjustments or problems in the patient care report (PCR) Flow Chart.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Gastric decompression in intubated patients. Do not administer charcoal via an NG tube.

Procedure:

1. Estimate insertion length by superimposing the tube over the body from the nose to the stomach.
2. Flex the neck if not contraindicated to facilitate esophageal passage.
3. Liberally lubricate the distal end of the tube and pass through the patient’s nostril along the floor of the nasal passage. Do not orient the tip upward into the turbinates. This increases the difficulty of the insertion and may cause bleeding.
4. In the setting of an unconscious, intubated patient or a patient with facial trauma, oral insertion of the tube may be considered or preferred.
5. Continue to advance the tube gently until the appropriate distance is reached.
6. Confirm placement by injecting 20cc of air and auscultate for the swish or bubbling of the air over the stomach. Additionally, aspirate gastric contents to confirm proper placement.
7. Secure the tube.
8. Decompress the stomach of air and food either by connecting the tube to suction or manually aspirating with the large catheter tip syringe.
9. Document the procedure, time, and result (success) on/with the patient care report (PCR) as a General Comment.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Intranasal Medication Administration

Clinical Indications:

* When medication administration is necessary and the medication must be given via the IN route or as an alternative route in selected medications.

Procedure:

1. Receive and confirm medication order or perform according to standing orders.

2. Verify that you have the proper medication, in the proper concentration, that the medication is in date, and that the medication is safe for IN administration.

3. Prepare equipment and medication, expelling excess air from the syringe. Attach the MAD device to the syringe.

4. Explain the procedure to the patient and reconfirm patient allergies.

5. Place the MAD device gently but firmly against the nasal opening.

* Injection volume should not exceed 1-2 cc.

6. Depress the syringe briskly to administer the medication.

7. Withdraw the syringe and MAD device and dispose of properly.

8. Monitor the patient for the desired therapeutic effects as well as any possible side effects.

9. Document the medication, dose, route, and time on/with the patient care report (PCR).

Certification Requirements:

* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.

Procedure 35

This procedure has been altered from the original NCCEP Procedure by the Johnston County EMS System Medical Director 2016
Intramuscular and Subcutaneous Medication Administration

Clinical Indications:
- When medication administration is necessary and the medication must be given via the IM or SQ route.

Procedure:
1. Receive and confirm medication order or perform according to standing orders.
2. Verify that you have the proper medication, in the proper concentration, that the medication is in date, and that the medication is safe for IM/SQ administration.
3. Prepare equipment and medication expelling air from the syringe.
4. Explain the procedure to the patient and reconfirm patient allergies.
5. The possible injection sites for intramuscular injections include the arm, buttock and thigh.
   - Injection volume should not exceed 1 cc for the arm.
   - Injection volume should not exceed 2 cc in the thigh or buttock.
6. The thigh should be used for injections in pediatric patients and injection volume should not exceed 1 cc.
7. Expose the selected area and cleanse the injection site with alcohol.
8. If administering medication from a pre-filled syringe (e.g. naloxone):
   a. Attach a suitable needle to the syringe,
   b. Expel excess air from the syringe.
9. If administering medication that must be withdrawn from a vial (e.g. diphenhydramine):
   a. Remove the vial's protective cap and clean the withdrawal site with an alcohol prep,
   b. Attach a suitable needle onto the syringe,
   c. Draw the same volume of air into the syringe as is to be withdrawn from the vial,
   d. Insert the needle/syringe into the top of the vial, inject the air, and withdraw the desired medication amount.
   e. Expel excess air from the syringe.
10. If administering medication that must be withdrawn from an ampule (e.g. epinephrine 1:1,000):
    a. Ensure that the medication is in the main body of the ampule,
    b. Grasp the tip of the ampule in a gauze pad and gently break the tip from the main body,
    c. Utilizing a filter/filtered needle, withdraw the desired medication into the syringe,
    d. Remove and properly dispose of the filter/filtered needle (without recapping the needle),
    e. Attach a suitable needle to the syringe.
11. Insert the needle into the skin with a smooth, steady motion
    
    SQ: 45-degree angle skin pinched
    IM: 90-degree angle skin flattened

12. Aspirate for blood
13. Inject the medication.
14. Withdraw the needle/syringe quickly and dispose of properly without recapping.
15. Apply pressure to the site and apply an adhesive dressing.
16. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
17. Document the medication, dose, route, and time on/with the patient care report (PCR).

Certification Requirements:
- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Intravenous and Intraosseous Medication Administration

Clinical Indications:

* When medication administration is necessary and the medication must be given via the IV or IO route.

Procedure:

1. Receive and confirm medication order or perform according to standing orders.
2. Verify that you have the proper medication, in the proper concentration, that the medication is in date, and that the medication is safe for IV/IO administration.
3. Prepare equipment and medication.
4. Explain the procedure, if possible, to the patient and reconfirm patient allergies.
5. If administering medication from a pre-filled syringe (e.g. epinephrine 1:10,000):
   a. Clean the injection port with an alcohol prep pad,
   b. Expel excess air from the syringe,
   c. Attach the syringe to the injection port,
   d. Depress the syringe to administer the medication into the IV/IO access,
   e. Detach the syringe from the access port and dispose of properly,
   f. Dispose of the syringe properly,
   g. Monitor the IV/IO site for infiltration into the surrounding tissue.
6. If administering medication that must be withdrawn from a vial (e.g. diphenhydramine):
   a. Remove the protective cap and clean the withdrawal site with an alcohol prep,
   b. Draw the same volume of air into the syringe as is to be withdrawn from the vial,
   c. Insert the needle into the vial and depress the syringe to inject the air into the vial,
   d. Withdraw the amount of medication needed into the syringe,
   e. Remove the needle from the syringe and dispose of it properly without recapping,
   f. Attach the syringe to the needleless port and inject the medication,
   g. Dispose of the syringe properly,
   h. Monitor the IV/IO site for infiltration into the surrounding tissue.
7. If administering medication that must be withdrawn from an ampule (e.g. epinephrine 1:1,000):
   a. Ensure that the medication is in the main body of the ampule,
   b. Grasp the tip of the ampule in a gauze pad and gently break the tip from the main body,
   c. Utilizing a filter/filtered needle, withdraw the desired medication into the syringe,
   d. Remove and properly dispose of the filter/filtered needle (without recapping the needle),
   e. Attach the syringe to the needleless port and inject the medication,
   g. Dispose of the syringe properly,
   h. Monitor the IV/IO site for infiltration into the surrounding tissue.
14. Monitor the patient for the desired therapeutic effects as well as any possible side effects.
15. Document the medication, dose, route, and time on/with the patient care report (PCR) Flow Chart.

Complications should be listed as a General Comment in the Flow Chart.

Certification Requirements:

* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

∗ Need for spinal precautions as determined by protocol.

∗ Long spine boards (LSB) have both risks and benefits for patients and have not been shown to improve outcomes. The best use of the LSB may be for extricating the unconscious patient or providing a firm surface for compressions. However, several devices may be appropriate for patient extrication and movement, including the scoop stretcher.

∗ Utilization of the LSB should occur in consideration of the individual patient’s benefit vs. risk.

∗ Patients who should receive spinal care precautions include: blunt trauma and distracting injury, intoxication, altered mental status, or neurologic complaint (e.g. numbness or weakness), and non-ambulatory blunt trauma patients with spinal pain, tenderness, or spinal deformity.

∗ Patients with penetrating trauma and no evidence of spinal injury do not require spinal immobilization. Patients who are ambulatory at the scene of blunt trauma (.i.e. motor vehicle crash) in general do not require placement on a LSB, and may or may not require c-collar and spinal precautions.

∗ Placement of a patient on a LSB, scoop stretcher, or other device does not indicate that the patient must remain on that device during transport, except in the case of an unresponsive blunt trauma patient and an unresponsive post-ROSC patient.

∗ Whether or not a LSB is utilized, spinal precautions are STILL VERY IMPORTANT in patients at risk for spinal injury. Adequate spinal precautions may be achieved by placement of a hard cervical collar and ensuring that the patient is secured tightly to the stretcher, ensuring minimal movement and patient transfers, and manual in-line stabilization during any transfers.

Procedure:

After reviewing the scene size-up, the history of present illness, and the physical exam, the provider will choose the most appropriate method from the following four techniques:

A. Spinal Precautions using a Long Spine Board

1. Gather a backboard, straps, cervical collar appropriate for patient’s size, tape, and head blocks / rolls. In the setting of potential hypothermia, a blanket should be folded and secured to the long spine board via tape as to provide a barrier between the patient and the long spine board.

2. Explain the procedure to the patient.

3. Place the patient in an appropriate and properly sized cervical collar while maintaining in-line stabilization of the cervical spine. This stabilization, to be provided by a second provider, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first provider applied the collar.

4. Once the collar is secure, the second provider should still maintain his / her position to ensure stabilization.
5. Place the patient on a long spine board with the lift-and-slide or log-roll technique if the patient is supine or prone. For the patient in a vehicle or otherwise unable to be placed prone or supine, place him/her on a backboard by the safest method available that allows maintenance of in-line spinal stability while preventing excessive movement.

6. Stabilize the patient with appropriate straps and head blocks/rolls and tape. Once the head is secured to the backboard, the second provider may release manual in-line stabilization.

7. Some patients, often due to size or age, will not be able to be immobilized through in-line stabilization with a cervical collar. Never force a patient into a non-neutral position. Such situations may require a second provider, pillows, and/or folded blankets to maintain manual stabilization.

8. Upon placement on the cot, the providers should remove the long spine board from under the patient by an appropriate means. Maintain manual alignment of the head during this process. Head blocks/rolls should be replaced on each side of the patient’s head and secured with tape and appropriate straps placed to secure the patient to the stretcher. If appropriate in the provider’s judgment, the back of the stretcher may be adjusted for the patient’s comfort.

9. Document the procedure in the patient call report. Documentation should include an assessment of the patient’s peripheral neurological status before and after the procedure.

B. Spinal Precautions using a Scoop Stretcher

1. Gather a scoop stretcher, straps, cervical collar appropriate for patient’s size, tape, and head blocks/rolls. In the setting of potential hypothermia, a blanket should be folded and secured to each section of the scoop stretcher via tape as to provide a barrier between the patient and the scoop stretcher.

2. Explain the procedure to the patient

3. Place the patient in a **properly sized** cervical collar while maintaining in-line stabilization of the cervical spine. This stabilization, to be provided by a second provider, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first provider applied the collar.

4. Once the collar is secure, the second provider should still maintain his/her position to ensure stabilization.

5. Unlatch the two sides of the scoop stretcher, place them on either side of the patient, adjust them to the appropriate size, and then slide them together underneath the patient, making sure that all latches are secured.

6. Stabilize the patient with appropriate straps and head blocks/rolls and tape. Once the head is secured to the scoop stretcher, the second provider may release manual in-line stabilization.

7. Some patients, often due to size or age, will not be able to be immobilized through in-line stabilization with a cervical collar. Never force a patient into a non-neutral position. Such situations may require a second provider, pillows, and/or folded blankets to maintain manual stabilization.
8. The scoop stretcher may be placed on the ambulance cot, and then unlatched and removed, allowing the patient to rest directly on the ambulance stretcher mattress.

9. Secure the patient to the ambulance cot with appropriate straps and head blocks / rolls placed on each side of the patient’s head in preparation for transport. If appropriate in the provider’s judgment, the back of the stretcher may be adjusted for the patient’s comfort.

10. Document the procedure in the patient call report. Documentation should include an assessment of the patient’s peripheral neurological status before and after the procedure.

C. Spinal Precautions using a Kendrick Extrication Device

1. Gather a KED and a cervical collar appropriate for patient’s size. Additionally, the curvature of the patient’s spine may result in a significant void between the patient’s upper spine, neck, and head, therefore sufficient padding may also be required. This maybe be fashioned from folded blankets and / or towels.

2. Explain the procedure to the patient.

3. Place the patient in a properly sized cervical collar while maintaining in-line stabilization of the cervical spine. This stabilization, to be provided by a second provider, should not involve traction or tension but rather simply maintaining the head in a neutral, midline position while the first provider applied the collar.

4. Once the collar is secure, the second provider should still maintain his/her position to ensure stabilization.

5. Apply and secure the KED. The patient may then be secured to a long spine board or scoop stretcher for transfer to the ambulance cot.

6. Secure the patient to the ambulance stretcher in preparation for transport. Upon placement on the ambulance cot, the providers should remove the KED and long spine board, first by releasing the KED and sliding it from under the patient towards the feet or head, and then remove the long spine board by an appropriate means. Maintain manual alignment of the head during this process. After the KED and long spine board have been removed, head rolls / blocks should be placed on each side of the patient’s head and secured with tape and appropriate straps placed to secure the patient to the stretcher. If appropriate in the provider’s judgment, the back of the stretcher may be adjusted for the patient’s comfort.

7. Some patients, often due to size or age, will not be able to be immobilized through in-line stabilization with a cervical collar. Never force a patient into a non-neutral position to immobilize him/her. Such situations may require a second provider to maintain manual stabilization.

8. Document the procedure in the patient call report. Documentation should include an assessment of the patient’s peripheral neurological status before and after the procedure.

D. Spinal Precautions using a Cervical Collar and Ambulance Stretcher

1. Gather a cervical collar appropriate for patient’s size.

2. Explain the procedure to the patient.
8. Document the procedure in the patient call report. Documentation should include an assessment of the patient’s peripheral neurological status before and after the procedure.

D. Spinal Precautions using a Cervical Collar and Ambulance Stretcher

1. Gather a cervical collar appropriate for patient’s size.
2. Explain the procedure to the patient.
3. Place the patient in a properly sized cervical collar.
4. Once the cervical collar is secure, the patient should self extricate to a standing position, move to an appropriate position with assistance (if needed), and be allowed to sit down on the ambulance cot and move into a position of comfort. Providers should / may assist in limiting movement of the spine during this process.
5. A patient who is permitted to ‘self-extricate’ with a cervical collar in place does not require the placement of head blocks / rolls if the patient is able to maintain his / her head in a neutral position. If in doubt, place head blocks / rolls on either side of the patient’s head and secure with tape. Secure the patient to the ambulance stretcher in preparation for transport. The back of the stretcher may be adjusted to the patient’s comfort.
6. Some patients, often due to size or age, will not be able to be immobilized through in-line stabilization with a cervical collar. Never force a patient into a non-neutral position to immobilize him/her. Such situations may require a second provider to maintain manual stabilization.
7. Document the time of the procedure in the patient care report.

Additional Considerations:
1. When removing a long spine board, scoop stretcher, or KED from under a patient after placement on the ambulance cot, manual stabilization of the patient’s head should be maintained. Also, support should also be provided for the patient’s torso and pelvis, as well as injured extremities, during this procedure.
2. When securing the patient to the ambulance cot straps should be placed so as to limit forward movement (while supine) of the patient in the event of a sudden deceleration during transport.
3. Option ‘D’ under this procedure is reserved for conscious and alert patients involved in low velocity/damage motor vehicle crashes and, after a careful assessment, have no noted injuries.
4. It is very rare that a patient should require transport while secured to a long spine board or scoop stretcher. This will usually involve a unresponsive, blunt trauma patient or an unresponsive post-ROSC patient. In the event that transport is undertaken while the patient remains on a long spine board or scoop stretcher, suitable blankets and rolled/folded towels should be placed to pad the patient and fill all voids between the patient, straps, and long spine board/scoop stretcher.
5. A patient should never be forcibly secured to a long spine board, scoop stretcher, or ambulance cot. In these instances, sedation should be considered.
6. Some patients, due to size, age, medical condition, or injury, will be able to be placed in the 'standard' supine position for spinal precautions. As an example, a patient experiencing kyphosis will not be able to be placed in a full supine position, rather, there will have to be ample padding placed (pillows, folded blankets, etc.). A pregnant patient in the third trimester (≥26 weeks) or a patient who is vomiting should be placed on her left side, when possible, with proper padding.

7. Athletes in full shoulder pads and helmet may be transported with helmet (with face mask removed) and pads in place.

8. Assess and record extremity neuro status and distal pulses pre- and post-procedure. If a deterioration is noted, remove any immobilization-type devices and reassess.

9. Document time of the procedure and results in the PCR. Upon placement of the patient on the ambulance cot and removal of the LSB (or other device) from under the patient, this procedure and the time must be documented in the narrative of the PCR.

Credential Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury.
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters

Procedure:

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.
2. Explain the procedure to the patient.
3. Prior to the application of a splint, paramedic personnel should consider administration of pain control medications per protocol.
4. Remove all clothing from the extremity.
5. 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.
6. Do not secure the splint directly over the injury or device.
7. Place the splint and secure with Velcro, straps, or bandage material (e.g., Kling, Kerlix, cloth bandage, etc.) depending on the splint manufacturer and design.
8. Document pulses, sensation, and motor function after placement of the splint. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess.
9. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:
   1. Assess neurovascular function as in #1 above.
   2. Place the ankle device over the ankle.
   3. Place the proximal end of the traction splint on the posterior side of the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis.
   4. Extend the distal end of the splint at least 6 inches beyond the foot.
   5. Attach the ankle device to the traction crank.
   6. Twist until moderate resistance is met.
   7. Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
SBAR Patient Report

Definition:

SBAR is an acronym for Situation, Background, Assessment, Recommendation. It is a communication model that can be used to facilitate prompt and appropriate communication and is common within the healthcare professions. The format of SBAR allows for short and organized communications between healthcare professionals with a predictable flow of information.

Indications:

* Any time that information is shared between JCEMSS personnel and other system personnel, ED staff, cath lab staff, etc.

Elements:

* **Situation** - A concise statement of the problem that answers the questions “why EMS was called?”, which includes patient’s age, sex, chief complaint, nature of the call, and a description of the scene if relevant.

* **Background** - This is the history of present illness (HPI) or information on the background of what happened to the patient, including nature of illness (NOI) or mechanism of injury (MOI). Provide more in-depth, precise information. Also include pertinent medical history, medications and allergies (specifically if a medication should be given). Convey only relevant information.

* **Assessment** - Provide pertinent assessment findings, including a general impression of the patient, such as stable vs. unstable observations, vital signs, ECG results, pain level ratings, stroke scale, etc.

* **Recap/Rx (treatment)** - Explain what treatment was given. Include the patient’s response to treatments rendered. Also indicate whether the treatments rendered were effective. This is the time to restate concerns about the patient and to respond to questions.

Certification Requirements:

* Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Taser® Probe Removal

Clinical Indications:

- Patient with uncomplicated conducted electrical weapon (Taser®) probes embedded subcutaneously in non-sensitive areas of skin.
- Taser probes are barbed metal projectiles that may embed themselves up to 13 mm into the skin.

Contraindications:

- Patients with conducted electrical weapon (Taser®) probe penetration in vulnerable areas of body as mentioned below should be transported for further evaluation and probe removal
- Probes embedded in skin above level of clavicles, female breasts, or genitalia
- Suspicion that probe might be embedded in bone, blood vessel, or other sensitive structure.

Procedure:

1. Ensure wires are disconnected from weapon.
2. Stabilize skin around probe using non-dominant hand.
3. Grasp probe by metal body with pliers or hemostats using dominant hand.
4. Remove probe in single quick motion.
5. Wipe wound with antiseptic wipe and apply dressing.
6. Document the time, procedure, and any complications in the PCR Flow Chart as a General Comment.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Venous Blood Draw

Clinical Indications:

- Collection of a patient’s blood for laboratory analysis
- Blood draws may be requested from time to time by law enforcement as per state statute.
- Patient’s suspected of experiencing an acute stroke and for which a ‘Stroke Alert’ has been initiated

Procedure:

1. Utilize universal precautions as per OSHA.
2. Select vein and prep as usual. Have all supplies ready prior to initiating the IV stick.
3. Select appropriate blood-drawing devices, i.e. Vacutainer holder, adapter, lab tubes, etc.
4. Place a venous tourniquet and insert the IV needle-catheter device into the skin. Advance the catheter and leave the tourniquet in place for drawing blood.
5. Attach the vacutainer adapter and device to the catheter hub. Draw blood by pushing the lab tubes onto the needle inside the vacutainer- blood should flow easily into the lab tube. Allow to fill until flow ceases. Repeat as needed; once each tube is filled, rock gently end over end 8-10 times to ensure that the tube additive is well mixed with the blood in the tube.
6. Draw the appropriate type and number of tubes of blood for indicated lab testing (for stroke patients, blue-top tube first and then the purple-top tube).
7. Once blood drawing is complete, remove tourniquet, occlude vein, and insert IV tubing or saline lock onto the catheter hub and refer to the venous access procedure.
8. Assure that the blood samples are labeled with the correct patient information (if the tubes are not properly labeled, they may not be usable at the hospital!) Label with the patient’s name, along with the date and time the sample was collected, and the initials of the EMS provider that collected the blood.
9. Deliver the blood tubes to the appropriate individual at the emergency department.
10. Law enforcement blood draws will be accomplished utilizing the blood draw kit provided by law enforcement.
11. Record the procedure in the patient care report (PCR) in the Flow Chart as a Blood Draw. Immediately after in the Flow Chart, enter a General Comments notation to list whether this procedure was for a Stroke Alert, law enforcement blood draw, etc. If for a law enforcement blood draw, enter the officers name and department in the General Comments notation also.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Clinical Indications:

Patients where rapid, regular IV access is unavailable with any of the following:

- Cardiac arrest.
- Multisystem trauma with severe hypovolemia and/or a significantly burned patient with no IV access.
- Severe dehydration with vascular collapse and/or loss of consciousness.
- Respiratory failure / Respiratory arrest.
- Any other immediately life-threatening, peri-arrest clinical condition in which IV access is unobtainable.

When in doubt, contact a senior medical authority (district supervisor, medical control) for advice.

Contraindications:

- Fracture proximal to proposed intraosseous site.
- History of Osteogenesis Imperfecta
- Current or prior infection at proposed intraosseous site.
- Previous intraosseous insertion or joint replacement at the selected site.

Procedure:

1. Don personal protective equipment (gloves, eye protection, etc.).
2. Identify anteromedial aspect of the proximal tibia (bony prominence below the knee cap). The insertion location will be 1-2 cm (2 finger widths) below this. If this site is not suitable, and patient >12 years of age, identify the anteromedial aspect of the distal tibia (2 cm proximal to the medial malleolus). Proximal humerus is also an acceptable insertion site for patients > 40 Kg, lateral aspect of the humerus, 2 cm distal to the greater tuberosity.
3. Prep the selected site with an alcohol prep.
4. For manual pediatric devices, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, twist the needle handle with a rotating grinding motion applying controlled downward force until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further.
5. For the EZ-IO intraosseous device, hold the intraosseous needle at a 60 to 90 degree angle, aimed away from the nearby joint and epiphyseal plate, power the driver until a “pop” or “give” is felt indicating loss of resistance. Do not advance the needle any further. Utilize the larger needle for the proximal humerus. The smallest needle is only intended for use in neonatal patients.
6. Remove the stylette and place in an approved sharps container.
7. Attach a syringe filled with at least 5 cc NS; aspirate bone marrow for manual devices only, to verify placement; then inject at least 5 cc of NS to clear the lumen of the needle.
8. Attach the IV line and adjust flow rate. A pressure bag may assist with achieving desired flows.
9. Stabilize and secure the needle with dressings and tape.
10. You may administer 10 to 20 mg (1 to 2 cc) of 2% Lidocaine in adult patients who are not allergic to lidocaine who experience infusion-related pain. This may be repeated prn to a maximum of 60 mg (6 cc) in adults. See appendix for lidocaine infusion manufacturer's guidelines, including pediatric dosing.
11. Following the administration of any IO medications, flush the IO line with 10 cc of IV fluid.
12. Document the procedure, time, and result (success) on/with the patient care report (PCR) Flow Chart. Complications should be listed as a General Comment in the Flow Chart.

Certification Requirements:

Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Intraosseous Access (EZ-IO)

Proximal humerus site

Proximal tibial site

Distal tibial site

Drawing courtesy of Vidacare Corp, San Antonio, Texas.
Extremity Vascular Access

Clinical Indications:

- Any patient where intravenous access is indicated (significant trauma, emergent or potentially emergent medical condition).

Procedure:

1. Saline locks may be used as an alternative to an IV tubing and IV fluid in every protocol at the discretion of the ALS professional.
2. Paramedics can use intraosseous access where threat to life exists as provided for in the Intraosseous Access procedure.
3. Use the largest catheter bore necessary based upon the patient’s condition and size of veins.
4. Fluid and setup choice is preferably:
   - Lactated Ringers with a macro drip (10 gtt/cc) for burns
   - Normal Saline with a macro drip (10 gtt/cc) for medical conditions, trauma or hypotension
   - Normal Saline with a micro drip (60 gtt/cc) for medication infusions
   - Dextrose 10% with a macro drip (10 gtt/cc) for diabetic/ hypoglycemia
5. Inspect the IV solution for expiration date, cloudiness, discoloration, leaks, or the presence of particles.
6. Connect IV tubing to the solution in a sterile manner. Fill the drip chamber half full and then flush the tubing bleeding all air bubbles from the line.
7. Place a tourniquet around the patient’s extremity to restrict venous flow only.
8. Select a vein and an appropriate gauge catheter for the vein and the patient’s condition.
9. Prep the skin with an antiseptic solution.
10. Insert the needle with the bevel up into the skin in a steady, deliberate motion until the bloody flashback is visualized in the catheter.
11. Advance the catheter into the vein. Never reinsert the needle through the catheter. Dispose of the needle into the proper container without recapping.
12. Draw blood samples when appropriate.
13. Remove the tourniquet and connect the IV tubing or saline lock.
14. Open the IV to assure free flow of the fluid and then adjust the flow rate as per protocol or as clinically indicated.

**Rates are preferably:**
- Adult: KVO: 60 cc/hr (1 gtt/ 6 sec for a macro drip set)
- Pediatric: KVO: 30 cc/hr (1 gtt/ 12 sec for a macro drip set)

**If shock is present:**
- Adult: 500 cc fluid boluses repeated as long as lungs are dry and BP < 90. Consider a second IV line.
- Pediatric: 20 cc/kg boluses repeated PRN for poor perfusion.

15. Cover the site with a sterile dressing and secure the IV and tubing.
16. Label the IV with date and time, catheter gauge, and name/ID of the person starting the IV.
17. Document the procedure, time and result (success) on/with the patient care report (PCR) Flow Chart. Complications should be listed as a General Comment in the Flow Chart.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.

This procedure has been altered from the original NCCEP Procedure by the Johnston County EMS Medical Director 2016
External Jugular Access

Clinical Indications:

- External jugular (EJ) vein cannulation is indicated in a critically ill patient ≥ 8 years of age who requires intravenous access for fluid or medication administration and in whom an extremity vein is not obtainable. Consider IO access in addition to or instead of an EJ attempt.
- External jugular cannulation can be attempted initially in life threatening events where no obvious peripheral site is noted.

Procedure:

1. Place the patient in a supine head down position. This helps distend the vein and prevents air embolism.
2. Turn the patient’s head toward the opposite side if no risk of cervical injury exists.
3. Prep the site as per peripheral IV site.
4. Align the catheter with the vein and aim toward the same side shoulder.
5. “Tourniqueting” the vein lightly with one finger above the clavicle, puncture the vein midway between the angle of the jaw and the clavicle and cannulate the vein in the usual method.
6. Attach the IV and secure the catheter avoiding circumferential dressing or taping.
7. Document the procedure, time, and result (success) on/with the patient care report (PCR) Flow Chart. Complications should be listed as a General Comment in the Flow Chart.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Central Line Maintenance

Clinical Indications:

- Transport of a patient with a central venous pressure line already in place

Procedure:

1. Prior to transportation, ensure the line is secure.
2. Medications and IV fluids may be administered through a central venous pressure line. Such infusions must be held while the central venous pressure is transduced to obtain a central venous pressure, but may be restarted afterwards.
3. Do not manipulate the central venous catheter.
4. If the central venous catheter becomes dysfunctional, does not allow drug administration, or becomes dislodged, contact medical control.
5. Document the time of any pressure measurements, the pressure obtained, and any medication administration in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Swan-Ganz Catheter Maintenance

Clinical Indications:

- Transport of a patient with a Swan-Ganz catheter that is in place prior to transport.

Procedure:

1. Make certain catheter is secure prior to transport.
2. Under the supervision of the nurse or physician caring for the patient, make certain the transport personnel are aware of the depth at which the catheter is secured.
3. **UNDER NO CIRCUMSTANCES SHOULD TRANSPORT PERSONNEL ADVANCE THE SWAN-GANZ CATHETER.**
4. The sterile plastic sheath that surrounds the catheter should not be manipulated.
5. The ports of the catheter may be used to continue administration of medications or IV fluids that were initiated prior to transport. These should be used as any other IV port with attention to sterile technique.
6. If applicable, measurements from the catheter may be obtained during transport and used to guide care as per local protocols and medical control orders.
7. If at anytime during the transport difficulties with the function of the Swan-Ganz catheter is noted, contact medical control.
8. Document the time and any adjustments or problems associated with the catheter in the patient care report (PCR).

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Carbon Monoxide Monitoring

Clinical Indications:

- Persons with suspected or known exposure to carbon monoxide or substance likely to produce methemoglobin.
- Patients exhibiting the following sign and/or symptoms in a setting that may be suggestive of a carbon monoxide environment:
  - Dyspnea
  - Headache
  - Lethargy
  - Nausea/monitoring
  - Hallucinations

Procedure:

1. Apply probe to patient’s middle finger or any other digit as recommended by the device manufacturer. Where the manufacturer provides a light shield it should be used.
2. Allow machine to register percent circulating carboxyhemoglobin or methemoglobin values.
3. Record levels in patient care report or on the scene rehabilitation form.
4. Verify pulse rate on machine with actual pulse of the patient.
5. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients for a few minutes as oxygen saturation can vary.
6. Document percent of carboxyhemoglobin values every time vital signs are recorded during therapy for exposed patients.
7. Use the pulse oximetry feature of the device as an added tool for patient evaluation. Treat the patient based upon presentation, not just the data provided by the device. Utilize the relevant protocol for guidance.
8. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings.
9. Factors which may reduce the reliability of the reading include:
   - Poor peripheral circulation (blood volume, hypotension, hypothermia)
   - Excessive external lighting, particularly strobe/flashing lights
   - Excessive pulse oximeter sensor motion
   - Fingernail polish (may be removed with acetone pad)
   - Irregular heart rhythms (atrial fibrillation, SVT, etc.)
   - Jaundice
   - Placement of BP cuff on same extremity as pulse ox probe.
10. Patients should not be considered to have positive CO poisoning based on SpCO readings alone. The entire patient presentation should be considered.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System.
Crisis Response
Alternative Care Site Transportation

Clinical Indications:

- Patient presents with primary substance abuse and/or mental health crisis, including suicidal ideations without an actual attempt
- Indicated when patients/guardian has consented to voluntary evaluation by a mental health professional and/or Crisis Intervention

Clinical Contraindications:

- Non-consenting or violent patients
- Involuntary commitment patients
- Patients with an acute medical or traumatic condition. Patients with superficial abrasions may be evaluated at Crisis and Assessment Center whereas any patient with on-going bleeding or wounds requiring repair should be referred to an emergency department for evaluation.

Procedure:

1. Evaluate the patient utilizing the JCEMSS #6 Behavioral protocol.
2. Perform an appropriate physical/clinical assessment and complete the Mandatory Evaluation Criteria in accordance with JCEMSS #88-B Crisis Intervention protocol.
3. Determine the appropriate destination facility in accordance with JCEMSS protocols, policies, procedures, and destination plans.
4. If you are a non CIT certified paramedic you should request a supervisor “reference crisis intervention.” If a CIT trained paramedic is closer they may respond at the discretion of the supervisor.
5. Maintain appropriate clinical contact, care and monitoring of the patient. (Do not leave the patient unattended)
6. Transport the patient to the determined destination, providing appropriate supportive care.
7. Documentation of the patient care report shall be completed upon appropriate transfer of patient care, despite the destination.

Caveats:

1. If the patient refuses transport to the most appropriate determined destination, the patient shall be offered transport to the closest, most appropriate emergency department.
2. If the patient does not fit the criteria for transport to an alternative destination site, the patient shall be offered transport to the closest, most appropriate emergency department.

Certification Requirements:

- Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Evaluation of these patients must be performed by a CIT certified paramedic. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
Specialty Patient Notification

Clinical Indications:
Any patient who meets the criteria for transportation to a specialty receiving facility as outlined in the Destination Plans:

- Post cardiac arrest resuscitation.
- ST-elevation MI (STEMI).
- Stroke/ CVA.
- Trauma.

Procedure:
1. Upon determination that the patient meets the criteria for a specialty receiving facility, contact that facility direct via VIPER radio or directly via phone to advise them of your patient.
   
   NOTE: Past practice has involved contacting the Johnston County Communications Center and they would provide the notification to the facility. However, the receiving facilities do not activate special capabilities (alert trauma team, cath lab, etc.) until they receive direct notification from the transporting unit.

2. Provide the following information as designated by nature of patient situation:
   - Post cardiac arrest resuscitation- Age, sex, name, date of birth, current level of consciousness, time of arrest (given as a ‘time’ and not ‘xx minutes ago’), and estimated time of arrival.
   - ST-elevation MI (STEMI)- Age, sex, name, date of birth, name of cardiologist, time of first EMS patient contact (given as a ‘time’ and not ‘xx minutes ago’), and estimated time of arrival.
   - Stroke/ CVA- Age, sex, current level of consciousness, last know well time- (given as a ‘time’ and not ‘xx minutes ago’), and estimated time of arrival.
   - Trauma- Age, sex, current level of consciousness, primary trauma triage criteria, and estimated time of arrival.

3. Provide any necessary updates via VIPER radio or phone directly to the receiving facility. This could include changes in patient status (e.g. re-arrest on a post-ROSC patient), change in ETA (e.g. extended extrication), etc.

4. When approximately 6-10 minutes out from the receiving facility, contact with a patient update and current ETA.

5. The trauma triage criteria in use by the Johnston County EMS System is the CDC Trauma Triage Criteria. The criteria are referenced in Destination Plan #7 Trauma.

Certification Requirements:
Maintain knowledge of the indications, contraindications, technique, and possible complications of the procedure. Assessment of this knowledge may be accomplished via quality assurance mechanisms, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by the Johnston County EMS System. Assessment should include direct observation at least once per certification cycle.
# Specialty
## Patient Notification

### JOHNSTON COUNTY EMS SYSTEM
#### TRAUMA TRIAGE CRITERIA

<table>
<thead>
<tr>
<th>ASSESS VITAL SIGNS AND LEVEL OF CONSCIOUSNESS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✭ Glasgow Coma Scale</td>
</tr>
<tr>
<td>✭ Systolic Blood pressure &lt; 90 mm Hg</td>
</tr>
<tr>
<td>✭ Respiratory rate &lt; 29 breaths per minute</td>
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<tr>
<td>(20 in infant aged &lt; 1 year)</td>
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<table>
<thead>
<tr>
<th>ASSESS ANATOMY OF INJURY:</th>
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<tbody>
<tr>
<td>✭ All penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee</td>
</tr>
<tr>
<td>✭ Chest wall instability or deformity (e.g. flail chest)</td>
</tr>
<tr>
<td>✭ Crush, degloved, mangled, or pulseless extremity</td>
</tr>
<tr>
<td>✭ Amputation proximal to wrist or ankle</td>
</tr>
<tr>
<td>✭ Pelvic fractures</td>
</tr>
<tr>
<td>✭ Open or depressed skull fracture</td>
</tr>
<tr>
<td>✭ Paralysis</td>
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</tbody>
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<thead>
<tr>
<th>ASSESS MECHANISM AND EVIDENCE OF HIGH-ENERGY IMPACT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✭ Falls</td>
</tr>
<tr>
<td>✭ Adults: &gt; 20 feet (one story is 10 feet)</td>
</tr>
<tr>
<td>✭ Children: &gt; 10 feet or 2-3 times height of child</td>
</tr>
<tr>
<td>✭ High-risk auto crash</td>
</tr>
<tr>
<td>✭ Intrusion, including roof: &gt; 12 inches occupant site; &gt; 18 inches passenger compartment</td>
</tr>
<tr>
<td>✭ Death in same passenger compartment</td>
</tr>
<tr>
<td>✭ Vehicle telemetry data consistent with high risk of injury</td>
</tr>
<tr>
<td>✭ Auto vs. pedestrian/bicyclist thrown, run over, or with significant (&gt; 20 mph) impact</td>
</tr>
<tr>
<td>✭ Motorcycle crash &gt; 20 mph</td>
</tr>
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<tr>
<th>ASSESS SPECIAL PATIENT OR SYSTEM CONSIDERATIONS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✭ Older adults</td>
</tr>
<tr>
<td>✭ Age ≥ 55 years</td>
</tr>
<tr>
<td>✭ Age ≥ 65 years with SBP &lt; 110 mm Hg in setting of injury</td>
</tr>
<tr>
<td>✭ Ground level fall with s/s of head/serious injury</td>
</tr>
<tr>
<td>✭ Children</td>
</tr>
<tr>
<td>✭ Triaged to pediatric capable trauma center</td>
</tr>
<tr>
<td>✭ Anticoagulants and bleeding disorders</td>
</tr>
<tr>
<td>✭ Patients taking apixaban, clopigrodel, coumadin, dabigatran, edoxaban, heparin, or rivaroxaban</td>
</tr>
<tr>
<td>✭ Hemophilia or clotting disorders</td>
</tr>
<tr>
<td>✭ Pregnancy &gt; 20 weeks</td>
</tr>
<tr>
<td>✭ EMS Provider judgement</td>
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This procedure has been altered from the original NCCEP Procedure by the Johnston County EMS System Medical Director 2016 v1.1