

PRACTICE GUIDELINE

Effective Date: 4-16-04

Manual Reference: Deaconess Trauma Services

TITLE: TRAUMATIC ARREST

PURPOSE: To define the appropriate priorities and procedures for the management of traumatic arrest and describe the steps in the evaluation of the trauma patient in cardiac arrest and to limit futile care.

DEFINITION:

1. Signs of life are defined as agonal breathing, any movement, any electrical activity, or any obtainable pulse or blood pressure at the scene, en route, or in the Emergency Care Center. These signs define if any resuscitative measure should be undertaken.
2. Survival after traumatic cardiopulmonary arrest is substantially influenced by mechanism of injury. Mechanism of injury dictates the resuscitative effort undertaken.
3. Resuscitation of patients in cardiac arrest from blunt Trauma should focus on those who have any signs of life anywhere in the course of evaluation.

GUIDELINES:

1. Blunt traumatic arrest:
 - a. Transfer patient onto trauma gurney and continue ACLS protocol according to continual monitoring of the patient's EKG rhythm.
 - b. Do a rapid primary survey. Confirm presence or absence of spontaneous cardiac and/or respiratory activity.
 - c. Do simultaneous orotracheal intubation and IV access. In this situation IV access may not be obtainable in peripheral veins. If this is the case, then attempt simultaneous femoral venous access and/or saphenous vein cut down, and/or subclavian vein IV insertion.
 - d. Insert 14-gauge IV catheter into the second intercostal space in the midclavicular line in both sides of the chest. Make sure that the needles puncture into the pleural space and that the steel needles are removed, leaving the plastic cannula in place. If a large amount of air or blood is obtained out of either cannula, then immediately insert a 32 Fr. chest tube into that side of the chest. Alternatively, insert chest tube on both sides of the chest as initial procedure.
 - e. Run IV's at a full open rate with Level 1 Infusor.
 - f. By this time, the resuscitation should have been ongoing for about 5 minutes. If there is no return of electrical activity, terminate the resuscitation.
 - g. Now make a decision concerning open thoracotomy. Emergent thoracotomy may be indicated for the patient with blunt trauma when initial blood pressure is present in the field. If more than 15 minutes have elapsed since a palpable pulse, thoracotomy is not indicated. If open thoracotomy is to be performed in the trauma situation, initiate the procedure within 5 minutes of patient arrival or loss of pulse, if the patient presented with a pulse. The decision to proceed with open

thoracotomy is at the discretion of the ED physician &/or the Trauma Surgeon. This would also be dependent upon the course of resuscitation attempts. The open thoracotomy does not act as an alternative for an autopsy. If open thoracotomy is performed, do quickly and switch from external cardiac massage to internal cardiac massage. Make a rapid assessment of the ventricular filling volume, and place a clamp on the descending aorta. If there is significant bleeding from the lung, place a clamp on the hilum. Consider placement of right atrial catheter for fluid resuscitation.

- h. At this point, if open thoracotomy is not chosen and the patient has shown no evidence of any return of his vital signs, discontinue the trauma resuscitation.
 - i. If open thoracotomy is performed and there are no signs of spontaneous electrical activity of the heart, then internally defibrillate. This is usually done with the setting of 20-30 joules. Increase the power to the paddles to no greater than 50 joules as needed. Continue internal cardiac massage as more fluid is given to the patient. If there is a cardiac response, then administer O-negative blood as quickly as possible. If there is no response of the heart to internal cardiac massage and defibrillation after a period of about 10 minutes, discontinue the resuscitation.
 - j. If there is response of the heart to open cardiac massage and defibrillation, then notify the OR immediately and have a room prepared to receive the patient. As quickly as possible, transfer the patient to the OR for continued resuscitation and closure of the open thoracotomy.
 - k. Transfer the patient to the OR.
2. Penetrating chest injury resulting in traumatic arrest:
- a. The patient who arrives in traumatic arrest with a penetrating injury has a better prognosis and deserves vigorous trauma resuscitation. The Team Leader must ask the paramedic several questions about the patient's vital signs at the scene and en route to the hospital. If the patient had no vital signs at the scene, then successful resuscitation is less likely. If the patient had vital signs at the scene or en route to the hospital, then undertake a full trauma resuscitation using full resuscitative techniques.
 - b. This involves the following protocol:
 - i. Transfer the patient to the trauma gurney and immediately listen for breath sounds. Define vital signs from prehospital.
 - ii. For cardiac arrest patients with prehospital vital signs or patients with cardiac activity and BP<40, simultaneously intubate the patient and start large-bore IV's. The saphenous veins or femoral will probably have to be used. Once the IV's are in place, administer fluids through the Level I infusor to give warmed lactated ringers at a rapid rate. Decompress either side of the chest with absent breath sounds with either a needle thoracostomy or chest tube. Prepare immediately for a left thoracotomy, and perform this procedure if the patient does not respond immediately to external cardiac massage, the first part

of the ACLS protocol, and intubation. At thoracotomy, follow guideline for “Emergency Resuscitative Thoracotomy”.

iii. At the time of the thoracotomy, have someone immediately call the OR as well as the Blood Bank to make sure that an OR suite and blood are available for the patient. Cardiac surgeons should also be notified.

3. Penetrating abdominal injury resulting in traumatic arrest:

a. If the patient has a penetrating wound to the abdomen and arrives without vital signs and does not respond to initial resuscitation, then prepare to do a left thoracotomy in order to clamp the lower thoracic aorta. Continue internal cardiac massage as the clamp is being placed. Try to resuscitate the patient with fluids and the ACLS protocol. If this is successful, prepare the patient immediately for the OR in order to control the intra-abdominal hemorrhage. Leave the clamp on the aorta until the abdomen is open and evacuated of all blood.

b. If no obvious injuries can be found at thoracotomy, or if the patient does not respond to containment of the bleeding, then continue the resuscitation for 10-15 more minutes to make sure that the bleeding cannot be controlled or that the heart does not respond. At that time, discontinue resuscitation efforts.

REFERENCES:

- ❖ Deaconess Trauma Guideline Manual, EMERGENCY RESUSCITATIVE THORACOTOMY.
- ❖ Deaconess Trauma Guideline Manual, PATIENT IN EXTREMIS FLOWCHART.

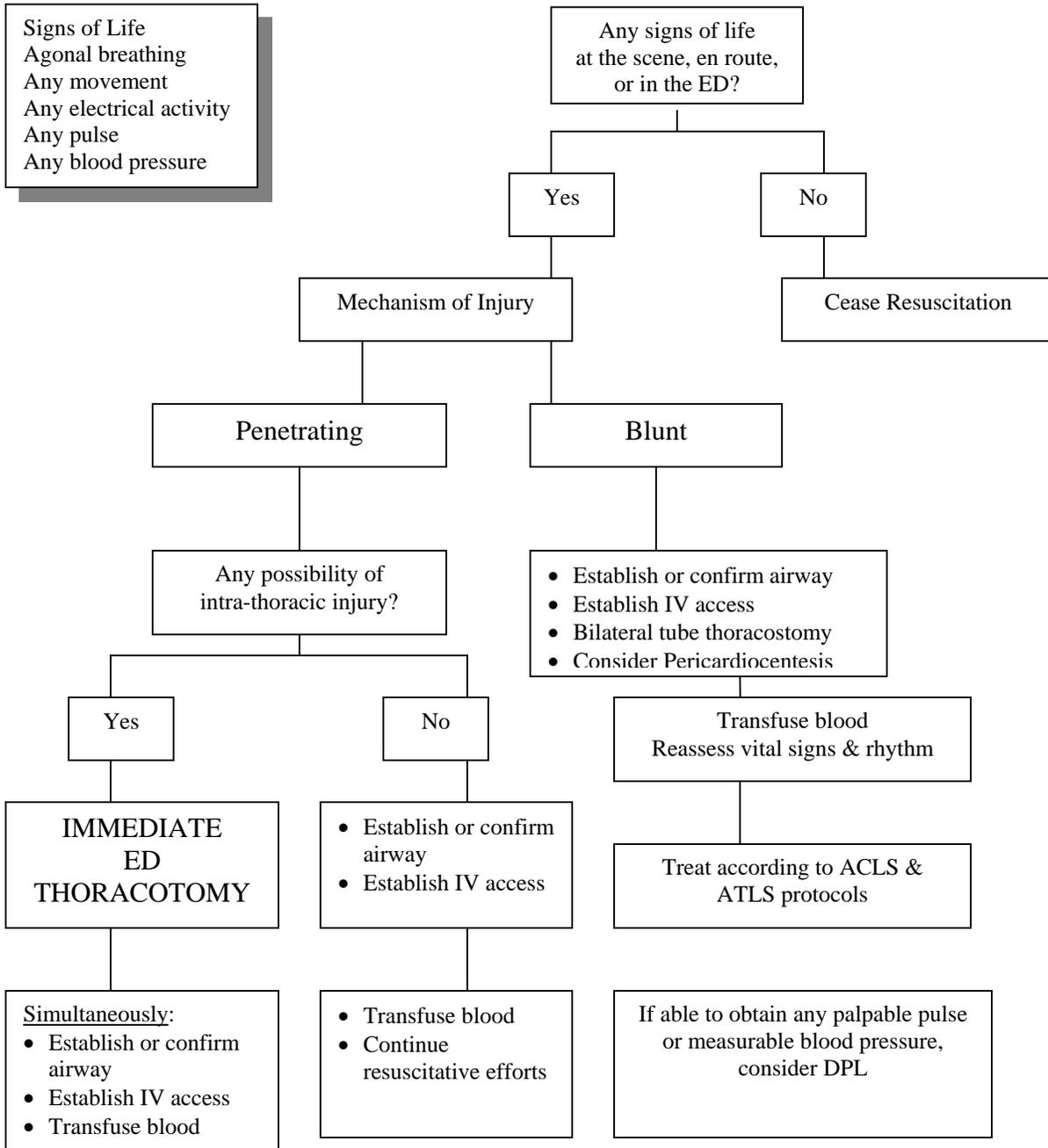
REVIEWED DATE	REVISED DATE
JAN 05	JAN 08
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TITLE:	Patient in Extremis Flowchart
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REFERENCES:

- ❖ TRAUMA GUIDELINE MANUAL, The Southern Arizona Trauma Network, The Section of Trauma Surgery Department of Surgery University of Arizona, Third Edition, September, 1998.
- ❖ RESOURCES FOR OPTIMAL CARE OF THE INJURED PATIENT: 1999; Committee on Trauma American College of Surgeons.
- ❖ ADVANCED TRAUMA LIFE SUPPORT FOR DOCTORS: 1997; American College of Surgeons Committee on Trauma.
- ❖ Deaconess Trauma Guideline Manual, EMERGENCY RESUSCITATIVE THORACOTOMY & PATIENT IN EXTREMIS FLOWCHART.

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