

Procedure Protocols 12-Lead	Lorain County EMS Protocols Procedure Protocol 01 Created 08/17/2006
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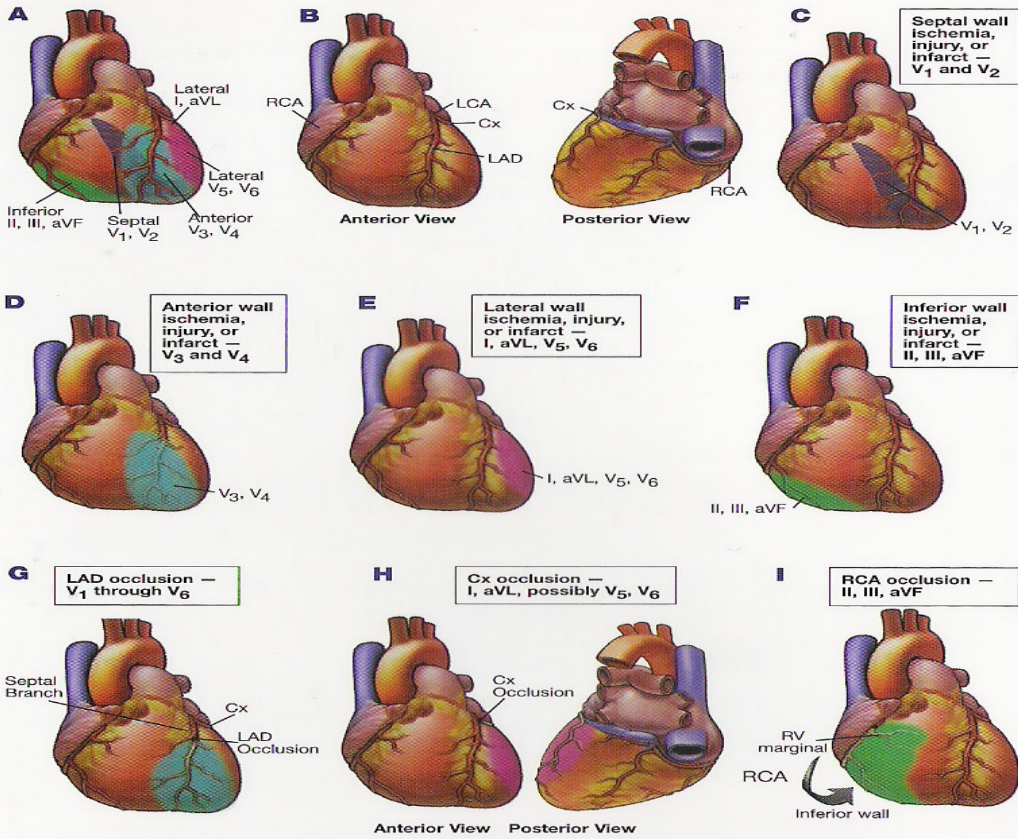
1. INDICATIONS

- 1.1. A 12 Lead ECG may be useful in any patient with Chest pain or SOB of suspected cardiac origin and in patients with perfusing rhythm.

2. APPLICATION

- 2.1. Follow the Chest Pain protocol
- 2.2. If possible, obtain 12 lead ECG prior to giving aspirin or nitro
- 2.3. With the patient in a semi-recumbent or flat position, apply the limb and chest leads
- 2.4. Proper Lead placement is essential. Leads should be placed as follows:
- V1 - @ 4th intercostal right margin of Sternum
 - V2 - @ 4th intercostal left margin of Sternum
 - V3 - @ midway between position 2 and 4
 - V4 - @ 5th intercostal @ junction of midclavicular line
 - V5 - @ horizontal level of position 4 @ left axillary line
 - V6 - @ horizontal level of position 4 @ left midaxillary line
- 2.5. Obtain ECG tracing
- 2.6. Interpret ECG for:
- 2.6.1. Signs of Myocardial infarction including Q waves, ST segment elevation and T wave inversion
- Lead II, III, aVF represent the Inferior wall
 - Lead V3 and V4 represent the Anterior wall
 - Lead I, aVL, V5, V6 represent the Lateral wall
 - Lead V1 and V2 represent the Septal wall
- 2.6.2. Arrhythmias
- 2.7. Notify the receiving hospital of all patients with Chest Pain suspected to be cardiac in origin, regardless of the ECG findings.
- 2.8. Give original ECG to the nurse or physician providing care to the patient in the emergency department.

Relationship of 12-Lead ECG to Coronary Artery Anatomy



I lateral	aVR	V1 septal	V4 anterior
II inferior	aVL lateral	V2 septal	V5 lateral
III inferior	aVF inferior	V3 anterior	V6 lateral

Localizing ischemia, injury, or infarct using the 12-lead ECG: relationship to coronary artery anatomy.

Procedure Protocols
Chest Decompression

Lorain County EMS Protocols
Procedure Protocol 02
Created 08/17/2006

1. GENERAL CONSIDERATIONS

- 1.1. The treatment of tension pneumothorax involves decompression of the affected chest cavity to release the pressure that has developed.
- 1.2. Decompression can be achieved, with minimal risk, by the insertion of a 14 or 16 gauge needle into the second inter-costal space at the midclavicular line. Also an approach in the mid-axillary line between the fifth and sixth rib is possible, and considered safer by some physicians.
- 1.3. The needle must be inserted superior to the rib because the intercostal artery, vein and nerve follow the inferior portion of the rib (**Do Not Use Midaxillary For Pediatric Patient's**).

2. INDICATIONS

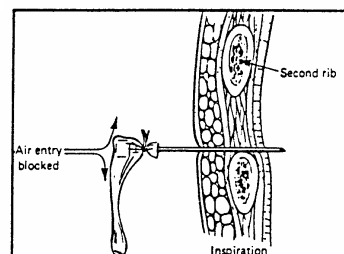
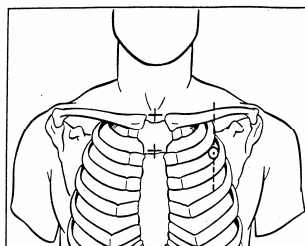
- 2.1. Tension pneumothorax indicated by:
 - Diminished or absent lung sounds
 - Cyanosis and difficulty breathing
 - Distended neck veins
 - Tachycardia, tachypnea, hypotension, narrow pulse pressure
 - Tracheal shift to the unaffected side (May not always be present)

3. APPLICATION

- 3.1. Prepare equipment: 14 or 16 gauge needle, antiseptic solution (Intracath needle with stylette removed is preferred, because sheath provides one-way valve.)
- 3.2. Locate site:
 - Second or third intercostal space, midclavicular
 - Fourth intercostal space between the fourth and fifth rib, mid-axillary (**Do Not Use Midaxillary For Pediatric Patient's**)
- 3.3. Prep site, if time permits
- 3.4. Insert the needle just superior to the rib until a rush of air is felt and/or heard
- 3.5. Secure needle in place
- 3.6. Support patient with 100% oxygen and transport without delay

4. CONTRAINDICATIONS

- 4.1. Insufficient training.



Procedure Protocols
Cricothyrotomy

Lorain County EMS Protocols
Procedure Protocol 03
Created 08/17/2006

1. INDICATIONS

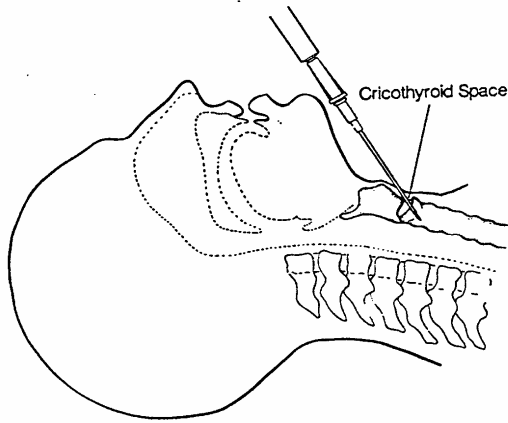
- 1.1. Unable to intubate by another route. This may be seen with:
- 1.2. Cervical spine injuries
- 1.3. Maxillo facial trauma
- 1.4. Laryngeal trauma
- 1.5. Oropharyngeal obstruction from:
 - Edema from infection, caustic ingestion, allergic reaction, and/or inhalation injuries
 - Foreign body
 - Mass Lesion
- 1.6. Oral or nasotracheal intubation contraindicated for any reason

2. COMPLICATIONS

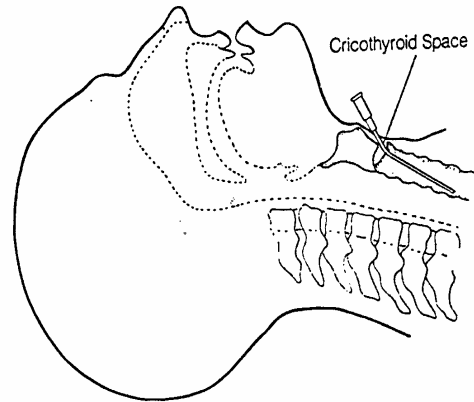
- 2.1. Postoperative bleeding
- 2.2. Late bleeding
- 2.3. Abscess behind packing
- 2.4. Cellulitis of neck
- 2.5. Subcutaneous emphysema
- 2.6. Voice change
- 2.7. Feeling of lump in throat
- 2.8. Persistent stoma
- 2.9. Obstructive problems
- 2.10. Misplacement of the airway

3. NEEDLE CRICOTHYROTOMY PROCEDURE

- 3.1. If time permits, prep the area with appropriate antiseptic solution. Attach a large angio (14-16 ga) to a syringe, and insert the needle through the cricothyroid membrane (CTM) and aspirate. Aspiration of air indicates proper placement.
- 3.2. If the intention is to use this as a temporary means of oxygenation then the catheter should then be slid into place.
- 3.3. If the needle is going to be used as a guide for formal cricothyrotomy then the catheter should not be used in order to prevent the possibility of shearing off the catheter when the scalpel is used.
- 3.4. A jet ventilator should be used to provide sufficient volume of oxygen at a pressure of no more than 30 psi.
- 3.5. Needle cricothyrotomy is the preferred method in children less than 11 years of age.



14 Gauge Catheter Insertion



4. **COMMERCIALLY AVAILABLE CRICOTHYROTOMY KITS**
 - 4.1. There are commercially available cricothyrotomy kits available. Since there are several, this protocol will not explain each and every one of them.
 - 4.2. Make sure that your department or agency has training sessions on your type of cricothyrotomy kits and documents as such.
 - 4.3. Follow the manufacturer's instructions and guidelines.

Procedure Protocols Helmet Removal	Lorain County EMS Protocols Procedure Protocol 04 Created 08/17/2006
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1. INDICATIONS

- 1.1. Unless there are special circumstances such as respiratory distress coupled with an inability to access the airway or there is certain over improper fit creating an unstable spine, the helmet of a patient with a possible head or neck injury should NEVER be removed at the scene.
- 1.2. A MINIMUM OF 2 TRAINED ARE AQUIRED TO PERFORM THIS PROCEDURE

2. PROCEDURE

- 2.1. Person A is positioned at the top of the patients head and manually stabilizes the head and neck by placing an arm on each side of the patient's head. His/Her hands (with thumbs up) hold the patient's neck.
- 2.2. Person B removes the face mask (if not already removed), then cuts chinstrap, removes the cheek pads from the helmet by slipping the flat blade of a screwdriver or bandage scissors between the pad snaps and the helmet's inner surface.
- 2.3. Person B deflates the air inflation system by releasing the air at the external ports with an open inflation needle.
- 2.4. Person B then takes over the in-line immobilization of the head. With one hand, Person B grasps the patient's mandible between his/her thumb and first two fingers, while placing the other hand under the occiput.
- 2.5. Person A places a thumb inside each ear hole of the helmet and curls his/her fingers along the bottom edge of the helmet by pulling laterally and longitudinally in-line with the head and neck, the helmet can be spread and eased off.
- 2.6. Before the helmet is completely removed, Person B moves his/her hands under the occiput superiorly until it is further under the head to keep the head from drooping when the helmet is finally remover. His/her hand should be moved so that the thumb and first fingers grasp the maxilla at each side of the nose in the maxillary notch
- 2.7. Once the helmet is removed, Person A places both arms alongside the patient's head with the hands supporting the neck to provide in-line immobilization once again.
- 2.8. Person B should place firm padding under the head to prevent the head from lying in extension.
- 2.9. If a neck roll or roll restriction pad is present, it should be unfastened from the shoulder pads.
- 2.10. Cutting the strap and belt fasteners on the front of the chest and remove the shoulder pads.
- 2.11. A cervical collar is applied. Placing cervical collar when the shoulder pads are still intact is difficult and less stable.

Procedure Protocols C-Spine Clearing in the Field	Lorain County EMS Protocols Procedure Protocol 05 Created 09/06/2006
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1. GENERAL CONSIDERATIONS

- 1.1. This procedure has been in effect for 6 years, nothing has changed with the procedure.
- 1.2. There are incidents where EMS providers may clear a patient's cervical spine. Some of these instances include when a patient wants to refuse treatment or transport to the hospital. Field C-Spine Clearance should be done by the EMS Provider. There are times when patients refuse to be immobilized, but still want to be taken to the hospital.
- 1.3. When in doubt, everyone should be immobilized. If a patient fails any part of the field cervical spine clearance, they should be immobilized.

2. APPLICATION

- 2.1. These are the parameters or questions that must be met entirely before a cervical spine is considered cleared in the field. If the answer to any of the below questions is yes, stop the clearing procedure and immediately immobilize the patient.
 - Is there any neck pain?
 - Is there any pain on palpation of the neck?
 - Are there any neurological deficits?
 - Is there an altered level of consciousness?
 - Is there a suggestive mechanism of injury?
 - Is there any neck pain with any head motion?
- 2.2. If the procedure was used and the patient was able to be cleared, document the procedure in your patient care report.

3. PRECAUTIONS

- 3.1. Take care when assessing geriatric patients. They may have pain, but are not communicating that they have pain or their pain tolerance is high due to their medical conditions.
- 3.2. Again, when in doubt, immobilize the patient.