

Scenario Overview

The Soldier Multi-Trauma Showcase Scenario simulates the injuries that a Combat Medic or other caregiver may encounter on the battlefield. This scenario highlights the ability of the Pulse physiology engine to simulate multiple insults occurring simultaneously. We have incorporated a tension pneumothorax with a massive hemorrhage. The tension pneumothorax is itself a combinatory insult, affecting both the respiratory and cardiovascular systems. Combining the tension pneumothorax with the blood loss from the hemorrhage pushes and eventually exceeds the limits of the homeostatic control mechanisms.

Base Physiology	Insults and injuries	Assessments	Interventions
A 22 year old physically fit male soldier. No known complicating factors.	Trauma which causes massive hemorrhage and tension pneumothorax.	Heart Rate Bleeding Rate Blood Pressure Distal Pulse Respiration Rate Oxygen Saturation	Tourniquet Needle Decompression Narcotics Fluid Resuscitation Transfusion

Scenario Narrative

Segment 0	Engine initialization period.
Segment 1	A team of soldiers is conducting a presence patrol through a small village in a troubled country. As they pass a mud wall, an improvised explosive device detonates injuring one of the soldiers. The squad medic was with the other team in another part of the village, and she reaches the casualty one minute after the onset of injury.
Segment 2	The medic goes to work immediately, attempting to stop the hemorrhage with direct pressure while she assesses the casualty for other injuries. After one minute of assessment, the medic suspects a tension pneumothorax. She instructs a combat life saver to continue direct pressure on the hemorrhage while she prepares to treat the tension pneumothorax.
Segment 3	The medic treats the tension pneumothorax by performing a needle decompression. The three inch needle is inserted immediately, and the medic spends the next four minutes finishing and assessing the effectiveness of the procedure.
Segment 4	The medic notices that the combat life saver is unable to effectively control the bleeding with direct pressure. She applies a tourniquet stop the hemorrhage. The medic spends 30 seconds inspecting the tourniquet application and preparing an intravenous infusion.
Segment 5	The medic initiates a bolus intravenous infusion of isotonic saline.
Segment 6	The medic also administers five milligrams of morphine intravenously to control the casualty's pain. She advises the ranking military person on the scene to call a CASEVAC and continues supportive care.

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SMEs:

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Key

	Good Agreement with data/trends
	Agreement with most trends, some deviations from validation data/trends
	Some major disagreements with validation data/trends

Project Number	Year	Project Objective	Key Result (or Output)	Notes (or Key Messages)	Indicator	Baseline	Target	Actual	Change	Reason	Indicator	Baseline	Target	Actual	Change	Reason	Indicator	Baseline	Target	Actual	Change	Reason	Indicator	Baseline	Target	Actual	Change	Reason
1	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
5	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
6	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
7	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
8	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
9	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
10	2018	100	100	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%