MOUNTAIN HORSE SOLUTIONS
A GLOBAL ORDNANCE COMPANY

ThermoTraumaPort®

Transforming emergency transfers

OUR MISSION

To transform emergency patient transfers, by improving the management of hypothermia and reducing the risk of pressure injury and infection.

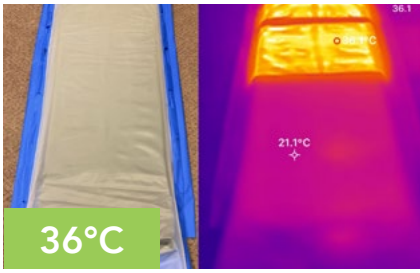
THE PROBLEM

There has not been a disruptive innovation for many years in the transfer of patients who require emergency services. The current practice using standard equipment:

1. Requires the patients themselves to be moved multiple times thus raising the risk of further injuries through more manual handling;

2. Patients lie on cold and hard devices thus increasing risk of hypothermia and pressure sores, associated with higher mortality and hospital stays respectively;

3. Reuse of equipment after decontamination which results in the possible risk of cross-infection if poorly cleaned, and inefficiency due to longer staff downtime.



THE SOLUTION

The ThermoTraumaPort (TTP) is a novel, patented emergency patient transfer device that transforms the management of trauma and critically ill patients by providing: **Active Warming** and **Padding** underneath a patient from point of injury through the continuum of care. TTP is a modular patient transfer device designed to be used with existing patient litters and to augment existing hypothermia mitigation systems by providing active warming where it is needed most – **underneath the patient.**

This results in safer, and easier transfers by medical staff as well as improved patient outcomes.

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TTP Specification Sheet

Dimensions

Mattress Laid Flat	1800mm (L) x 545mm (W) x 85mm (D)
Mattress Folded	900mm (L) x 545mm (W) x 170mm (D)
Outer Cover Flat	2000mm (L) x 870mm (W) x 1mm (D)

Weights

Mattress without Outer Cover, Poles, Straps & Battery		7.00 kg
Outer Cover		1.00 kg
Battery		1.42 kg
Poles	(0.18 kg x4)	0.72 kg
Straps	(0.37kg x4)	1.48 kg
Total working TTP package weight		**11.62 kg**

Heating and Battery Statistics[1]

Cold Test

The TTP was removed from the deep freezer and the temperature at test start was -13.2 °C, in 10 minutes it was 15.6 °C. That is a temperature increase of 28.8 °C or 2.9°C / minute. Within a further 20 minutes of current the temperature had exceeded 30 °C.

Room Temp Test

The TTP takes about 10 minutes to heat up to 30 °C from ambient temperature of 19 °C; and a further 5 minutes to reach 36 °C.

Battery Stats

Battery life expectancy 4-5 hours (Dependant on battery capacity used)

Load Rating

Max Patient weight is the required 150Kg (EN 1865-1 :201 0+A 1 :2015)[2]

Pressure Mapping

System offers a high degree of pressure relief, exceeding levels offered by a regular hospital mattress. Pressure report available on request.

1. As at June 2025

2. This is the standard for patient handling equipment used in road ambulances - Part 1: general stretcher systems and patient handling equipment

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TTP Addresses the Lethal Triad and MARCH

The Lethal Triad and MARCH both identify and emphasize the importance of addressing hypothermia in casualties.

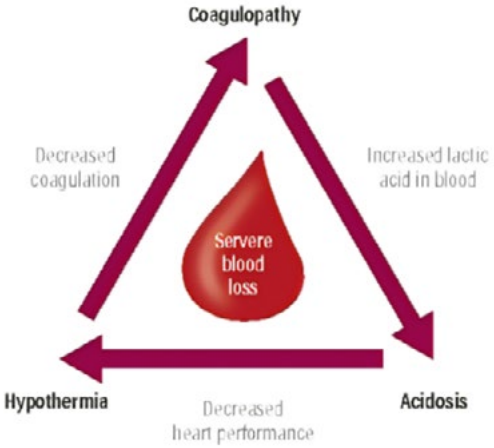
The Lethal Triad of Death in Trauma

Severe Hemorrhage → Hypovolemic Shock →

Hypothermia ● Coagulopathy ● Acidosis

The 3 factors aggravate each other in a vicious cycle →

Further Bleeding → Intractable Shock → Death



M	**Massive Hemorrhage**
A	**Airway**
R	**Respiration**
C	**Circulation**
H	**Hypothermia**

A large amount of blood loss can cause a drop in body temperature leading to hypothermia regardless of ambient temperature. Hypothermia is often overlooked due to concentration on more obvious, life-threatening concerns.

As per CMC Tactical Combat Casualty Care (Module 12):

"Hypothermia poses a significant risk to combat trauma and burn casualties and is an independent predictor of mortality. It can occur regardless of ambient temperature, and aggressive prevention and treatment is an essential element of the care of all combat casualties."

The challenge has always been in the ability to measure and then physically address hypothermia whilst attending to more immediate life-threatening issues. This becomes acutely significant with multiple casualties during triage where some patients need to be stabilized before further treatment.

TTP makes it easier: patients can simply be placed on the TTP to instantly address hypothermia and the Lethal Triad. This then allows for emergency personnel to simultaneously attend to more immediate life-threatening concerns, whether the same patient or a more urgent, triaged patient. TTP gives them the ability to actively address hypothermia quickly and effectively.

TTP is a simple and yet elegant solution that addresses a key predictor of mortality yet will not interfere with the ability to address more urgent life-threatening issues.

References and helpful links:

EMS Tactical Paramedic Lethal Triad - StatPearls - NCBI Bookshelf

Trauma's Lethal Triad of Hypothermia, Acidosis & Coagulopathy Create a Deadly Cycle for Trauma Patients Hypothermia Prevention & Treatment

Clinical Practice Guidelines (CPGs) - Joint Trauma System

A torso model comparison of temperature preservation devices for use in the prehospital environment | Emergency Medicine Journal

Vital gaps exist in the safe handling of emergency patients, which are solved by ThermoTraumaPort (TTP), a revolutionary transfer device to aid medical services and benefit patients. TTP was launched in May at SOMA 2025 (Special Operations Medical Association), a prestigious event for worldwide military emergency medical services.

There are crucial unresolved issues with the current practice of transferring patients from the scene of an accident through their pre- and in-hospital journey. The idea was born from discussions between the founder and emergency doctors from East Anglian Air Ambulance ("EAAA". They thought that current devices used in emergency medicine were suboptimal in some aspects of their functionality to manage severely injured patients. The founder won two awards totally £1 million of non-dilutive funding from the National Institute of Health and Social Care (NIHR to develop a solution. The Company itself was formed eighteen months ago to commercialise an advanced pre- production prototype which had been developed over seven years with the benefit of three usability studies.

Dr Jeremy Mauger, Pre-hospital Consultant at EAAA explains: "The impetus for this development came from us clinicians at EAAA who were keen to find a solution to prevent trauma patients having to be moved multiple times which risks the potential of further injury." Another problem with standard manual handling devices is that they are cold leading to the risk of the patient losing body heat. Jeremy continues: "We have experienced many patients exhibiting loss of body heat in trauma situations. Patients can also lose further body heat when being transferred from the scoop stretcher to other ambulance trolleys and hospital beds. Unfortunately, hypothermia is common in trauma victims and can reduce chances of survival."

A study published in the Journal of Special Operations Medicine in June 2020* on the management of hypothermia in tactical combat casualty care showed that 66% of trauma patients arrive in ED with some degree of hypothermia (< 36°C, whilst over 80% of non-surviving patients had body temperature <34°C. Therefore, the TTP has been developed with a warming element, powered by a rechargeable battery, which keeps the torso and shoulder area warm. This product is designed to aid patient transfer, provide warmth (if necessary) and stays with the patient during all pre- and in-hospital transfers.

An additional feature of the TTP is that it is padded. This provides a comfortable surface and reduces the risk of pressure sore development when the patient is on the device for a prolonged period of time. Furthermore, it is light weight and fold-able to fit into an ambulance, air ambulance or first-responder's vehicle. A clean single-use plastic cover is used for each patient which facilitates transfer with the device and prevents cross infection between patients.

Mary Anne Cordeiro, CEO of TTP Ltd, stated: "This is truly transformational for emergency transfers. We have been working with doctors from EAAA for the past seven years on all aspects of product development, funding, usability studies, production scale-up and regulatory submissions. We have already patented the device, which has several innovative features and completed three rounds of clinical user evaluation. Potential users include air and road ambulances, first response military staff, A&E hospitals, ski patrol and mountain rescue medical teams as well as emergency and disaster relief services. The company TTP Ltd has had interest from US Special Forces and is ready to launch the disruptive product onto the US market as the product now incorporates a military grade battery and is registered with the FDA as a 510K-exempt device.

For further information about the ThermoTraumaPort:
Please contact Mary Anne Cordeiro, CEO at **mac@ThermoTraumaPort.com**
Please follow us at: **https://www.linkedin.com/in/macordeiro/**

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