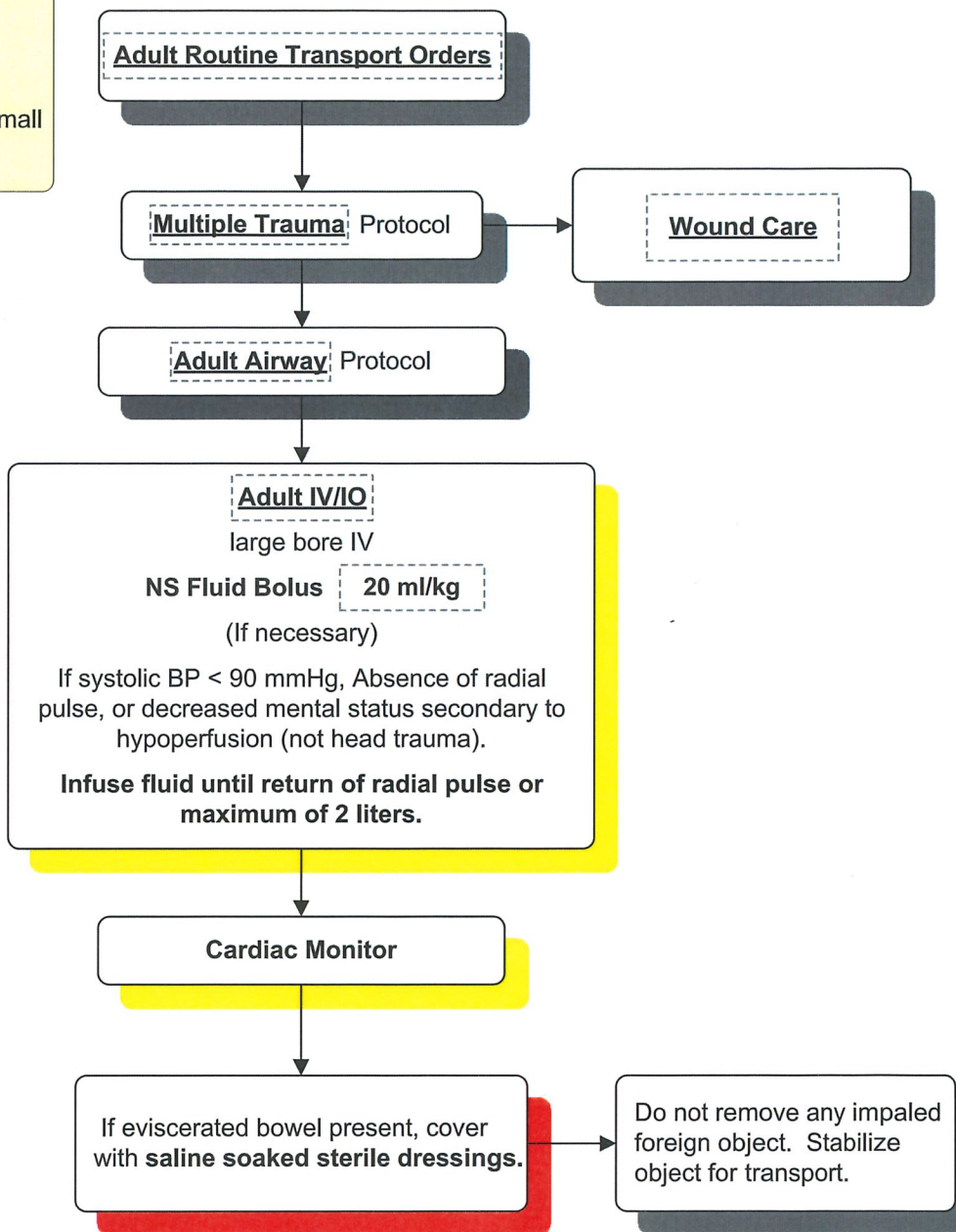


Organs of the abdomen involve:
Liver, kidney's, gall bladder,
duodenum, pancreas, stomach,
spleen, aorta, colon, appendix, small
and large intestine.



General

EMT

AEMT

Paramedic

Amputation: loss of body part
Avulsion: A forcible separation or detachment of body part

Adult Routine Transport Orders

Wound Care

Splint affected extremity

Adult IV/IO

1 or more large bore IV's

1 Liter Fluid Bolus if there is significant blood loss.

Avulsions / Amputation & Near Amputations

If Avulsion:

- Control bleeding as above.
- Clean with sterile dressing (if gross contaminates).
- Tourniquet as needed

Amputation:

- Wrap amputated part with dry or slightly moist sterile gauze, place in plastic bag then, in ice or cold environment. **DO NOT FREEZE.**
- Immobilize partial amputations for best vascular status.
- Make early decision for load and go, need for Paramedic or helicopter transport.
- The patient may need to go to a re-implantation trauma center if possible.
- Tourniquet as needed

Pain Management Protocol

Fairly clean amputation and a good candidate for re-implantation

Aspirin 162 mg PO (2 baby aspirin)

General

EMT

AEMT

Paramedic

Consider transportation directly to burn center if partial or full thickness burns total burn surface area (TBSA) greater than 10%, involvement of hands/feet, genitalia, face, and/or circumferential burns

Adult Routine Transport Orders

Remove rings, bracelets, and any other constricting items

Spinal Injury Assessment

If necessary

Adult Airway Protocol

If evidence of possible airway burn, consider aggressive airway management

Adult IV/IO

Burns can be thermal, or chemical. Types of burns are First degree (red and painful), Second degree (Skin blisters) and Third degree (Necrosis). Use the Lund-Browder to estimate body surface percentage affected. Take extra caution to use aseptic / sterile technique in all procedures.

- Providers should be careful to use gloves and other barrier precautions as needed to protect themselves from becoming injured from a chemical burn while rendering care.

Poison Control (800) 222-1222
Chemtrec (800) 424-9300

Thermal

Powder

Chemical

Cover wounds with dry sterile dressings, maintain body warmth. May immerse body part in cool water if burn is limited to less than 10% BSA.

Evaluate patient for other injuries (consider nature of accident). Assess the depth and extent of burns.

Cardiac Monitor

For all electrical & lightning Injuries

Smoke inhalation

Toxic Exposure Protocol

"If cyanide poisoning is suspected"

Pain relief

Pain Management Protocol

Remove clothing or expose area. Brush powder off

Eye involvement?
Continuous Normal Saline flush

Remove clothing or expose area

Flush with copious amounts of water, but be cautious.. some chemicals should not be mixed with water.

NOTE: Evaluate for associated injuries, and treat per appropriate protocol. Do not attempt IV unless reasonably certain one can be obtained. You cannot afford to ruin potential IV sites on burn victim with multiple attempts. You may "stick" a patient through a burn if that is all you can get for an IV/IO site. Acute hypotension in burn victim is probably not from the burn itself. Think about other trauma with blood loss.

Transport patient.

General

EMT

AEMT

Paramedic

The thorax is a large, relatively common target for low and high velocity projectiles.

Adult Routine Transport Orders

Spinal Injury Assessment

Blunt or penetrating injuries to the chest with shock that are not immediately responsive, should be transported without delay. Do not remove any impaled foreign object. Stabilize object for transport.

Wound Care

Adult Airway Protocol

Assess for and treat other life-threatening injuries

Multiple Trauma Protocol

Cardiac Monitor

Adult IV/IO

NS Fluid Bolus 20 ml/kg

If systolic BP < 90 mmHg, Absence of radial pulse, or decreased mental status secondary to hypoperfusion (not head trauma).

Infuse fluid until return of radial pulse or maximum of 2 liters.

Open Chest Wounds

Tension Pneumothorax

Flail Chest

Cover sucking wound with non-porous dressing (Vaseline™ gauze, jelled defibrillator pad, cellophane, aluminum foil) taped over 3 sides, or Asherman Dressing.

Needle Decompression

Reassess adequacy of ventilations and perfusion. "Load and Go" with continued treatments.

- Reassess adequacy of ventilation.
- If ventilation is inadequate consider positive pressure ventilation via bag-mask device

Massive Hemothorax

Do not decompress. Treat for hypovolemic shock. Support ventilations

Monitor and reassess

Simple Pneumothorax

- Respiratory distress
- Decreased breath sounds

Tension Pneumothorax

- Respiratory distress
- Shock
- Decreased breath sounds on the injured side

Myocardial Contusion

- Myocardial contusion:**
- History of blunt trauma to the anterior chest
 - Symptoms may be the same as a heart attack

Pericardial Tamponade

- Pericardial tamponade:**
- Blunt or penetrating trauma to the chest
 - Shock
 - Distended neck veins
 - Muffled heart sounds

Flail Chest

- history of injury to the chest
- poor air movement
- paradoxical chest wall movement

General

EMT

AEMT

Paramedic

Other Injuries

Simple Pneumothorax

- Treatment is supportive.
- Administer 100% **Oxygen** should be administered to maintain SpO2 >94%
- Monitor for development of tension pneumothorax

Pericardial Tamponade

- Rapid transport
- Initiate IV at wide open

Crush Syndrome

Three mechanisms are responsible for the death of muscles cells.
Immediate cell disruption, Direct pressure on muscle cells, Vascular compromise.
Reference: Mediccom.org
James R. Dickson MD

Adult Routine Transport Orders

If patient has been trapped/pinned for longer than 20 - 30 minutes, and exhibits signs/symptoms of relevant mechanism of injury to suspect crushing injury.

Crush injury causes a toxic mixture of fluids, electrolytes, and acids from lack of cellular respiration to pool in the area that is crushed. Upon release of the mechanism of crush, that mixture starts to flow with normal circulation and mixes with oxygenated blood which makes the mixture even more toxic. When this mixture of toxins gets to the heart, the patient experiences sudden cardiac death.

General

EMT

AEMT

Paramedic

See: **SERT** Guideline

Spinal Injury Assessment

Adult Airway Protocol

Pre-Extrication

Post-Extrication

Adult IV/IO

Minimum of 2 IV's
(one for resuscitation/cardiac and one for administration of Sodium Bicarbonate)

Coordinate time of release with rescue personnel

Sodium Bicarbonate

Begin infusion: 2 liters over 1 hour
50 mEq/liter

Cardiac Monitoring

Obtain monitor tracing prior to and sequentially during further treatment.

Advise the receiving ED early of the patient's "Crushing Injury".
Anticipate Crushing Syndrome and possible cardiac arrest upon extrication of patient.

Continue aggressive fluid resuscitation
with **NS Fluid Bolus 20 ml/kg**

If systolic BP < 90 mmHg, Absence of radial pulse, or decreased mental status secondary to hypoperfusion (not head trauma).

Infuse fluid until return of radial pulse

Monitor ECG closely, watch for:
Widen QRS complexes – 0.12 seconds or greater.

Presence of **PVC's**, **V-Fib / V-Tach**
Treat appropriately

Yes

NOTE: If patient is in cardiac arrest, treat as TRAUMA ARREST

Most causes of broken and avulsed teeth are: falls, assaults, sports, multiple trauma.

Adult Routine Transport Orders

Protect the airway. Make every attempt to salvage any lost teeth. Reassure patient. Inspect surrounding area of soft tissue. Check for other fractured, chipped, or deformities of teeth.

Control bleeding with pressure

Tooth avulsion?

Yes

Save all avulsed teeth in 0.9 NS moistened gauze or a jar of 0.9 NS

No

Assess for pain

Reassess and monitor

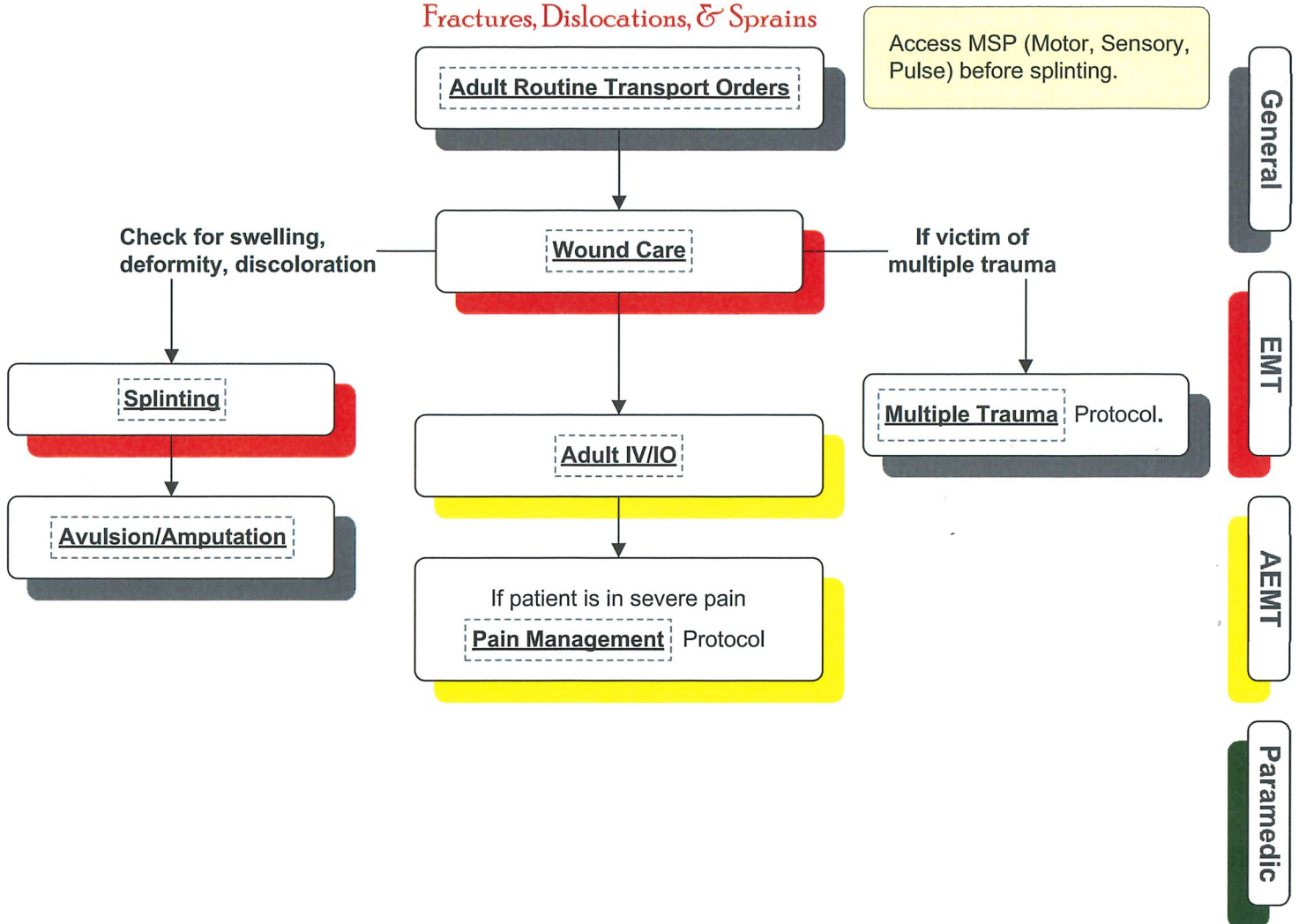
General

EMT

AEMT

Paramedic

Fractures, Dislocations, & Sprains



Multiple trauma is injury of two or more parts of the body. Obtain Glasgow Coma Score prior to calling trauma center.

Assume cervical spine injuries on all unconscious patients with known or suspected trauma and on all patients with multiple trauma.

Adult IV/IO (large bore)

Do not delay transport if unable to initiate an IV.

Fluid Therapy

If systolic BP < 90 mmHg, Absence of radial pulse, or decreased mental status secondary to hypoperfusion (not head trauma). **Infuse fluid until return of radial pulse or maximum of 2 liters.**

Adult Routine Transport Orders

Rapid Trauma Assessment

Consider rapid / air transport

Adult Airway Protocol

Spinal Injury Assessment

Wound Care

(control active bleeding)

Cardiac Monitor

Vital Signs / perfusion?

Abnormal

Normal

NS Fluid Bolus 20 ml/kg

See Fluid Therapy above

Reassess Adult Airway Protocol

Pain Management Protocol

for acute pain due to fractures, burns, or other types of trauma.

Tranexamic Acid (TXA)

1 gram/100 ml over 10 minutes, IV Infusion (16 years and older)

Suspected internal injuries and long bone fractures require 2 IV's. This Should not delay transport

Transport as quickly as possible. Provide continuous monitoring and re-evaluation.

Splinting

Immobilize, splint and restrain as appropriate and as time allows.

Trauma with suspected or verified "moderate to severe" or "suspected" hemorrhage or hemorrhagic shock.

Tranexamic Acid (TXA)

1 gram/100 ml over 10 minutes IV Infusion (16 years and older)

Ongoing assessment

Appropriate Protocol based on patient symptoms

If Respiratory Compromise, See:

Rapid Sequence Intubation (RSI)

Procedure

General

EMT

AEMT

Paramedic

Types of Head Trauma:
Concussion, Skull fracture
(Linear, Depressed & Basilar),
Intracranial (Subdural, Epidural,
Subarachnoid).

Multiple Trauma Protocol

Trauma with "moderate to severe"
or "suspected" hemorrhage or
hemorrhagic shock.

Tranexamic Acid (TXA)

1 gram

Anticoagulants increase
the risk of intracranial
bleeding, even with minor
head injury. Patients on
anticoagulants with head
injury (i.e. falls) should be
offered transport to the
ED. Commonly used
anticoagulants include:

ORAL

Coumadin (warfarin), Eliquis
(apixaban), Xarelto
(revaroxaban), Pradaxa
(dabigatran), Savasa
(edoxaban)

INJECTABLE

Lovenox (enoxaparin),
Arixtra (fondaparinux)
ORAL ANTIPLATELET
Plavix (clopidogrel), Effient
(prasugrel), Brilinta
(ticagrelor)

Adult Routine Transport Orders

Isolated head trauma?

Yes

Spinal Injury Assessment

Control Severe bleeding

Wound Care

Adult IV/IO

Observe spine injured patients for
neurogenic shock, i.e. hypotension with
bradycardia. If signs of inadequate perfusion:

NS Fluid Bolus 20 ml/kg

For obvious spinal shock with no
response to the above therapy:

Epinephrine Drip 2 - 10 mcg/min

For combative patients with head injuries,
refer to the:

Rapid Sequence Intubation (RSI) Procedure

Consider Load and Go or Air Transport in
Patients with either:

- A. Unilaterally Dilated Pupils
- B. Deteriorating Mental Status

If confirmed head injury with
impaired level of consciousness,
assist patient with positive
pressure ventilation using a bag-
valve-mask. Intubate as needed.
In the head injured patient with
signs of shock, look for the other
sources of bleeding (i.e. chest,
abdomen, pelvis, and femurs)

If patient having seizure see:

Seizures

Fluid Therapy

If systolic BP < 90 mmHg,
Absence of radial pulse, or
decreased mental status
secondary to
hypoperfusion (not head
trauma).
**Infuse fluid until return
of radial pulse or
maximum of 2 liters.**

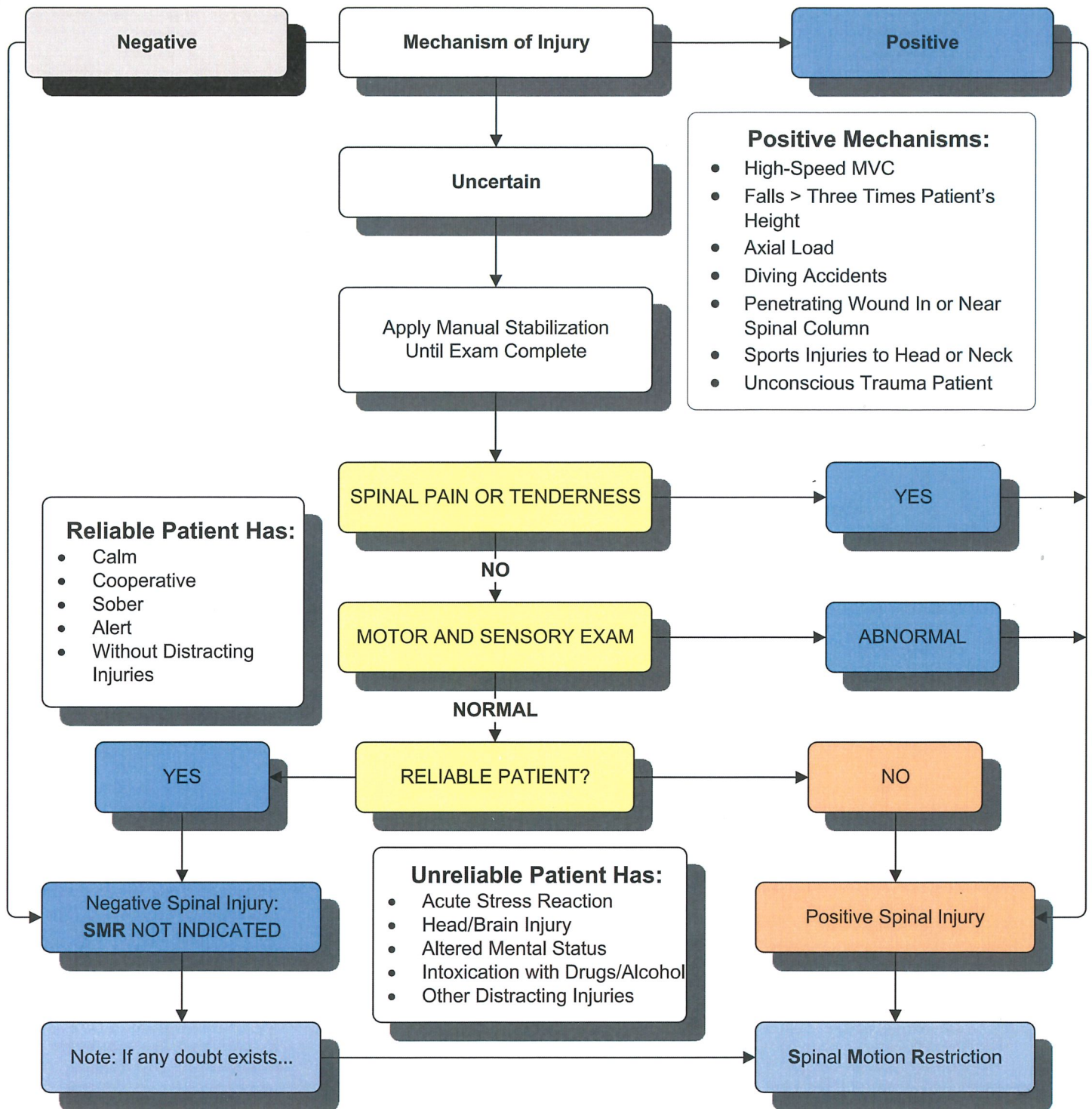
General

EMT

AEMT

Paramedic

Spinal Injury Assessment



SMR includes taking steps to minimize head movement including the use of a cervical collar, padding, coaching and positioning. Long backboards, scoop stretchers, and other devices may be used for extrication purposes only. They are not necessary for spinal motion restriction and should be removed as soon as safe for the patient and crew prior to transport. Patients presented to the crew already immobilized should be reassessed using the clinical criteria provided. The crew may remove any previously applied spinal motion restriction devices that are not indicated, and should additionally remove any rigid immobilization device prior to transport.

The eye is well protected by a series of facial bones. Patient's sight may be threatened if there is loss of aqueous or vitreous humor fluid, usually caused by penetrating trauma. Blunt trauma can cause a hemorrhage which can also cause a loss of vision.

Embedded or impaled objects **should not be removed**, but should be stabilized securely for transport.

Adult Routine Transport Orders

Spinal Injury Assessment

Penetrating Injuries

Chemical Injuries

If needed:

Tetracaine (Pontocaine) 1 - 2 drops, may be instilled into the eye(s) prior to the **Morgan Eye Lens**

1. Stabilize impaled objects, cover both eyes and transport.
2. If the object has pierced the globe, transport in supine position.
3. Use metal eye shield if possible.
4. Cover BOTH eyes using folded 4x4's.
5. Transport in position of comfort.

If available

Insert **Morgan Eye Lens** connect to the I.V. tubing and immediately flush with one liter of 0.9NS per eye.

General

EMT

AEMT

Paramedic

Pregnant patients suffering from major trauma are more susceptible to life-threatening injury than non-pregnant patients. **Any pregnant patient who has suffered trauma should be transported to the hospital for evaluation.**

General Guidelines for the Pregnant Trauma Victim

Patient may have a pulse 10-15 beats/minute faster than normal and BP may be lower (but with widened rather than narrowed blood pressure). Blood volume is 20%-45% higher than normal. More volume is usually needed for fluid resuscitation of shock in pregnancy. Trauma to the abdomen may cause occult intrauterine bleeding. **Mark** top of fundus to help monitor enlargement of the uterus, which suggests intrauterine bleeding.

For patients that are 6 months pregnant or more:
1) Tilt backboard to the left side or elevate right buttock and push uterus to the left while moving.

Adult Routine Transport Orders

The pregnant patient may sustain **any** injury to which any other victim is subject, but during the last two trimesters the uterus and fetus are subject to certain injuries. Injuries to the uterus may be blunt or penetrating. In any case the greatest danger to mother and baby is hemorrhage and hemorrhagic shock.

Monitor vital signs frequently and watch the abdomen for signs of intra-abdominal bleeding. Because of slow peristalsis and delayed gastric emptying, there is a greater chance for possible vomiting and aspirating.

Adult Airway Protocol

If necessary

Spinal Injury Assessment

Wound Care

Cardiac Monitor

Note: Shock is not always obvious in the pregnant patient because of an increase in circulating blood volume. The pregnant female will show signs of hypovolemia later in the course of the trauma event. Treat hypovolemia aggressively

Adult IV/IO

If hypovolemic, treat aggressively. Initiate two large bore IV's

Pain Management Protocol

Re-assess vital signs and neurologic exam throughout transport.

Splinting

Perform secondary assessment including neurological exam and

General

EMT

AEMT

Paramedic