

TACTICAL COMBAT CASUALTY CARE : un système apprenant

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Battlefield trauma care then and now: A decade of Tactical Combat Casualty Care

Frank K. Butler, Jr., MD, CAPT, MC, USN (Ret) and Lorne H. Blackburne, MD, COL, MC, USA

Maughon¹ reported in 1970 that 193 of a cohort of 2,600 casualties that were killed in action in Vietnam died of isolated extremity hemorrhage. The percentage of fatalities that resulted from exsanguination from extremity wounds was 7.9%; this was the leading cause of preventable death among US military casualties in the Vietnam War. Maughon commented at the time that little progress had been made in battlefield trauma care in the last 100 years.

A sobering postscript to Maughon's observations in 1970 is found in the preventable death analyses done by Holcomb et al.² and Kelly et al.³ in the current conflicts. Holcomb et al. found a 15% incidence of potentially preventable fatalities in his article that reviewed all Special Operations deaths in Iraq and Afghanistan from the initiation of hostilities until November 2004. He found that 25% (3 of 12) fatalities with potentially survivable injuries might have been saved by the simple application of a tourniquet. The larger causes of death analysis by Kelly et al. studied 982 fatalities from the first 5 years of the conflicts in Afghanistan and Iraq. He documented that 77 of 232 potentially preventable deaths from the Armed Forces Medical Examiner records resulted from failure to use a tourniquet; exsanguination from isolated extremity wounds thus caused 7.8% of the combat-related deaths reported in the article of Kelly et al. The failure to make progress in addressing the leading cause of preventable deaths on the battlefield in the 30 years between the Vietnam and Afghanistan wars, despite the ready availability of the requisite technology, dramatically underscores Maughon's point about the lack of progress in battlefield trauma care.

The decade of conflict in Iraq and Afghanistan has, however, seen sweeping changes in the prehospital care of combat casualties. This section reviews the concepts of battlefield trauma care at the start of the war, how changes to this care have been implemented, the current state of battlefield trauma care, and the available metrics of success.

BATTLEFIELD TRAUMA CARE THEN: 2001

In the absence of a Department of Defense (DOD) level group with a charter to provide the services with updated best-practice battlefield trauma care guidelines, the prehospital

trauma care techniques being taught to US combat medical personnel at the start of the war were based on courses developed for management of trauma in noncombat settings.

Based on these courses, battlefield trauma care as practiced by our combat medics, corpsmen, and pararescuemen (PIs) at the start of the war included the elements listed in Table 1.

The choice of which battlefield trauma care courses to use in training medics was a decision reached by individual services or units. There was not effective interservice coordination on battlefield trauma care training provided before Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Some groups within the military sought to advance the level of battlefield trauma care by adopting practices intended for physician-led trauma teams in the emergency department for use by combat medical personnel. Advanced prehospital providers were being trained to use techniques such as diagnostic peritoneal lavage, venous cutdowns, and pericardiocentesis on the battlefield. These techniques are difficult to train and sustain and have not been shown to improve survival in combat casualties.

Published reports of potentially preventable deaths among US military fatalities in the early years of hostilities in Iraq and Afghanistan ranged from 15% to 28%.⁴⁻⁶ Both of these studies reflect the standards of trauma care as practiced in the first half of the war. Note also that not all potentially preventable deaths result from deficiencies in care provided. Some reflect tactical situations that made medical care impossible in the time window in which interventions may have been lifesaving; others may reflect prolonged times to definitive care in immature theaters of war.

Tactical Combat Casualty Care

In the mid-1990s, a Special Operations medical research project was undertaken with the goal of improving combat trauma outcomes through optimization of the care rendered in the tactical prehospital environment. This research effort developed a new concept called *Tactical Combat Casualty Care* (TCCC). The core principles of TCCC are to avoid preventable deaths and to combine good medicine with good tactics. This project reviewed the available evidence in prehospital trauma care with a focus on tactical applications and resulted in a article titled "Tactical Combat Casualty Care in Special Operations," which was published as a supplement to the journal *Military Medicine* in August 1996.⁶ This original TCCC article included a proposed set of prehospital trauma care guidelines that were customized for use on the battlefield and provided strong emphasis on the most common historical causes of preventable death in combat.

The TCCC guidelines were quickly adopted by the Navy Sea, Air, and Land (SEAL) community, the 75th Ranger

MILITARY MEDICINE, 182, 3/4:e1563, 2017

Two Decades of Saving Lives on the Battlefield: Tactical Combat Casualty Care Turns 20

Frank K. Butler, MD, FAOA, FUHM

ABSTRACT Background: Twenty years ago, the original Tactical Combat Casualty Care (TCCC) article was published in this journal. Since TCCC is essentially a set of best-practice prehospital trauma care guidelines customized for use on the battlefield, the presence of a journal with a specific focus on military medicine was a profound benefit to the initial presentation of TCCC to the U.S. Military. Methods: In the two ensuing decades, which included the longest continuous period of armed conflict in our nation's history, TCCC steadily evolved as the prehospital trauma care evidence base was augmented and as feedback from user medics, corpsmen, and pararescuemen was obtained. Findings: TCCC has taken a leadership role in advocating for battlefield trauma care advances such as the aggressive use of tourniquets and hemostatic dressings to control life-threatening external hemorrhage; improved fluid resuscitation techniques for casualties in hemorrhagic shock; increased emphasis on airway positioning and surgical airways to manage the traumatized airway; faster, safer, and more effective battlefield analgesia; the increased use of intraosseous vascular access when needed; battlefield antibiotics; and combining good medicine with good small-unit tactics. With the continuing assistance of Military Medicine, these advances and the evidence base that supports them have been presented to TCCC stakeholders. Discussion/Impact: Now—20 years later—TCCC has been documented to produce unprecedented decreases in preventable combat death in military units that have trained all of their members in TCCC. As a result of this proven success, TCCC has become the standard for battlefield trauma care in the U.S. military and for the militaries of many of our allied nations. Committee on TCCC members and the Joint Trauma System also work closely with civilian trauma colleagues through initiatives such as the Hartford Consensus, the White House Stop the Bleed campaign, and the development of National Association of Emergency Medical Technicians TCCC-based courses to ensure that advances in prehospital trauma care pioneered by the military on the battlefield are translated into civilian practice on the streets of America. Active shooter incidents, terrorist bombings, and the day-to-day trauma that results from motor vehicle accidents and criminal violence create the potential for many additional lives to be saved in the civilian sector. Along with the other components of the Department of Defense's Joint Trauma System, the Committee on TCCC, and the TCCC Working Group have been recognized as a national resource and will continue to advocate for advances in best-practice battlefield trauma care as opportunities to improve are identified.

From the US Army Institute of Surgical Research, Fort Sam Houston, Texas. The opinions and assertions expressed by the authors are theirs alone and do not necessarily reflect the views of the Department of the Army or the Department of Defense.

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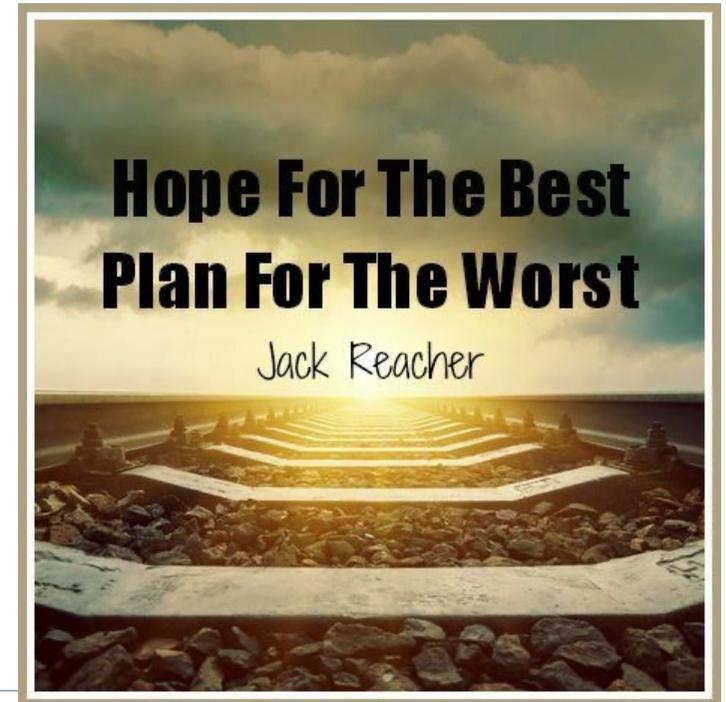
DOI: 10.1097/TA.0b013e3182754850

J Trauma Acute Care Surg
Volume 73, Number 6, Supplement S

Plan



Pourquoi ?
Comment s'en inspirer ?
Perspectives



Constat

1992 : Pas d'amélioration de la prise en charge des BG depuis 100 ans

Viet Nam : Lessons learned ?

J. S. Maughon, MC, USN, An Inquiry Into the Nature of Wounds Resulting in Killed in Action in Vietnam, *Military Medicine*, Volume 135, Issue 1, January 1970,

Butler FK Jr. TCCC Updates: Two Decades of Saving Lives on the Battlefield: Tactical Combat Casualty Care Turns 20. *J Spec Oper Med*. 2017 Summer;17(2):166-172.

TABLE 1. Battlefield Trauma Care Then (2001)

In the absence of a DOD-level group with a charter to provide the services with updated best-practice battlefield trauma care recommendations, the prehospital trauma care techniques being taught to US combat medics, corpsmen, and paramedics at the start of the conflicts in Afghanistan and Iraq were based on courses developed for management of trauma in noncombat settings and included the following elements:

To render care with no structured consideration of the evolving tactical situation

Not to use tourniquets to control extremity hemorrhage

To manage external hemorrhage with prolonged direct pressure, thereby precluding the medic from attending to other injuries or rendering care to other casualties

No use of hemostatic dressings

Two large-bore intravenous lines started on all patients with significant trauma

Treatment of hypovolemic shock with large-volume crystalloid fluid resuscitation

No special considerations made for traumatic brain injury with respect to avoiding hypotension or hypoxia

Management of the airway in facial trauma or unconscious casualties with endotracheal intubation

No specific techniques or equipment to prevent hypothermia and secondary coagulopathy in combat casualties

Management of pain in combat casualties with intramuscularly administered morphine—a battlefield analgesia technology that dates back to the Civil War

No intraosseous access techniques

No prehospital electronic monitoring techniques

No effective nonparenteral analgesic medications

No prehospital antibiotics

No delineation of which casualties might benefit most from supplemental oxygen

Spinal precautions applied broadly to casualties with significant trauma, without consideration of tactical concerns or mechanism of injury

Butler FK Jr, Blackburne LH. Battlefield trauma care then and now: a decade of Tactical Combat Casualty Care. *J Trauma Acute Care Surg.* 2012 Dec;73(6 Suppl 5):S395-402. doi: 10.1097/TA.0b013e3182754850. PMID: 23192061.

Etat des lieux

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« No Tourniquet » Rule

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Etat des lieux

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	<p style="text-align: center;">« No Tourniquet » Rule</p> 	<p>trauma care r conflicts in Af</p> <p>ending to other inju</p> <p>oxia</p> <p>casualties</p>	
<p>No special considerations made for traumatic brain injury</p> <p>Management of the airway in facial trauma or unconscious patients</p> <p>No specific techniques or equipment to prevent hypothermia</p> <p>Management of pain in combat casualties with intramuscularly administered morphine—a battlefield analgesia technology that dates back to the Civil War</p> <p>No intraosseous access techniques</p> <p>No prehospital electronic monitoring techniques</p> <p>No effective nonparenteral analgesic medications</p> <p>No prehospital antibiotics</p> <p>No delineation of which casualties might benefit most from supplemental oxygen</p> <p>Spinal precautions applied broadly to casualties with significant trauma, without consideration of tactical concerns or mechanism of injury</p>			

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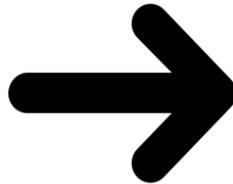
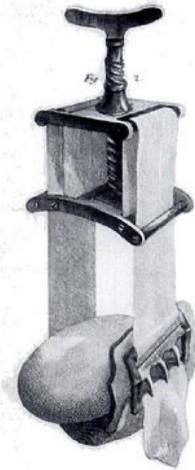


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1990 : Naval Special Warfare Biomedical Research Programm



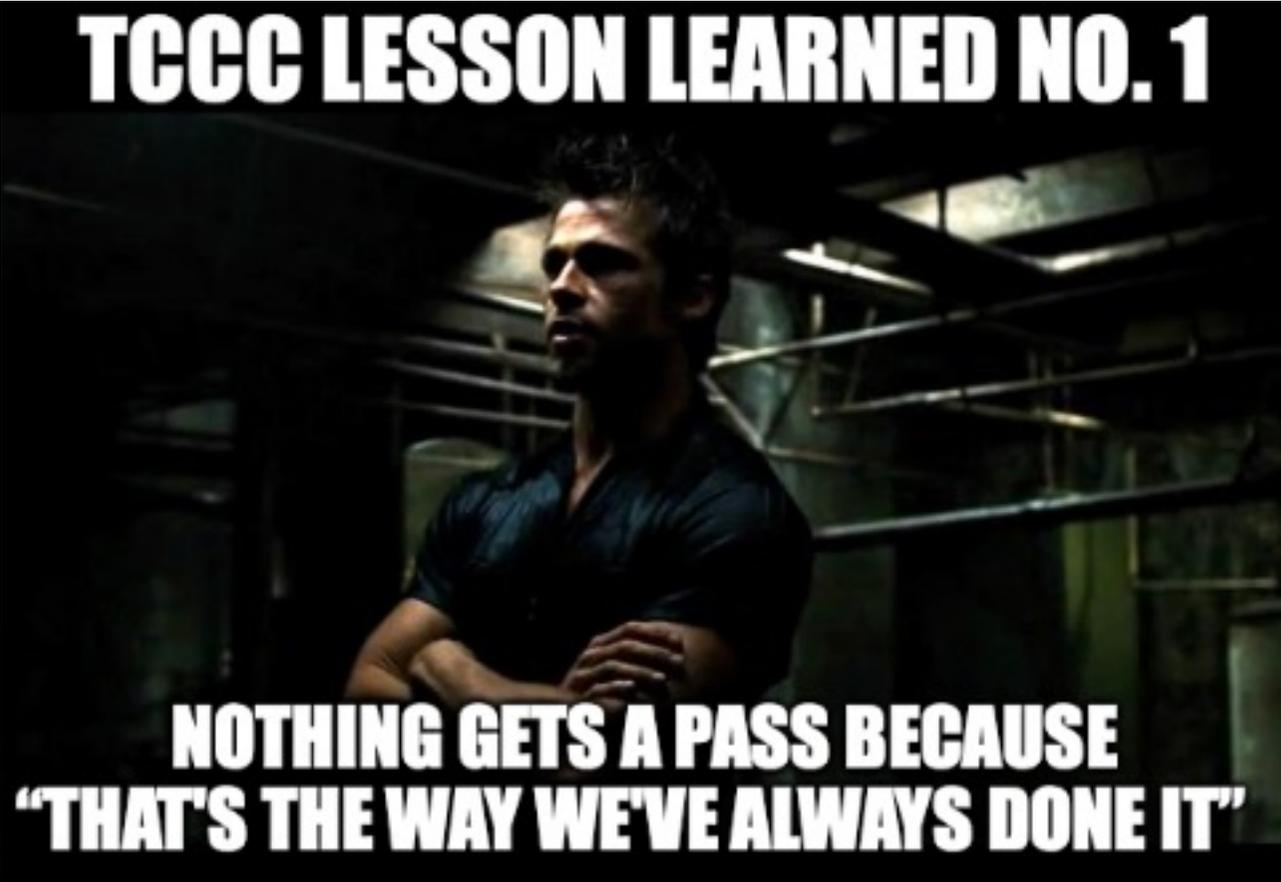
Tradition based-
medicine

Evidence based-
medicine

1990 : N

TCCC LESSON LEARNED NO. 1

rogramm



Tradition
me

e based-
icine

1993-1995

- TCCC projet de recherche

Avril 1997

- TCCC = standard de soins SEAL

2005

- Garrot pour tous les combattants

Aout 1996

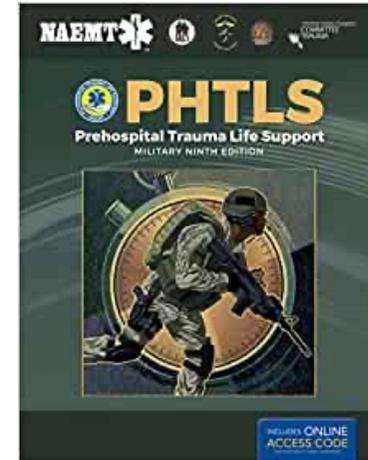
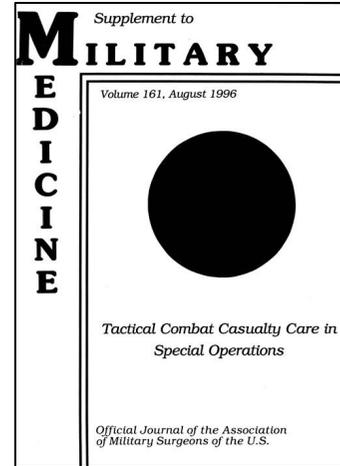
- “Tactical Combat Casualty Care in Special Operations” publié dans military medicine

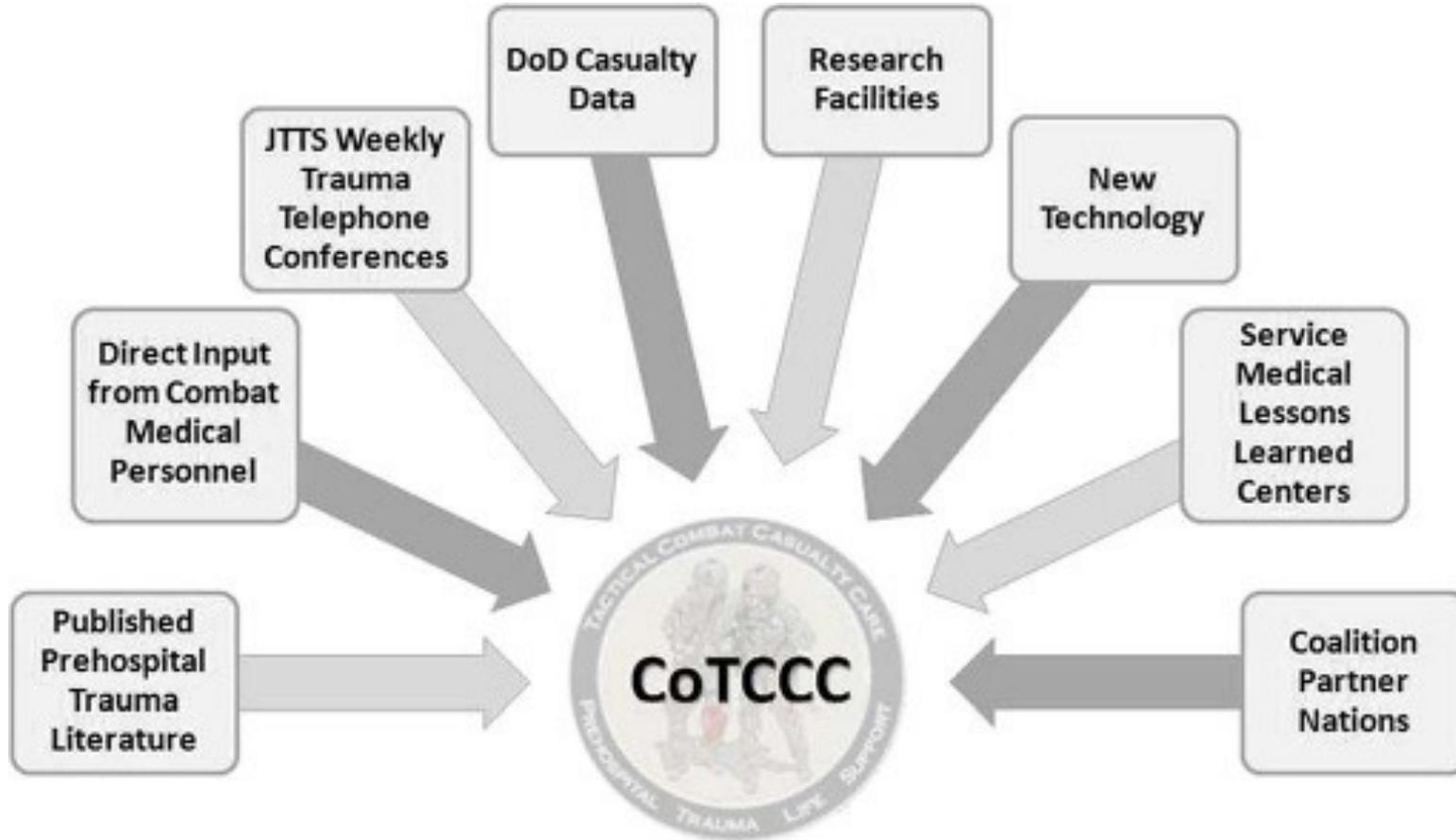
1999

- TCCC publié dans la 4ème édition du PHTLS

2010

- L'armée américaine impose le TCCC dans le sauvetage au combat





2001 : Co TCCC
Transdisciplinaire
Interarmées
Méthodologie
décisionnelle

Joint Traumat System



2013 : Coopération CoTCCC / JTS

- Holcomb : « there was absolutely no connection of anything to anybody – and I emphasize that »

Réseau de traumatologie

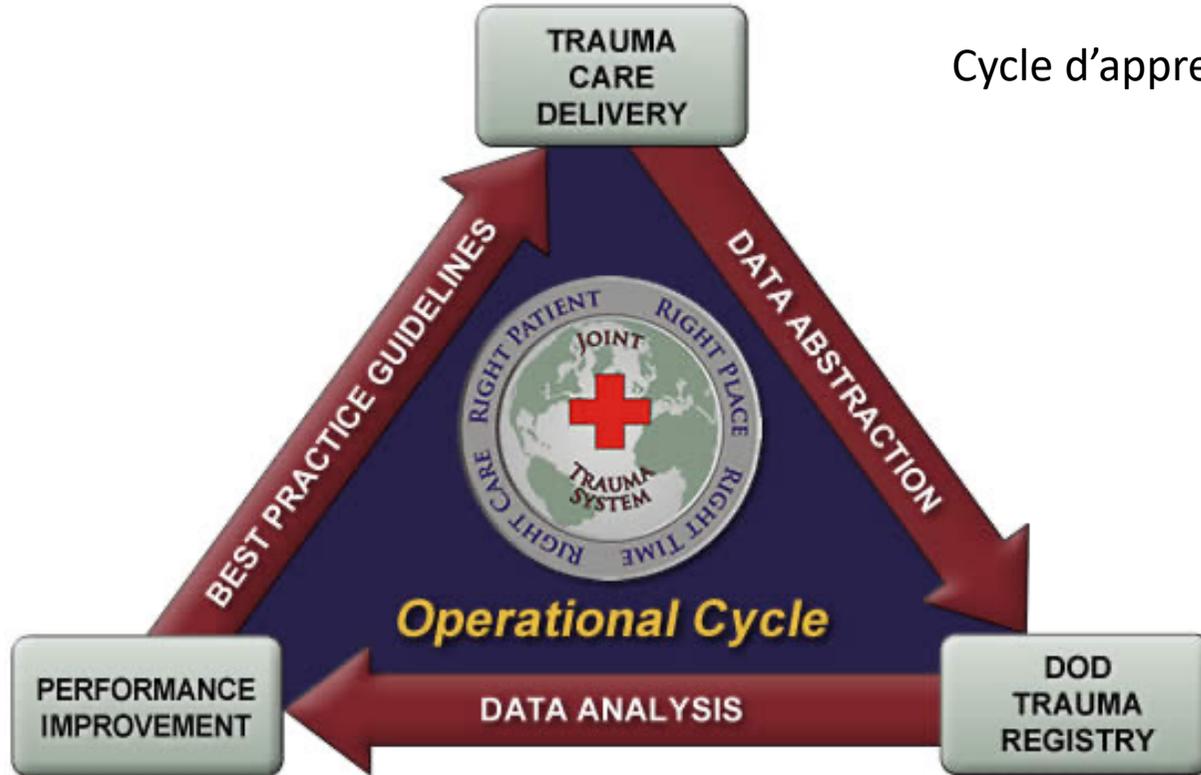
Tactique

Stratégique

Opérationnel

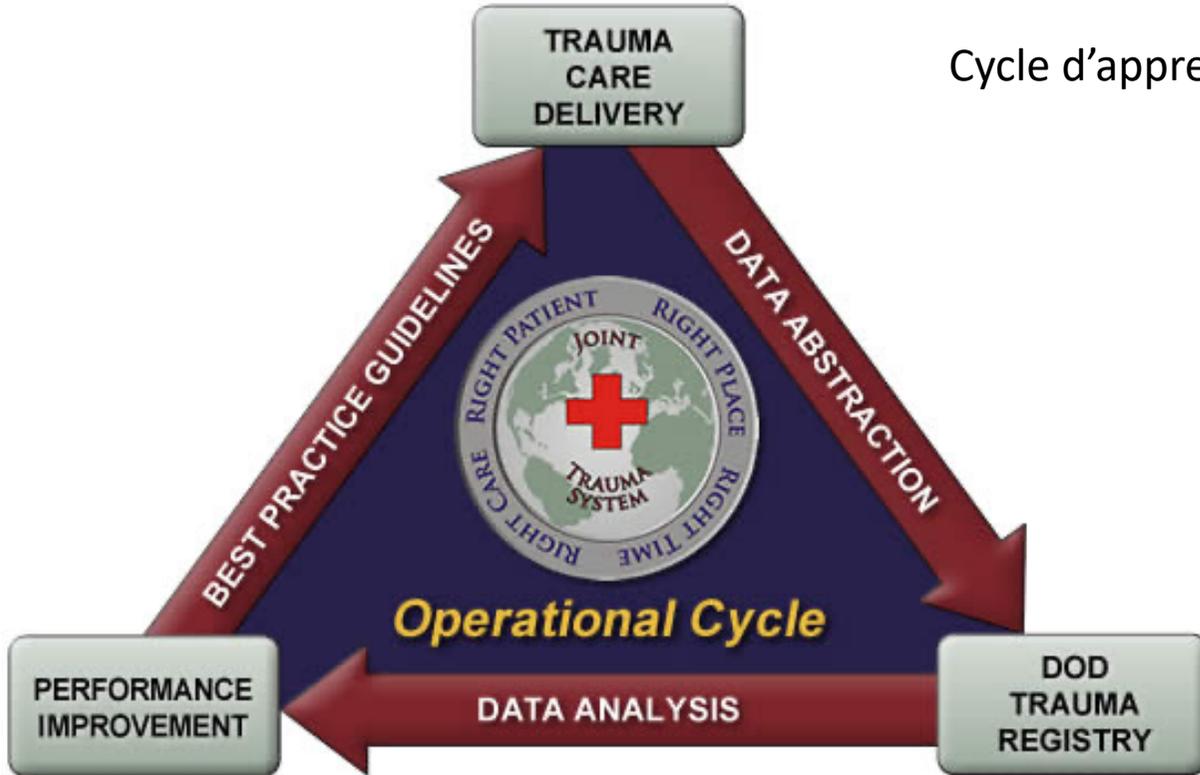


Organisation apprenante

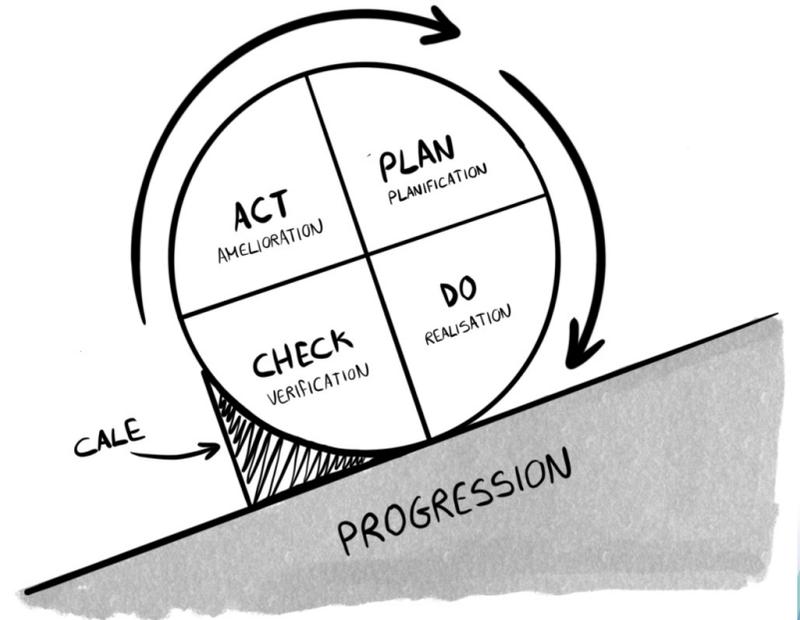


Cycle d'apprentissage

Organisation apprenante



Cycle d'apprentissage



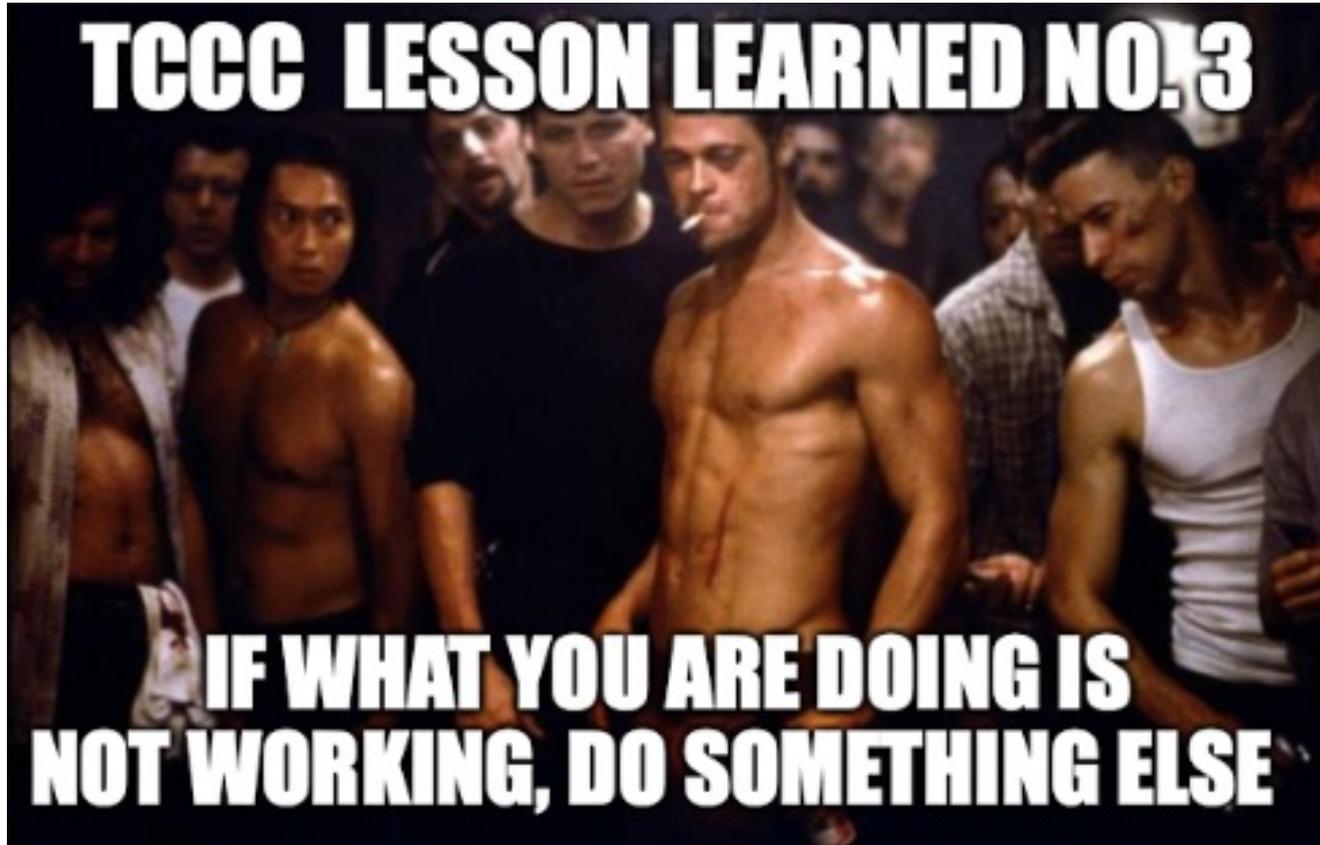
Apprentissage permanent

« Il y a mauvaise performance lorsque le système n'agit pas sur les opportunités d'amélioration identifiées »

« Modifier une recommandation ne doit pas être considéré comme un indicateur d'une mauvaise performance passée »

Butler FK.





Recueil de données !

Continuum de soins

Contexte tactique / pré-hospitalier

Numérisation des données VS Sécurité

Accessibilités des données



DoDTR :

130,000 données / 80,000 accidents / Web / Temps
réel

Recueil de données !

Continuum de soins

Contexte tactique / pré-hospitalier

Numérisation des données VS Sécurité

Accessibilités des données



Schweizer et al. *Military Medical Research* (2019) 6:7
<https://doi.org/10.1186/s40779-019-0197-6>

MNR MILITARY MEDICAL RESEARCH

RESEARCH

Open Access

Description of trauma among French service members in the Department of Defense Trauma Registry: understanding the nature of trauma and the care provided

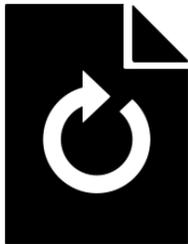


Marc A. Schweizer^{1*}, Jud C. Janak¹, Zsolt T. Stockinger² and Tristan Monchal³

Recueil de données

Axe de recherche prioritaire ERCCC

- Développement outil de documentation : check-list , dossier numérique, **collecte automatisées de données**



Hatzfeld JJ al Top 10 Research Priorities for U.S. Military En Route Combat Casualty Care. Mil Med. 2021 .

A NATIONAL TRAUMA CARE SYSTEM

Integrating Military
and Civilian Trauma
Systems to Achieve

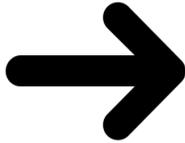
Z E R O
Preventable
D E A T H S
After Injury

En pratique civile

Tueries de masse , attentats



2019



A-B-C-D-E

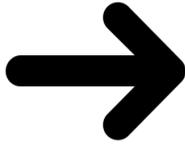
Tactical Emergency Casualty Care

En pratique civile

Tueries de masse , attentats



2019



X-A-B-C-D-E

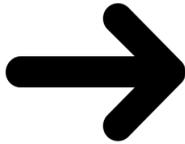
Tactical Emergency Casualty Care

En pratique civile

Tueries de masse , attentats



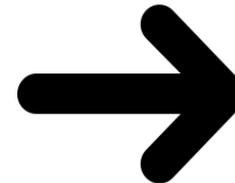
2019



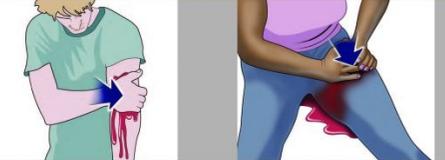
X-A-B-C-D-E

Tactical Emergency Casualty Care

No tourniquet rule



1 APPLY PRESSURE WITH HANDS



2 APPLY DRESSING AND PRESS



3 APPLY TOURNIQUET



WRAP

WIND

SECURE

TIME

CALL 911

En pratique civile



ANTICIPER

QUE SAVONS-NOUS ?

ATTRIBUER RÔLES

UTILISER CHECK-LIST
ÉTUDIER LE TERRAIN

BESOINS ET PRÉPARATION
MATÉRIEL/RESSOURCES

T_{0-5 min}

S	Stop the burning process	Se protéger / Contact avec forces de sécurité intérieures (police/gendarmerie) et forces de secours (SP)					
A	Assess the scene	Évaluer la situation					
F	Free of danger	Les forces de sécurité sont forces menantes, les forces de secours et de santé sont concourantes					
E	Evaluate the casualties	Évaluer et catégoriser les blessés START (SIMPLE TRIAGE AND RAPID TREATMENT)	Marche ?	Respire ?	Pouls radial ?	Conscience ?	PRIORISER les victimes et TRAITER BESOINS IMMÉDIATS

T_{5-15 min}

M	Massive bleeding control	Garrot pneumatique ou tourniquet : pose immédiate « réflexe » si hémorragie active. Réévaluation puis « conversion » secondaire en packing compressif dès que possible. Compression plaies, packing, suture scalp... Ceinture pelvienne +/- garrot jonctionnel...					
A	Airway	Subluxation, canules oropharyngée, intubation (voir fiche), cricothyroïdectomie					
R	Respiration	Oxygénation, décompression pneumothorax Ventilation uniquement si nécessaire...					
C	Circulation (en cas de choc)	HYPOTENSION PERMISSIVE : PAS 80-90 mmHg, PAM 60-65 mmHg (PAS>110 si trauma crânien ou médullaire) EXPANSION À PETITS VOLUMES : Abords IV (ou IO); Bolus cristalloïdes 250ml, limiter à 1000ml ; PSE noradrénaline si objectifs pression artérielle non atteints malgré 1000 ml d'expansion PSL (dont PLYO) si disponibles <u>sans jamais retarder l'évacuation</u> ACIDE TRANEXAMIQUE : 1g IVL, Puis 1g sur 8H IV. Pas après 3H post-trauma					
H	Head / Hypothermia	EVALUATION GLASGOW COMA SCALE (GCS / SCORE MOTEUR) ET PUPILLES PRÉVENTION HYPOTHERMIE : Couverture de survie, couverture chauffante, Chauffage ambulance, enlever les habits mouillés.					
E	Evacuation	Prévoir moyens nécessaires et brancardage Noter horaires (accident, garrot, mobilisation...)					

T_{15-30 min}

R	Réévaluer	Réévaluer le patient. Remplir FMA (Fiche Médicale de l'Avant)					
Y	Yeux / ORL	Nettoyage, pansement oculaire. Méchage épistaxis					
A	Analgésie / ACSOS	ANALGESIE adaptée : Morphine, kétamine PRÉVENTION ACSOS si trauma crânien ou médullaire : Evaluation neuro GCS/pupilles, osmothérapie si anomalie pupilles et GCS<5 Objectifs: SpO2 94-98%, PAS > 110 mmHg, ETCO2 30-35 mmHg si Ventilation, glycémie 8-10mmol/l, température 35-37°C					
N	Nettoyage	Nettoyer plaies, antibiothérapie Pansements					

T_{30-60 min}

ÉVACUER LES LIEUX DÈS QUE POSSIBLE
Poursuite des traitement en cours d'évacuation

VECTEUR ET ORIENTATION ADAPTÉS EN FONCTION DES RESSOURCES DISPONIBLES
Transmissions structurées à l'arrivée

Check-list « M-A-R-C-H-E » du polytraumatisé		Déjà fait/contrôlé		Réalisé maintenant		Ne s'applique pas		
M	Hémorragie contrôlée	NON	Garrot(s) serré(s) vérifié(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	OUI	QuickClot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	Pansement compressif	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			Suture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
A	VAS libres	NON	Libération manuelle/Magyll	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	OUI	IOT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	Crycothyroïdotomie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
R	Ampliation thoracique symétrique	OUI	} Hémothorax éliminé / traité	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	NON		} Pneumothorax éliminé / traité	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Murmure vésiculaire symétrique	OUI			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	NON			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Emphysème sous cutané absent	OUI			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	NON	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
SpO ₂ > 94% spontanée	OUI	NON	O ₂ / VNI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	QSP sat > 94%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fréq respi < 40/min ou absence de signes de détresse respi	OUI	NON	VNI / IOT	Oui <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Non <input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>		Non <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
H	Absence de troubles de la conscience majeurs	NON	IOT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUI <input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			Absence de signes d'HTIC cliniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			NON	Osmothérapie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
E	Réchauffement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	eFAST	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cinétique HemoCue (Hb < 13 g/dl)	<input type="checkbox"/>	<input type="checkbox"/>	
	Antalgie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ceinture pelvienne (bassin instable)	<input type="checkbox"/>	<input type="checkbox"/>	
	Antibioprophylaxie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attelle STS	<input type="checkbox"/>	<input type="checkbox"/>	
Acide tranexamique 1g	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Protocole transfusion massive demandé à la régul (≥ 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I	IOT non sélective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
O	Pression ballonnet vérifiée	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T	Valeurs EtCO ₂ selon objectifs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Curarisation longue évoquée	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
A	1 Hémorragies externes stoppées	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C	2 Ventilation : IOT ou BAVU	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
R	3 Remplissage vasculaire par cristalloïdes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4 Thoracostomie bilatérale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5 Échographie pour éliminer / traiter tamponnade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	6 +/- Ceinture pelvienne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
RCP (manuelle/automatique) continue + patchs défibrillation + 1 mg adré / 4'								



TCCC : la french touch ?



TCCC : la french touch ?

ORIGINAL RESEARCH

Five years of prolonged field care: prehospital challenges during recent French military operations

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Perspectives



Perspectives

Prolonged
Field Care

Intranasal

LOWTB

IM TXA

REBOA

IA recueil de données

Triage

Drones



Take Home message

Take Home message

- Le TCCC doit s'adapter à la haute intensité



Take Home message

- Le TCCC doit s'adapter à la haute intensité
- Un standard de soins a besoin de réseau



Take Home message

- Le TCCC doit s'adapter à la haute intensité
- Un standard de soins a besoin de réseau
- Un système apprenant a besoin de vous





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