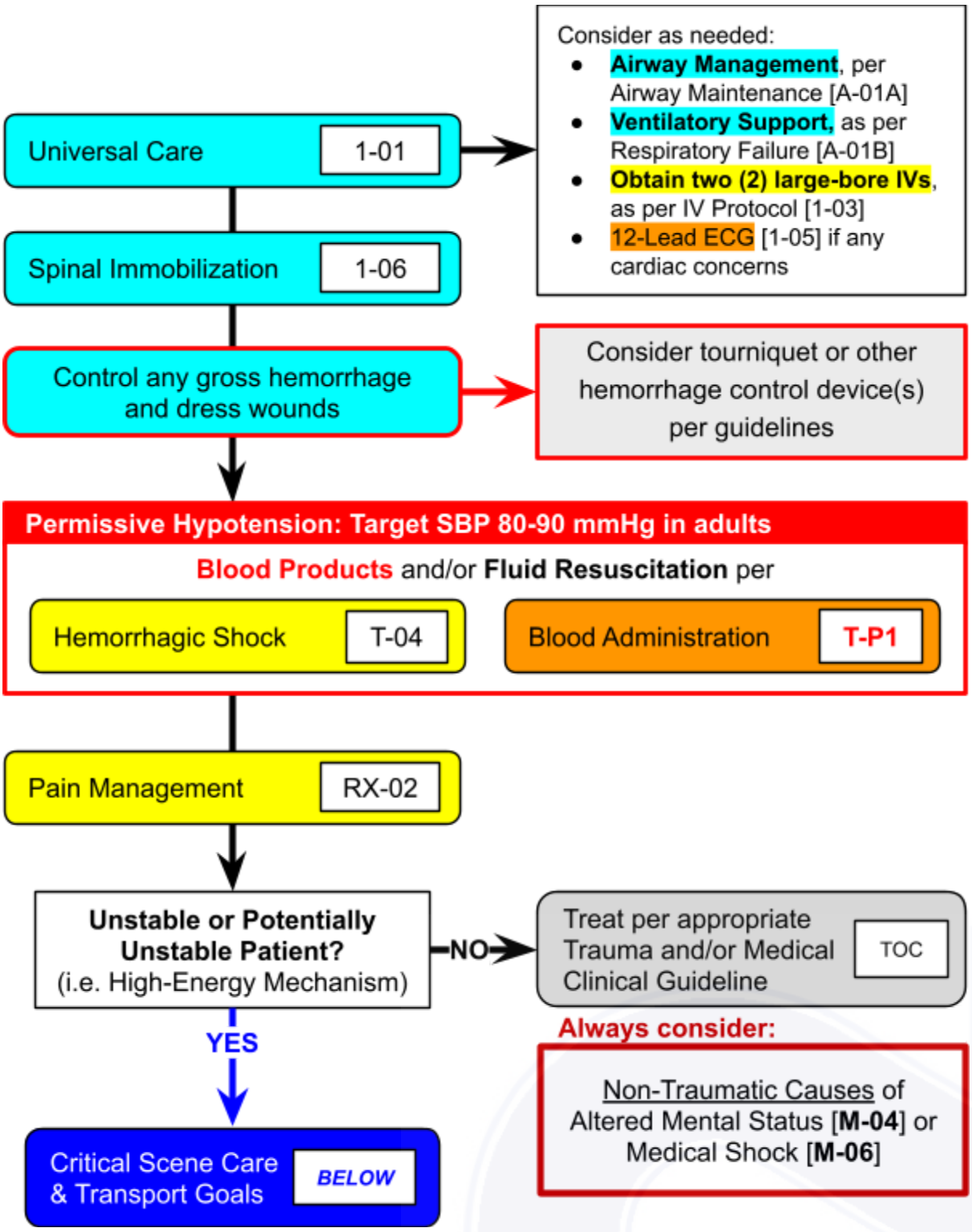
T-01 INITIAL MULTI-SYSTEM TRAUMA CARE		First Responder EMT AEMT Paramedic



T-01 INITIAL MULTI-SYSTEM TRAUMA CARE		First Responder EMT AEMT Paramedic

Unstable or Potentially Unstable Trauma Patients:

Limited On-Scene Procedures:

X

Control Hemorrhage, use Tourniquet as needed — T-P4

- Control bleeding with direct pressure, wound packing and/or tourniquet.

A

Airway Mgmt/Placement per Airway Maintenance — A-01A

- Provide basic airway maneuvers (e.g. jaw thrust or chin lift) as appropriate.
- Place BIAD if apneic or advanced airway is otherwise indicated.

B

Consider Bilateral **Needle/ Finger Thoracostomy** — T-P2

- Cover open (sucking) chest wounds
- Decompression if any concern over tension pneumothorax

C

Traumatic Cardiac Arrest — T-02

- CPR may be performed or withheld, as per 'CPR in Traumatic Arrest'

GO!

For any potentially viable patient, scene time should **always be less than 10 minutes** (from extrication).

M

Contact Medical Control for further orders or if efforts are felt to be futile

Additional Procedures *(as able)*

- Reinforce dressings
- Provide secondary wound care
- Splint extremities

Monitor airway and provide appropriate interventions to **ensure adequate oxygenation**.

Monitor respiratory status and **repeat decompression** if needed

Blood Products / IV Fluids per Hemorrhagic Shock — T-04

- Start IV/IO (2 large bore peripherals)
- Limit IV fluids as able

Prevent hypothermia: warm patient as able

Blunt Trauma: **Spinal Immobilization** — 1-06

- Penetrating: do not immobilize

Always consider Non-Traumatic cause and treat as appropriate

- Procedures may be performed while awaiting extrication, but these should never delay transport.
- All care during transport must be performed while in appropriate restraints. If this cannot be ensured, defer procedures to destination.

T-01 INITIAL MULTI-SYSTEM TRAUMA CARE		First Responder EMT AEMT Paramedic

Glasgow Coma Scale (GCS):

EYES	Spontaneous	4
	Opening to voice	3
	Response to pain	2
	None	1
VERBAL	Oriented	5
	Verbal confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	None	1
MOTOR	Obeys commands	6
	Localizes pain	5
	Withdraws (to pain)	4
	Flexion (arms towards head)	3
	Extension (away from head)	2
	None	1

Trauma Score:

Respiratory Rate	10-24/min	4
	24-35/min	3
	>36/min	2
	1-9/min	1
	None	0
Resp. Expansion	Normal	1
	Retractive	0
Systolic BP	>90 mmHg	4
	70-89 mmHg	3
	50-69 mmHg	2
	0-49 mmHg	1
	No Pulse	0
Capillary Refill	Normal	2
	Delayed	1
GCS	14-15	5
	11-13	4
	8-12	3
	5-7	2
	3-4	1

T-01 INITIAL MULTI-SYSTEM TRAUMA CARE		First Responder EMT AEMT Paramedic

Pediatric Trauma Score (<15 years old):

Component	+2 points	+1 point	-1 point
Size (weight)	>20 kg	10-20 kg	<10 kg
Airway	Normal	Oral/Nasal Airway	Unmaintainable/ Intubated
Systolic BP	> 90 mmHg	50-90 mmHg	<50 mmHg
CNS	Awake	Obtunded/LOC	Coma
Open Wound	None	Minor	Major/Penetrating
Skeletal	None	Closed Fractures	Open/Multiple Fractures
Total Point Values from Physical Presentation of Injury			
Trauma Score _____ Sum of Points			

Pediatric Trauma Pearls

- Trauma is the leading cause of death in children >1 yo
- "*Pediatric*" Definition
  - 14 or younger = Pediatric treatment/destination
  - 15 or older = Adult treatment/destination
- Pediatric Hemodynamics/Shock
  - Circulating blood volume = 80 mL/kg
  - Hypotension = < 70 + (2 x age) mmHg
  - Kids compensate well early for decreased fluid volume
    - **Increased Heart Rate = compensatory mechanism**
    - **Blood pressure does not decrease until <u>just before</u> cardiovascular collapse**
  - Hemorrhagic Shock → limit IV fluids to minimum to maintain pulse/capillary refill (10 mg/kg boluses)
- Pain management

- Kids pain is undertreated/undermedicated
- Consider **Fentanyl Intranasal (IN)**
- Ketamine IN may be used after discussion with medical control

Traumatic Mechanisms

- High-Energy Mechanisms (a.k.a. “Trauma Criteria”) → see DEST-02
  - Falls = 2-3 times child's height
    - Consider significant head injury with moderate height, such as the parent's shoulder, shopping cart, etc.
  - MVC unrestrained (including car seat not attached to base/seat), child ejected, etc.
  - Kid/Bike vs Auto → Impact considerations:
    - Impact 1 = lower legs (turns towards car)
    - Impact 2 = chest/abdomen/pelvis
    - Impact 3 = projectible → head first
  - Crushed by object (dresser, bookcase, TV, etc.)
    - Head injury common
    - **Chest injury (crush) = asphyxia** (respiratory arrest)
- Non-accidental trauma (Child Abuse) → *See P-03 for more information/examples*
  - Can be physical, emotional, sexual, and/or neglect (usually 2 or more)
  - Pay attention to siblings for signs of abuse
  - Evaluate environment, cleanliness, paraphernalia, interactions, etc.
  - **Suspect If stories do not match**
  - Clearly document reported histories and specific exam findings**, but do not guess/document the cause,** just the evidence.
  - Report to supervisor and receiving hospital so that DCS may be contacted.

Anatomy of Pediatric Injuries

- Head Injury:
  - Infants (<12 months)
    - Fontanelle still open
    - Allows increased swelling/volume before deterioration
    - Monitor for delayed symptoms/decreasing mental status
  - Altered LOC → Child should cry when examined, but should be consolible by family. If not, consider significant pain or change in mental status.

    - **Vomiting with changed/decreased LOC = BAD**
    - Treatment:
        - Place C-Collar if any suspicion of spinal injury
        - Place head of bed up 30-45 degrees, if possible
- Spinal Injury:
    - SCIWORA
        - Loose ligaments can lead to a spinal cord injury (SCI) without evidence of bony injury (radiographic abnormality, RA)
        - Clinical presentation = **neuro complaints <u>without</u> pain** (paresthesias in hands/feet)
        - Tx: High index of suspicion & **low threshold for C-Collar & ED evaluation**
    - Location
        - <8 yo = higher cervical
        - >8 yo = lower cervical (similar to adults)
- Chest Injury
    - Flexible cartilaginous ribs = less rib fx → less pneumothorax
    - More pulmonary contusions (bruising) → **monitor SpO2**
- Abdomen & Pelvis
    - Liver, spleen and kidneys extend below the rib cage
    - Grunting/splinting may indicate abdominal bleeding
    - Suspect if **improper seat belt use or handlebar injury**
- Ortho
    - Long bone fractures more common
    - Remember pain management and appropriate splinting

Special Situations

- Burns
    - Keep warm thermoregulate
    - Fluid replacement (LR) if >20% BSA:
        - < 5 yo = 125 mL/hr
        - 6 - 13 yo = 250 mL
        - > 13 yo = 500mL/hr