

**UNITED STATES MARINE CORPS**  
**FIELD MEDICAL TRAINING BATTALION**  
Camp Lejeune, NC 28542-0042

FMST 509

**Perform Casualty Assessment**

**TERMINAL LEARNING OBJECTIVE**

1. Given a patient in an operational environment, **perform patient assessment** to identify chief complaint and initiate proper treatment within the scope of care. (8404-MED-2011)

**ENABLING LEARNING OBJECTIVES**

1. Without the aid of reference, given a description or list, **identify the procedures for Care Under Fire**, within 80% accuracy, per the Prehospital Trauma Life Support Manual, current Military Edition. (8404-MED-2011a)

2. Without the aid of reference, given a description or list, **identify the procedures for Tactical Field Care**, within 80% accuracy, per the Prehospital Trauma Life Support Manual, current Military Edition. (8404-MED-2011b)

3. Without the aid of reference, given a description or list, **identify the procedures for Tactical Evacuation**, within 80% accuracy, per the Prehospital Trauma Life Support Manual, current Military Edition. (8404-MED-2011c)

4. Without the aid of reference, given a casualty and a Corpsman Assault Pack, **perform casualty assessment**, to prevent further injury or death, per the Prehospital Trauma Life Support Manual, current Military Edition. (8404-MED-2011d)

## OVERVIEW

Casualty Assessment (CASAS) is a systematic process for assessment of the trauma casualty and is essential for recognizing life-threatening conditions, identifying injuries, and determining priorities of care based on assessment findings. Using this systematic approach you will be able to assess, prioritize, and treat each trauma casualty and ensure injuries are not missed.

This lesson will go through all the steps of a complete CASAS; however you will not use every step, every time. The number of steps you complete is based on the tactical situation, the casualty and the time and resources available.

### 1. PHASE 1 – CARE UNDER FIRE

During this phase, the Corpsman and casualty are still under hostile fire. **The first step in saving a casualty is usually to control the tactical situation.** Very limited medical care should be attempted while the casualty and the unit are under hostile fire. Suppression of hostile fire and moving the casualty to a safe position are major considerations at this point. Remember: “The best medicine on the battlefield is fire superiority.” Casualties who have sustained injuries that are not life threatening and have the ability to help should continue to assist in suppressing the hostile fire. It may also be critical for you to help suppress hostile fire before attempting to provide care.

Casualties whose wounds do not prevent them from moving to cover should do so to avoid exposing other care givers to unnecessary hazard. If the casualty is unable to move and is unresponsive, the casualty is likely beyond help. Risking the lives of rescuers is not advised. If a casualty is responsive and unable to move, a rescue plan should be developed as follows:

- Determine the potential risk to the rescuers. Did the casualty trip a booby trap or mine? Where is fire coming from? Is it direct or indirect? Are there electrical, fire, chemical, water, mechanical, or other environmental hazards?
- Consider assets. What can rescuers provide in the way of covering fire, screening, shielding, and rescue equipment?
- Make sure all understand their role in the rescue and which movement techniques are to be used (i.e., drag, carry, rope, stretcher). The fastest method for moving a casualty in the Care Under Fire phase is the two person drag (see figure 1). This drag can be used in buildings, shallow water, snow, and down stairs.
- Management of an impaired airway is temporarily deferred until the casualty is safe, thereby minimizing the risk to the rescuer and avoiding the difficulty of managing the airway while dragging the casualty. Early control of severe hemorrhage is vital. However, the tactical situation dictates that you must maintain firepower supremacy so **only life-threatening bleeding warrants any intervention during Care Under Fire.**



**Figure 1. Two Person Drag**

**Situation** - Determines tactical situation. Return fire to suppress hostile fire. Direct and expect the casualty to return fire if capable.

**Help** - Verbally direct casualty and/or buddy to apply tourniquet if casualty and rescuer are separated

**Injury** - Determines MOI if possible

**Patient quantity** - Determines the number of patients vs. supplies. Is there need for triage?  
Are there Marines or other HMs available?

**Spinal precautions** (if warranted)

**Level**

**Of**

**Consciousness - Mental Status** – AVPU (A – Alert, V – Verbal commands, P – Painful stimuli, U – Unresponsive)

**Manage hemorrhage**

Identify life-threatening hemorrhage

Apply tourniquet

Move patient to safe location

Reassess tourniquet

## 2. **PHASE 2 - TACTICAL FIELD CARE**

During this phase, the Corpsman and casualty are no longer under hostile fire. This also applies to situations in which an injury has occurred on a mission, but hostile fire has not been encountered. However, medical equipment is still limited. Medical care during this phase is directed towards more in-depth evaluation and treatment of the casualty, focusing on those conditions not addressed during the Care Under Fire phase of treatment. While the casualty and rescuer are now in a somewhat less hazardous situation, evaluation and treatment is still dictated by the tactical situation. **Casualties who show signs of an altered mental status should be disarmed immediately.**

### Airway Assessment

Casualties that are conscious and can talk, scream, or yell can be presumed to have a patent airway. For unconscious casualties, initial attempts to open the airway should be done using the trauma jaw thrust (for casualties whom you suspect C-spine injury) or trauma chin lift.

Once the airway is open, visually inspect for anything that may potentially cause obstruction. Examples include broken teeth, blood, vomit or tissue swelling. Remember the most common cause of airway obstruction in an unconscious casualty is the tongue.

Clear any obstructions with a finger sweep and **insert a nasopharyngeal airway (NPA) to keep the airway open.** Reassess your interventions to ensure the casualty has an open airway. The standard method of “Look, Listen and Feel” can be used to ensure the patient is breathing. If the previously mentioned methods fail to establish an airway, surgical cricothyroidotomy is indicated.

Remember to **reassess any intervention performed** to determine the effectiveness of the procedure performed. Regardless of the method used to establish an airway, you must also judge the quality and adequacy of the ventilations.

### Respiration

The goal of this step is to rule out chest wounds that either have become, or could potentially develop into, a tension pneumothorax. **Needle thoracentesis is indicated if the casualty has difficulty breathing and penetrating trauma to the chest area.**

**FYI!!! If a casualty is found to be in cardiopulmonary arrest on the battlefield as a result of combat trauma, CPR is NOT recommended.**

The only way for you to identify penetrating trauma is to EXPOSE the area. This includes removing tactical gear such as flak jackets and uniform tops. Once exposed you may also discover larger wounds, such as sucking chest wounds, that will need to be treated with an occlusive dressing before moving on to the next step in the casualty assessment process. Inspecting the area includes looking at the posterior. Examining the posterior is not simply the back; remember that rectal bleeding is a sign of internal hemorrhage. This should be checked as well. **Reassess ALL interventions following a log roll!**

Needle decompression should provide immediate relief. An occlusive dressing should not make a sucking sound upon inspiration.

### Circulation

Check for the presence and quality of pulses. Determining the presence and quality (weak / strong) of a radial pulse will affect decisions made later during casualty assessment.

Perform a blood sweep of the casualties entire body by gently sliding your hands underneath the casualty and pulling them back, feeling for any bleeding that was not controlled during “Care Under Fire”. Control it at this time.

Assess for the possibility of tourniquet conversion. Tourniquets that were placed due to the time constraints of “Care Under Fire” should be converted to a pressure dressing or Combat Gauze as appropriate. (See Hemorrhage Control lesson if you need to review.)

### Head to Toe Assessment (DCAP-BTLS)

<b>D</b> eformities	<b>C</b> ontusions	<b>A</b> brasions	<b>P</b> unctures
<b>B</b> urns	<b>T</b> enderness	<b>L</b> acerations	<b>S</b> welling

Again, all life threatening injuries should have been identified and treated by this time. The goal at this stage is to identify and address any additional wounds. You may also identify signs or symptoms that will affect the long term evacuation or treatment of the patient as well. It is important that you carefully inspect the entire casualty. Using the head to toe method described below ensures you do not miss anything.

### Head

Check the skull, eyes, ears, nose and mouth for any potential findings. At this time you should also reassess any treatments that have been performed.

### Neck

Check the neck to include the C-spine for any irregularities. Jugular vein distension and tracheal deviation are very late signs of tension pneumothorax (a condition you should have treated earlier). If, however, these are encountered at this stage, perform a needle decompression immediately.

### Chest

In addition to checking for DCAP-BTLS, you should also attempt to auscultate the chest if the tactical situation permits. Simple rib fractures and flail chest segments should be treated at this time. Reassess any previous treatments, including needle decompression or occlusive dressings, which may have already been performed.

### Abdomen

In addition to inspecting for DCAP-BTLS you should also palpate for Tenderness, Rigidity or Distension. Abdominal eviscerations should be treated appropriately. Signs of internal hemorrhage, while not treatable on the battlefield, may affect your decision during tactical evacuation.

### Pelvis

If the patient's pelvic area is obviously deformed, DO NOT PALPATE IT, as you will likely cause further instability and damage.

### Extremities

Since you are already at the pelvis, palpate the lower extremities first then the upper extremities using the same process (DCAP-BTLS)

Note and treat any minor injuries not already addressed. Reassess any major interventions already performed, especially tourniquets or pressure dressing.

### Consider Fluid Resuscitation

Casualties that do not exhibit signs of shock do not require and should not be given IV or IO fluid. They should be encouraged to drink fluids by mouth.

All casualties who exhibit signs of tactically relevant shock (weak pulse and/or altered level of consciousness) should have IV access started using an 18-gauge catheter. Consider the IO route for casualties who require fluid resuscitation but IV access can not be obtained. Administer enough fluid to restore a radial pulse. If giving Hextend, give 500 cc's, wait 30 minutes, and then give another 500 cc's if needed. Do NOT give more than 1000 cc's of Hextend to any patient.

## Prevent Hypothermia

At this point all life threatening issues should have been identified and treated. You should begin to take precautions against hypothermia.

Preventing hypothermia is for more than just patient comfort, it is an important lifesaving step.

Hypothermia interferes with the body's blood clotting mechanism and increases mortality.



The Blizzard Rescue Blanket (NSN 6352-01-524-6932) comes in many colors, including tactical green. It is lightweight and extremely effective in preventing hypothermia.

As soon as all life-threatening injuries are addressed, the patient should have all of their wet clothing removed and replaced with dry clothes or a Blizzard Rescue Blanket. Unless prohibited by wounds, cover the head, as it is a prime source of heat loss. Good hemorrhage control and fluid resuscitation will also help restore the casualty's ability to generate heat.

## Monitor Vital Signs

### Pain Management

Conscious casualties who remain operationally engaged should be given Mobic (15mg PO qd) and Tylenol Bi-layer Caplet (650 mg 2 PO q8h).

Casualties who cannot continue to remain operationally engaged but have no need for an IV should be given Oral Transmucosal Fentanyl Citrate (OTFC) provided as a "lozenge on a stick" taped to their finger. Reassess the patient every 15 minutes for respiratory depression.

Those who are out of the fight and require an IV should be administered morphine 5mg (IV or IO). This can be given every 10 minutes as necessary. The patient should be monitored for signs of respiratory depression. You should have Naloxone (Narcan) on hand before administering either OTFC or morphine.

Promethazine (Phenergan) 25 mg IV/IO/IM may be administered to counteract the nausea associated with Morphine or OTFC.

### Immobilization

Splint any extremities that need it.

### Antibiotics

If the patient can tolerate oral medications, administer Moxifloxacin 400mg, PO qd. If not, administer either cefotetan (2g IM/IV/IO) or ertapenem (1g IM/IV/IO). (For more information on giving medications, see the medication appendix at the end of this block.)

### Patient Turnover

Document the patient's initial wounds, treatments performed, and response to any treatments. Ensure this, along with the most recent set of vital signs, is transferred with the patient.

### 3. **PHASE 3 - TACTICAL EVACUATION CARE (TACEVAC)**

During this phase, casualties should be ready for transport to a higher level of care. Since casualty movement following Tactical Field Care may be either CASEVAC or MEDEVAC, the third phase of TCCC has been re-designated Tactical Evacuation Care to include both possibilities. This phase presents the opportunity to bring in additional medical equipment and personnel, allowing for expanded diagnostic and therapeutic measures.

### Factors to be Considered

Casualty movement may be difficult up to this point. Improvised litters should be padded, and field-expedient materials should be replaced with conventional supplies as soon as possible.

Patients with torso trauma must be closely monitored during this phase. Expansion of the intrapleural gas may result in tension pneumothorax due to the lower pressure at altitude. All casualties with injuries that interfere with breathing, or have a low O<sub>2</sub> saturation should be given oxygen during TACEVAC.

Efforts to prevent heat loss and, if needed, to actively re-warm the casualty should continue during TACEVAC. The casualty must be aggressively protected against cold stress during the evacuation, given the potential for heat loss due to windchill and the lower temperatures encountered at altitude.

### Documentation

The following should be documented and maintained with the casualty:

- All wounds received (location, severity, status)
- Treatments rendered (type of treatment, effectiveness)
- Responses (verbal, medication, etc.)

This is also an excellent time to document and maintain thorough vital signs.

- Pulse rate
- Respiratory rate
- Blood pressure
- SPO<sub>2</sub>

Continual and thorough reassessment of the casualty is CRUCIAL at this point!

## ZMIST REPORT

The ZMIST report is given on an individual casualty basis as a means to prioritize and lead to more effective treatment.

### - Zap Number

Given at the unit level, this number identifies the casualty, their gear and their personal information.

### - Mechanism of Injury

What caused the injury? IED blast? Gunshot wound?

### - Injuries Sustained

What is the extent of the injuries? Where are they located?

### - Signs & Symptoms

What signs and symptoms are the casualties showing?

### - Treatments Rendered

What treatments have been done? Are they effective? How are they performing?

## REFERENCE

Prehospital Trauma Life Support (PHTLS), current Military Edition



**Field Medical Training Battalion**  
**CASUALTY ASSESSMENT - TRAUMA**  
**PERFORMANCE EXAMINATION CHECKLIST**

STUDENT (Last Name, First Name, MI.)	PLT
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	1ST		2ND		3RD	
<b><u>CARE UNDER FIRE</u></b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
<b>* Determines tactical situation. Return fire to suppress hostile fire. Direct and expect the casualty to return fire if capable.</b>						
Verbally direct casualty and/or buddy to apply tourniquet if casualty and rescuer are separated						
Determines MOI if possible						
Determines the number of patients vs. supplies. Is there need for triage? Are there Marines or other HMs available?						
Spinal Precautions (if warranted)						
Level of Consciousness/Mental Status – AVPU (A – Alert, V – Verbal commands, P – Painful stimuli, U – Unresponsive)						
<b>* Identify and control external life threatening extremity hemorrhage</b>						
<b>* Apply tourniquet</b>						
<b>* Move patient off the “X”</b>						
<b>TIME: (2 MINUTE MAX TIME LIMIT)</b>	<b>1ST</b>	<b>2ND</b>	<b>3RD</b>			
<b><u>TACTICAL FIELD CARE</u></b>	<b>1ST</b>	<b>2ND</b>	<b>3RD</b>			
<b>MASSIVE HEMORRHAGE / AIRWAY MANAGEMENT</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
<b>* Reassess tourniquet / massive hemorrhage scan (anything missed on the “X” / unable to apply tourniquet on)</b>						
Continually talks to patient to ensure airway						
<b>* Opens airway with trauma jaw thrust or trauma chin lift</b>						
<b>* Inspect mouth for potential obstructions and clears airway as required</b>						
<b>* Look, listen, and feel (5- 10 Seconds)</b>						
Insert appropriate airway adjunct						
<b>* Reassess airway - Look, listen, and feel (5- 10 Seconds)</b>						

Field Medical Training Battalion  
**CASUALTY ASSESSMENT - TRAUMA**  
**PERFORMANCE EXAMINATION CHECKLIST**

RESPIRATORY MANAGEMENT	1ST		2ND		3RD	
	P	F	P	F	P	F
* Assess breathing (rate, rhythm, depth)						
* Expose chest and inspect for life threatening wounds						
Palpate (Crepitus, fractured ribs, flail segments, subcutaneous emphysema)						
*Treat thoracic life threatening injuries						
* Reassess or apply occlusive dressing						
* Log roll and check for exit wounds (beware of spinal integrity)						
Posterior assessment (DCAP-BTLS) (Bright red blood in rectum)						
* Treat posterior life threatening wounds						
* Ensures spinal integrity						
Place patient on litter or spine board if available						
* Needle thoracentesis						
* Reassess all interventions						
CIRCULATORY MANAGEMENT	1ST		2ND		3RD	
	P	F	P	F	P	F
* Assess for presence of carotid pulse						
* Blood sweep (identify and treat major bleeding and/or reassesses prior interventions - head to toe)						
* Assess for bilateral radial pulses (rate and quality)						
Estimate palpated blood pressure (Radial = systolic of 80 mmHg, femoral = systolic of 70 mmHg, carotid = systolic of 60 mmHg)						
Peripheral Perfusion (Skin color, temperature, condition, and <2-3 Sec capillary refill)						
IV fluid consideration (Based on vital signs, titrate to radial pulses)						
FULL BODY ASSESSMENT Deformities, Contusions, Abrasions, Punctures/Penetrations, Burns, Tenderness, Lacerations, & Swelling (DCAP-BTLS)	1ST		2ND		3RD	
	P	F	P	F	P	F
HEAD ASSESSMENT						
Skull (Inspects and palpates the scalp, skull & facial bones, Battle's sign)						

**Field Medical Training Battalion**  
**CASUALTY ASSESSMENT - TRAUMA**  
**PERFORMANCE EXAMINATION CHECKLIST**

<b>HEAD ASSESSMENT (cont.)</b>	<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Ears (Blood, CSF, injury)						
Eyes (PERRLA-EOMI, injury, raccoon eyes)						
Nose (Blood, CSF, injury)						
Mouth (Broken teeth, obstructions, odor)						
<b>NECK ASSESSMENT</b>	<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Posterior (Step offs, deviations)						
Anterior (JVD, Tracheal deviation)						
<b>ABDOMEN ASSESSMENT</b>	<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Inspect (Pulsating masses, bruising, distention, and eviscerations)						
Palpate – All (4) quadrants (Distension, rigidity, and facial grimace)						
Treat / Reassess abdominal injuries						
<b>PELVIS ASSESSMENT</b>	<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Inspect (Bruising, obvious injury, meatus / perineum for blood)						
Palpate (Squeeze medially and roll down pelvis to check for potential fractures)						
Treat / Reassess pelvis injuries						
<b>LOWER EXTREMITIES ASSESSMENT</b>	<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Inspect (Obvious injuries)						
Palpate (Bone crepitus, assess PMS {Movement/sharp/dull test /distal pulse}, note facial grimace)						
Treat / Reassess lower extremity injuries / Split all fractures (Possible conversion of tourniquet to pressure dressing as indicated)						

**Field Medical Training Battalion**  
**CASUALTY ASSESSMENT - TRAUMA**  
**PERFORMANCE EXAMINATION CHECKLIST**

<b>UPPER EXTREMITIES ASSESSMENT</b>		<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
		<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Inspect (Obvious injuries)							
Palpate (Bone crepitus, assess PMS {Movement/sharp/dull test /distal pulse}, note facial grimace)							
Treat / Reassess upper extremity injuries (Possible conversion of tourniquet to pressure dressing as indicated)							
<b>REASSESSMENT</b>		<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
		<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
Consider pain medications PRN							
Interventions, LOC, ABCs							
<b><u>TACTICAL EVACUATION</u></b> <b>OVERALL GENERAL IMPRESSION</b>		<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
		<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>	<b>P</b>	<b>F</b>
ZMIST report							
Identify transport priority							
Reassess fluid intervention requirements							
<b>TIME: (12 MINUTE MAX TIME LIMIT)</b>		<b>1ST</b>		<b>2ND</b>		<b>3RD</b>	
<b>Scenario</b>							
<b>Total number of non-critical steps missed (Score greater than 10 constitutes a failure)</b>							
<b>Critical steps missed (Any critical step missed constitutes a failure)</b>							
1st Evaluator:		2nd Evaluator:			3rd Evaluator:		
<b>PASS / FAIL</b>		<b>PASS / FAIL</b>			<b>PASS / FAIL</b>		
Student signature:		Student signature:			Student signature:		
Notes:		Notes:			Notes:		

## Casualty Assessment Review

1. List and briefly describe the three phases of Tactical Combat Casualty Care (TCCC).
2. Management of a compromised airway would be taken care of during what phase of TCCC?
3. Briefly describe why prevention of hypothermia is so important for the casualty.
4. Describe why patients who can stay in the fight should not be given morphine.