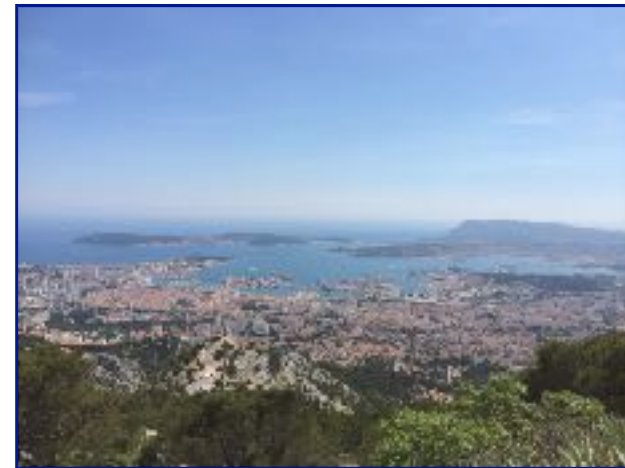


Apport de la biologie dans le triage et le prolonged field care



Aurelien RENARD*, Nicolas CAZES**, Guillaume GASPERINI*, Stéphane FOUCHER*, Emmanuel COMBES*, Patrick BENNER*

*Structure des urgences, Hôpital d'instruction des armées sainte-Anne, 2 Boulevard de sainte Anne 83000 Toulon - aurelien.renard@intradef.gouv.fr

** Service médical du bataillon des marins pompiers. boulevard de Plombières. Marseille



Intervenant :

Aurelien RENARD

Apport de la biologie dans triage et le prolonged field care



L'orateur ne souhaite
pas répondre.

☐

 Consultant ou membre d'un conseil scientifique

☐ NON

 Conférencier ou auteur/rédacteur rémunéré d'articles ou documents

☐ NON

 Prise en charge de frais de voyage, d'hébergement ou d'inscription à des congrès ou autres manifestations

☐ NON

 Investigateur principal d'une recherche ou d'une étude clinique

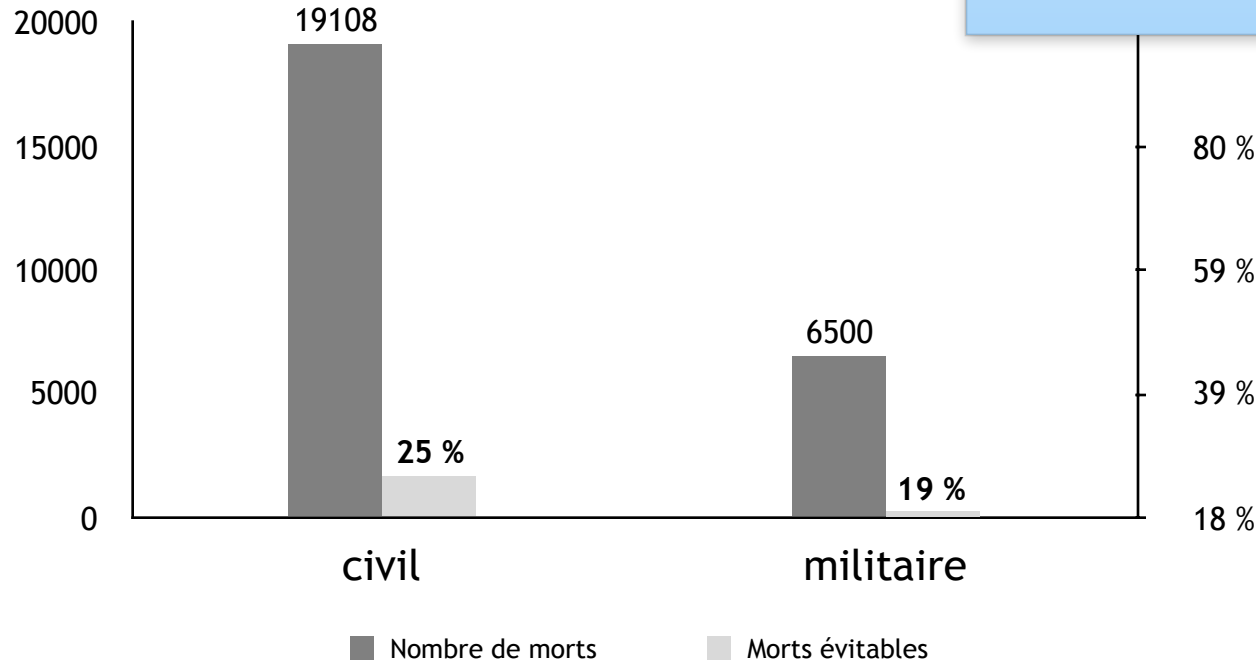
☐ NON



Objectifs de la présentation

- Définir et décrire le *Prolonged Field Care (PFC)*
- Place de la biologie dans le PFC
 - Triage
 - Optimisation de la PEC prolongée sur le terrain
 - « En route care » et biologie

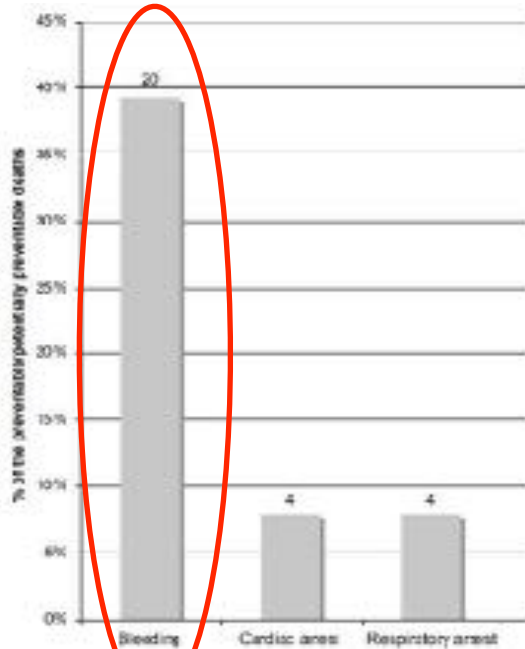
Auteur jeu. 9:00 PM
Auteur il y a 33 mn
Aurelien Renard il y a 35 mn
1/4 environ des morts sont des morts évitables... aussi bien en milieu civil



Méta-analyse :
42 études civiles
8 études militaires
1985 à 2011

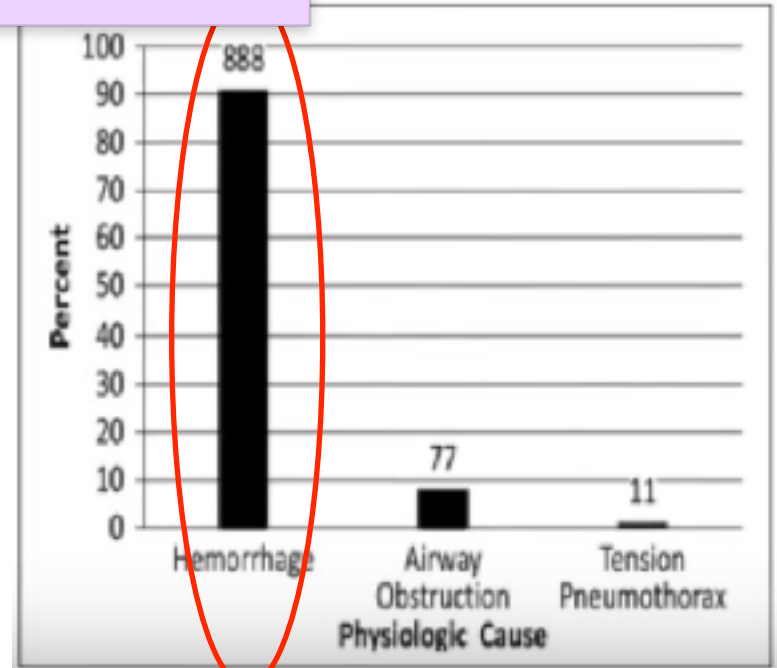
Auteur 2 jeu. 9:00 PM
Auteur 2 il y a 33 mn
Aurelien Renard il y a 34 mn
Et ces morts évitables sont la plupart
du temps des patients victimes

Milieu civil



Teixeira, J Trauma 2007
Eastridge, J Trauma 2012

Milieu militaire

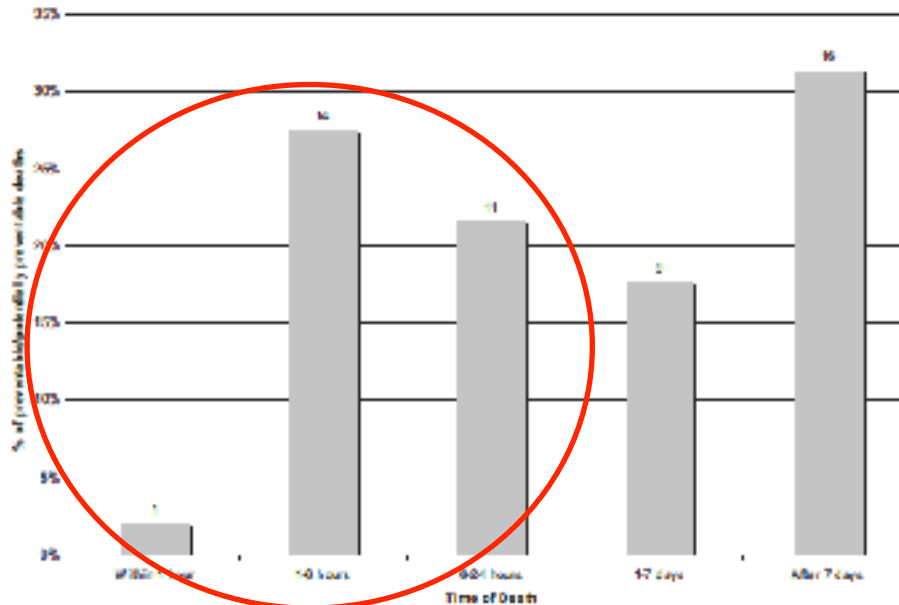


URGENCES

URGENCES
OF COMPLEXES



www.urgences-lebanon.org



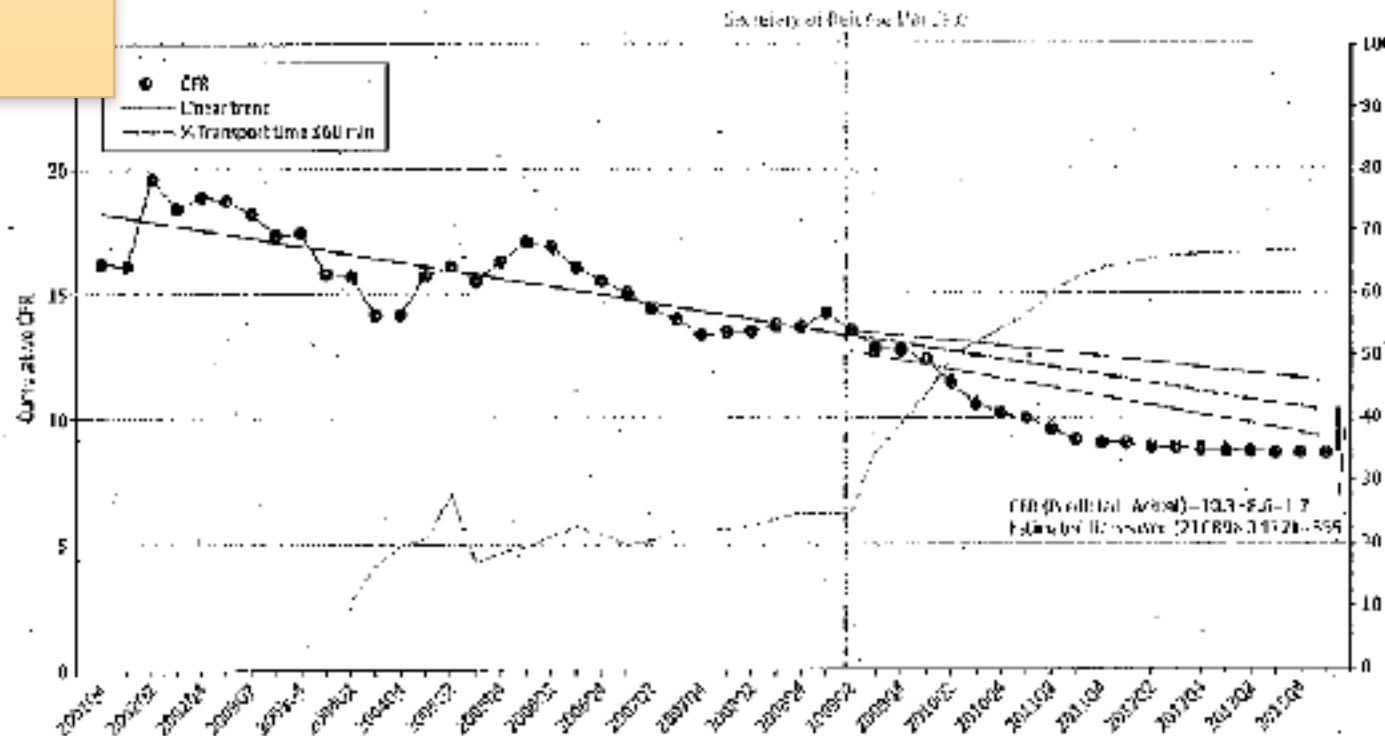
Auteur 3 jeu. 9:00 PM
Auteur 3 il y a 33 mn
Auteur il y a 47 mn
Auteur Il y a 1 heure
Aurelien Renard mer. 8:53 AM

*J Trauma. 2007 Dec;
63(6):1338-46;
Preventable or potentially
preventable mortality at a
mature trauma center.
[Teixeira PG](#)*

Delay in treatment and error in judgment are the leading causes of preventable and potentially preventable deaths.

Auteur 4 jeu. 9:00 PM
 Auteur 4 il y a 33 mn
 Auteur 2 il y a 47 mn
 Auteur 2 Il y a 1 heure
 Auteur mer. 8:41 AM

Kotwal RS, Howard JT, Orman JA,
 et al.
 JAMA Surg. 2016



Auteur 5 jeu. 9:00 PM
Auteur 5 il y a 33 mn
Aurelien Renard il y a 33 mn
A la lumière des ces constatations, la
pec d'un traumatisé grave sur le



The European guideline on management of
major bleeding and coagulopathy
following trauma: fourth edition

Results

I. Initial resuscitation and prevention of further bleeding

Minimal elapsed time

Recommendation 1 We recommend that severely injured patients be transported directly to an appropriate trauma facility. (Grade 1B)

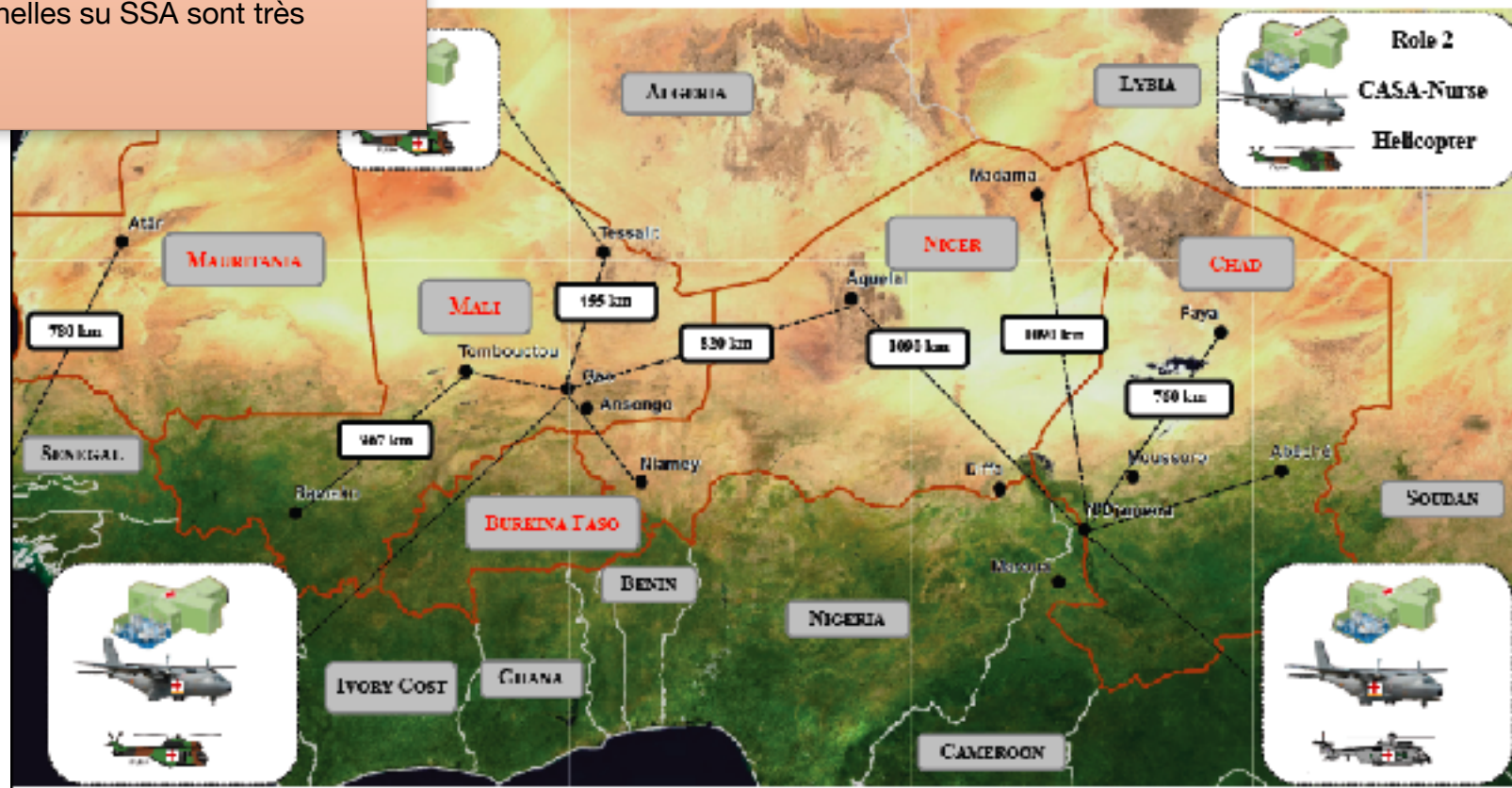
We recommend that the time elapsed between injury and bleeding control be minimised. (Grade 1A)

5-6-7 JUN
2019
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S
 URGENCES
 ET COMMANDES



Auteur 6 jeu. 9:00 PM
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 Aurelien Renard il y a 31 mn
 Sauf que.... les zones d'actions
 opérationnelles su SSA sont très





Concept de Prolonged Field Care

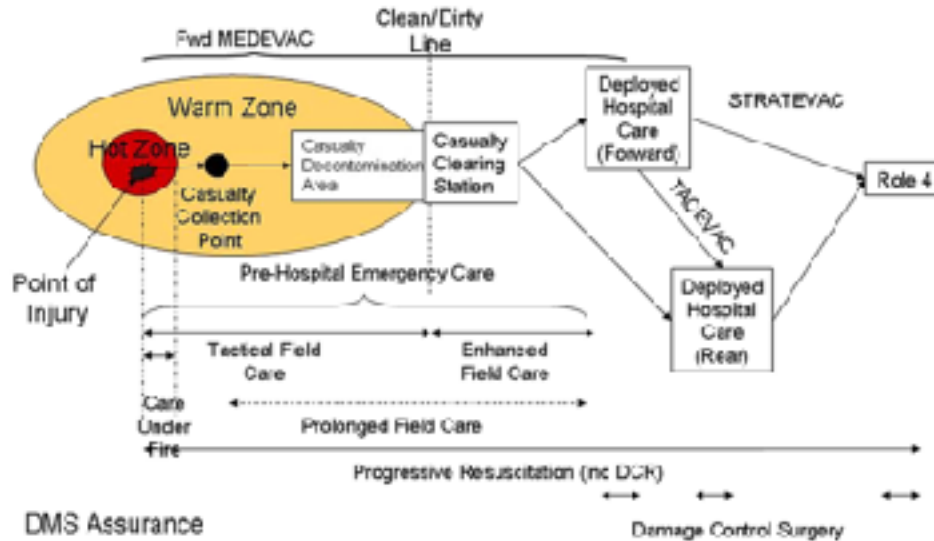


Figure 3 The Operational Patient Care Pathway



Auteur 7 jeu. 9:00 PM
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Auteur 3 il y a 47 mn
Auteur 3 il y a 1 heure
Auteur 2 mer. 8:41 AM

« Field medical care,
applied beyond doctrinal
planning time-lines »

	No. (%)
Hemorrhage control	
Tourniquet	8 (14.8)
Hemostatic agent	4 (7.4)
Pressure dressing	8 (14.8)
Airway	
NPA	4 (7.4)
Intubation	2 (3.7)
Cricothyrotomy	2 (3.7)
Breathing	
Supplemental O ₂	9 (16.7)
Bag-valve-mask ventilation	3 (5.6)
Mechanical ventilation	4 (7.4)
Circulation	
Peripheral intravenous access	53 (61.1)
Intraosseous access	1 (1.9)
Crystalloid administered	25 (46.3)
Blood products administered	7 (13.0)
Packed red blood cells (8 units)	4 (7.4)
Whole blood (21 units)	2 (3.7)
Plasma (2 units)	2 (3.7)
Medications	
Medication administered	33 (67.4)
Pain medication	24 (44.4)
Antibiotic	12 (22.2)
Tranexamic acid	4 (7.4)



[Review of 54 Cases of Prolonged Field Care.](#)

De Soucy E et al.
J Spec Oper Med. Spring 2017

Auteur 8 jeu. 9:00 PM
 Auteur 8 il y a 33 mn
 Auteur 4 il y a 47 mn
 Auteur 4 Il y a 1 heure
 Auteur 3 mer. 8:41 AM



Medical Care Working Group

			Best
	if vital sign interpretation	Maintain crystalloids also prepared for a major burn and/or closed-head injury resuscitation (1 to 2 cases of lactated Ringer's solution or PlasmaLyte A; hypertonic saline); consider adding lyophilized plasma as available; fluid warmer	Vital signs monitor to provide hands-free vital signs data at regular intervals
2. Resuscitate the patient beyond crystalloid or colloid infusion	Field fresh whole-blood (FFWB) transfusion kits	Maintain a stock of packed red blood cells and fresh frozen plasma and have type-specific donors screened for immediate FFWB draw	
3. Ventilate/Oxygenate the patient	Provide positive end-expiratory pressure (PEEP) via bag-valve mask (you cannot ventilate a patient in the PFC setting [prolonged ventilation] without PEEP or they will be at risk of developing acute respiratory distress syndrome)	Provide supplemental oxygen (O ₂) via an oxygen concentrator	Portable ventilator (eg, Eagle Impact ventilator, Zoll Medical Corp, http://www.impactventilation.com , or similar) with supplemental O ₂
4. Gain definitive control of the patient's airway with an inflated cuff in the trachea (and keep the patient comfortable)	Medic is prepared for a laryngeal cricothyrotomy	Ability to provide long-duration sedation	Add a responsible rapid-sequence intubation capability with subsequent airway maintenance skills, in addition to providing long-term sedation (to include suction and paralysis with adequate sedation)
5. Use sedation/pain control to accomplish the above tasks	Provide opiate analgesics titrated intravenously	Trained to sedate with ketamine (and aqueous rocuronium as needed)	Experienced with and maintains competency in long-term sedation practices using intravenous morphine, ketamine, midazolam, fentanyl, and so forth
6. Use physical examination/diagnostic measures to gain awareness of potential problems	Uses physical examination without advanced diagnostics; maintain awareness of potential unseen injuries (eg, abdominal bleed, head injury)	Trained to use advanced diagnostics such as ultrasound, point-of-care laboratory testing, and so forth	Experienced in both
7. Provide nursing, hygiene, and comfort measures	Ensure the patient is clean, warm, dry, padded, and catheterized and provide basic wound care	Elevate head of bed, debride wounds, perform wound care, wet-to-dry dressings, decompress stomach	Experienced in both
8. Perform advanced surgical interventions	Chest tube, cricothyrotomy	Fasciotomy, wound debridement, amputation, and so forth	Experienced in both
9. Perform resuscitative resuscitation	Basic resuscitative resuscitation, present patient, run trends of key vital signs	Advanced laboratory findings and ultrasound images	Video teleconference
10. Prepare the patient for flight	Be familiar with physiologic stressors of flight	Trained in critical care transport	Experienced in critical care transport

Monitorer / **TRIER**

Restaurer l'homeostasie / Assurer la perfusion tissulaire

Contrôler les VAS / ventiler

Contrôler la douleur

Anticiper les difficultés

WILDERNESS & ENVIRONMENTAL MEDICINE, 20, 1035-1109 (2013)

TACTICAL COMBAT CASUALTY CARE: TRANSITIONING BATTLEFIELD LESSONS LEARNED TO OTHER AUSTERE ENVIRONMENTS

Prolonged Field Care: Beyond the "Golden Hour"



Auteur 9 jeu. 9:00 PM
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Auteur 5 il y a 47 mn
Auteur 5 Il y a 1 heure
Auteur 4 mer. 8:41 AM

Travers and al.
Five years of prolonged field care:
prehospital challenges during
recent French military operations
Transfusion 2019

TABLE 5. MEDEVAC time frame for 46 Alpha casualties

Median time from injury to Role 2	130 min [70–252]
MEDEVAC time > 120 min	26 (57%)
MEDEVAC time > 240 min	12 (26%)
Median time from injury to Role 2 MTF based on context and organizational issues:	
• Ground transportation (N = 4)	22 min [16–31]
• Rotary wing (N = 29)	125 min [70–142]
Time from injury to take off (rotary wing)	32 min [15–42]
Time on point of injury (rotary wing)	7 min [1–14]
Flight time from POI to Role 2	30 min [23–50]
• Rotary wing followed by fixed wing (N = 11)	315 min [252–333]
• Ground followed by fixed wing (N = 2)	380 min [380–380]
Median (IQR) time from injury to arrival in Role 4 hospital	25 h [23–34]

Data expressed as number (percentage) and median (IQR).
MTF = Medical treatment facility; IQR = interquartile range; MED-EVAC = medical evacuation; MTF = medical treatment facility;
POI = point of injury.



TABLE 3. Alpha and Bravo casualties: field treatments before Role 2 MTF admission

N = 78; sufficient prehospital available data for N = 56	
Hemorrhage control	
Tourniquet	
• Number of casualties with tourniquet	18 (14.3%)
• Number of tourniquets used	31
• Upper limb/lower limb	6/25
• Median tourniquet time	90 min [62–262]
• Casualties with tourniquet time >120 minutes	6 (10.7%)
Casualties with hemostatic packing*	13 (23.2%)
SAM junctional tourniquet	1 (1.8%)
Pelvic binder	13 (23.2%)
Skin suture	2 (3.6%)
Use of urinary catheter for tamponade of massive epistaxis	1 (1.8%)
Airway or breathing distress	19 (34)
Orotracheal intubation	5 (8.9%)
• Airway obstruction	1 (1.8%)
• Coma	4 (7.1%)
Cricothyroidotomy	1 (1.8%)
Chest dressing	7 (12.5%)
Pneumothorax needle decompression or thoracostomy	3 (5.4%)
Thoracic drainage	3 (5.4%)
Peripheral intravenous access*	38 (67.9%)
Intraosseous access	3 (5.4%)
Resuscitation	19 (34%)
FLYP	9 (16.1%)
Red blood cell	4 (7.1%)
Fibrinogen	3 (5.4%)
Tranexamic acid*	20 (35.7%)
Hypertonic saline	14 (25%)
Hydroxyethyl starch	6 (10.7%)
Vasopressors	10 (17.9%)
Analgesia*	
Paracetamol/nefopam	9 (16.1%)
Morphine (SC and IV)*	29 (51.8%)
Field median dose (mg)	7.5 [4.7–14]
MEDEVAC median dose (mg)	3.5 [3–5]
Ketamine (IV)	11 (19.6%)
Median prehospital dose (mg)	50 [20–50]
Midazolam (IV)	7 (12.5%)
Median prehospital dose (mg)	2 [2–2]
Spine immobilization before MEDEVAC*	10 (17.9%)
Amoxicillin/clavulanic acid *	29 (51.8%)

Data expressed a number (percentage) and median [IQR].

* Likely not exhaustively reported.

IV = intravenous; FLYP = French lyophilized plasma; MEDEVAC = medical evacuation; SC = subcutaneous.

Tourniquet

• Number of casualties with tourniquet	18 (14.3%)
• Number of tourniquets used	31

• Casualties with tourniquet time >120 minutes

6 (10.7%)

Peripheral intravenous access*

38 (67.9%)

Resuscitation

FLYP	9 (16.1%)
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Travers and al.
Five years of prolonged field care:
prehospital challenges during
recent French military operations
Transfusion 2019

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 Auteur 6 Il y a 1 heure
 Aurelien Renard Il y a 9 heures

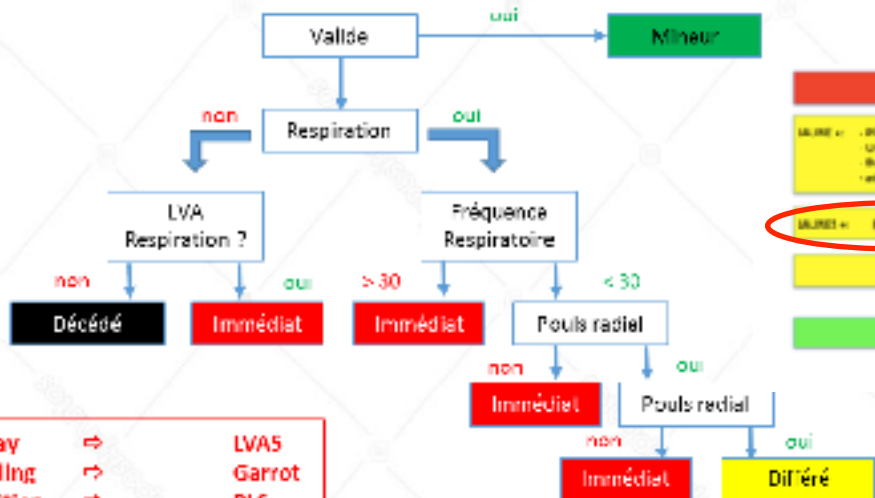
URGENCES
 ET
 COMPLEXES



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Méthode START ABC : faire le tour des blessés et faire réaliser le geste salvateur

Adulte et enfant > 8 ans



< 90 min

< 4 heures

< 24 heures

- Airway → LVA5
- Bleeding → Garrot
- Cognition → PLS

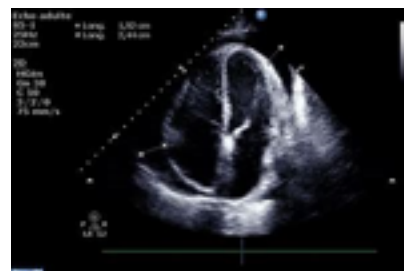


TABLE 1. Patient Simple Triage and Rapid Treatment (START) Triage Classification and Focused Assessment with Sonography in Trauma (FAST) Ultrasound Results

START Triage	FAST Positive	FAST Negative	FAST Inconclusive
YELLOW	20	251	15
RED	3	15	2
BLACK	4	47	2

Results

START Triage	Intervention within 24 Hours	No Intervention within 24 Hours	False-positive FAST
YELLOW	6	10	4



FAST Ultrasound as an Adjunct to Triage Using the START Mass Casualty Triage System:

Matthew D. Sztajnkryer MD, PhD, Amado Alejandro Biez MD, MSc & Anuradha Luke MD

URGENCES

URGENCES
OF COMBAT

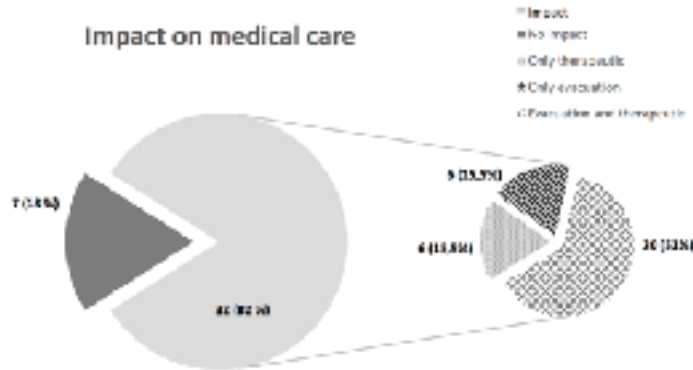
www.urgences-of-combat.org



Aurelien Renard II y a 8 heures

PALAIS DES CONGRÈS
PARIS PORTE MAILLOT

Impact on medical care



Renard A, Martinet C et al. Is E-FAST possible and useful on the battlefield ? A feasibility study during medical courses in hostile environment (MEDICHOS): preliminary results.



My OJ, Norvell JG, Subramanian S. Ultrasound applications in mass casualties and extreme environments. *Crit Care Med* 2007 Vol. 35, No. 5

Kimberly H, Stone MB. Clinician-performed ultrasound during the Boston marathon bombing mass casualty incident. *Ann Emerg Med* 2013 62 (2): 199-200

Brooks AJ, Price V, Simms FAST M. on operational military deployment. *Emerg Med J* 2005; 22: 263-5

CLINICAL PAPER

The utility of base deficit and arterial lactate in differentiating major from minor injury in trauma patients with normal vital signs^a

Lorenzo Paladino^a, Richard Snert, David Wallace, Todd Anderson, Kabir Yadav, Shahriar Zehtabchi

Table 2 Comparison of minor versus major injury

N = 1435	Minor injury (n = 1193)	Major injury (n = 242)	p-Value
Blunt	34.8% (116)	35.5% (86)	0.05
Penetrating	42.0% (501)	44.2% (107)	
Fall	11.6% (138)	14.5% (35)	
Other	11.6% (138)	5.8% (14)	
Age (years)	34.6	38.3	<0.01
Gender (male)	80.1%	83.1%	0.28
ED SBP	138 (95% CI: 136–139)	128 (95% CI: 125–132)	<0.01
ED HR	90 (95% CI: 89–91)	95 (95% CI: 92–98)	0.01
ISS	4 (95% CI: 4–5)	21 (95% CI: 20–23)	<0.01
Lactate	2.5 (95% CI: 2.3–2.6)	4.2 (95% CI: 3.7–4.7)	<0.01
Base deficit	−0.8 (95% CI: −0.6 to −1)	−4.4 (95% CI: −3.7 to −5.1)	<0.01

CLINICAL PAPER

The utility of base deficit and arterial lactate in differentiating major from minor injury in trauma patients with normal vital signs^a

Lorenzo Paladino^a, Richard Snert, David Wallace, Todd Anderson, Kabir Yadav, Shahriar Zehtabchi



ISS	4 (95% CI: 4–5)	21 (95% CI: 20–23)
Lactate	2.5 (95% CI: 2.3–2.6)	4.2 (95% CI: 3.7–4.7)
Base deficit	–0.8 (95% CI: –0.6 to –1)	–4.4 (95% CI: –3.7 to –5.1)

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Auteur 13 il y a 33 mn
Auteur 9 il y a 47 mn
Auteur 9 il y a 1 heure
Aurelien Renard Il y a 8 heures



Table 3 Vitals signs major versus minor injury

N= 1435	Major injury	Minor injury	Total
Abnormal vitals	99	302	401
Normal vitals	143	891	1034
Total	242	1193	1435

Table 5 Vital signs and abnormal lactate or base deficit major versus minor injury

	Major injury	Minor injury	Total
Abnormal	185	621	806
Normal	57	572	629
Total	242	1193	1435

Parameters	Value
Sensitivity	41%
Specificity	75%

Parameters	Value
Sensitivity	76%
Specificity	48%



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Aurelien Renard Il y a 7 heures

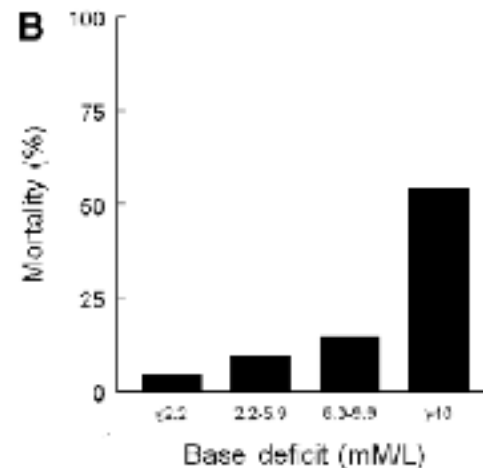
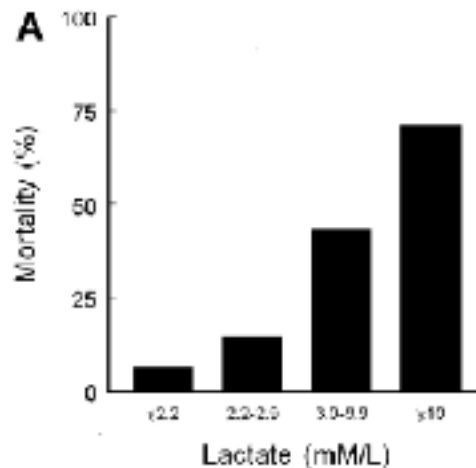
Qui est le plus performant ? *Base deficit ou Lactate*

CRITICAL CARE MEDICINE

Comparison of the Prognostic Significance of Initial Blood Lactate and Base Deficit in Trauma Patients

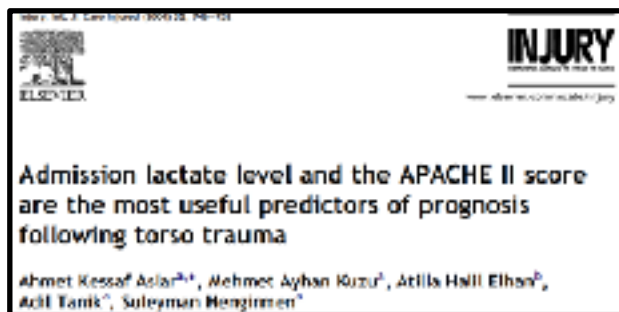
Mohieu Houk, M.D., Ph.D., Yannick Le Manach, M.D., Ph.D., Tobias Gause, M.D.,
Romain Beaumgard, M.D., Sophie Hemmick, M.D., Antoine Hamon, M.D., Ph.D.,
Bruno Riou, M.D., Ph.D., for the TRAUMABASE Group*

(ANESTHESIOLOGY 2017; 128:622-33)



Auteur 15 jeu. 9:00 PM
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 Auteur 11 il y a 47 mn
 Auteur 11 Il y a 1 heure
 Aurelien Renard Il y a 2 heures

Quelle limite pour le taux de lactates ?



Specifically, an initial lactate ≥ 4.0 mmol/l substantially increases the probability of acute-phase death.

Intensive care med 2007. Trzeciak S et al.



	Survivors		Non-survivors		χ^2	P-value
	n	%	n	%		
APACHE					37.86	<0.001
<15	37	94.9	5	20.0		
≥ 15	2	5.1	20	80.0		
RTS					28.85	<0.001
≤ 8	2	5.1	17	68.0		
> 8	37	94.9	8	32.0		
ISS					11.81	<0.001
≤ 14	17	43.6	1	4.0		
> 14	22	56.4	24	96.0		
SI					0.47	0.049
≤ 0.9	9	23.1	4	16.0		
> 0.9	30	76.9	21	84.0		

Lactate					29.34	<0.001
<4	32	86.5	4	16.0		
≥ 4	5	13.5	21	84.0		

Auteur 16 jeu. 9:00 PM
 Auteur 16 il y a 33 mn
 Auteur 12 il y a 47 mn
 Aurelien Renard il y a 37 mn
 Il s'agit d'un système de biologie



biology : I-stat system



Durée de
 conservation
 (cartouches)

1° 2-8°C : → jusqu'à la date de péremption indiquée sur la boîte
 1° pièce : → 5 jours

Température de l'analyseur pour le transport

-10°C à 50°C

Température de l'analyseur pour l'utilisation

18°C à 30°C

Auteur 17 jeu. 9:00 PM
Auteur 17 il y a 33 mn
Auteur 13 il y a 47 mn
Aurelien Renard il y a 8 mn
Système de biologie délocalisée de

biology : Epoc



5-6-7 JUIN
2019
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Auteur 18 jeu. 9:00 PM
 Auteur 18 il y a 33 mn
 Auteur 14 il y a 47 mn
 Aurelien Renard il y a 20 mn
 Etude récente de 2019 chez les

... des usages...

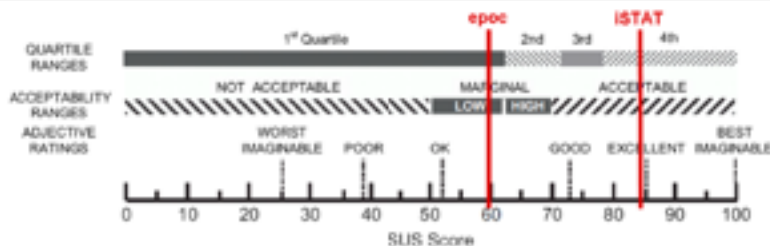


Fig. 2 Mean System Usability Scale (SUS) Scores for the epoc* and i-STAT* compared to quartile ranges, acceptability ranges and adjective ratings. Adapted from "An empirical evaluation of the System Usability Scale," by A. Bangor, P.T. Kortum, and J.T. Miller, 2008, International Journal of Human-Computer Interaction, 24, p. 592. Copyright 2008 by Taylor & Francis Group, LLC.

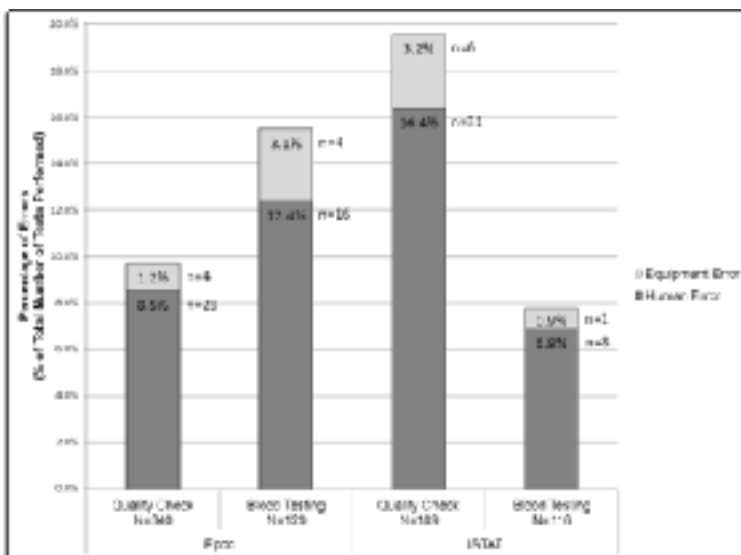
RESEARCH ARTICLE

Open Access



Community paramedic point of care testing: validity and usability of two commercially available devices

Ian E. Blanchard^{1*}, Ryan Kitchin², Dana Dulgiers³, Justin Smith⁴, Stacy Goulder⁵, Tyler S. Williamson⁶, Quinn Bierbrock⁷, Lenore Page⁸, Kara Lerman⁹, Suzanne Grogan¹⁰, Kyle Redmond¹¹, Keith Spachman¹², Christopher J. Day¹³, Elly S. Lang¹⁴ and Gerard Lazarinik¹⁵





Quelle méthode de mesure?

J. Contenti et al / American Journal of Emergency Medicine 33 (2015) 167-172

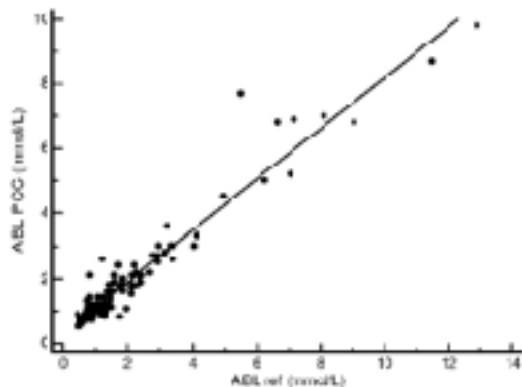


Fig. 1. Regression line between the 2 methods of measurement of arterial blood lactate concentration using the reference method (ABL ref) and the POC one (ABL POC).

Anaesth Crit Care Pain Med. 2017

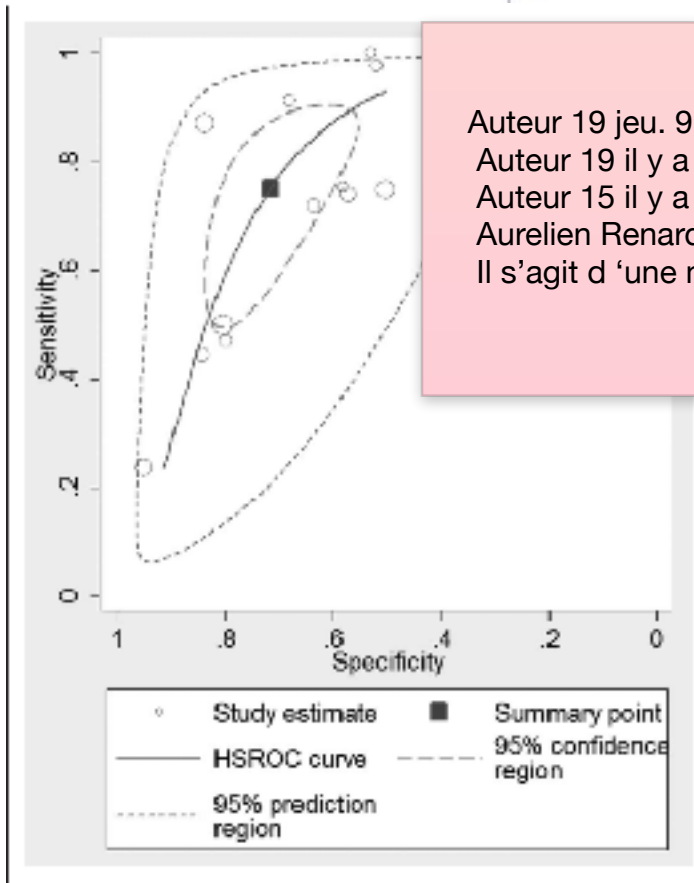
Comparison of capillary and arterial lactate levels in patients with shock.

[Collange O](#)

CAP values correlated well with
ARTs values

	Lactate ≥ 2 mmol/L	Lactate ≥ 4 mmol/L
Sensitivity	0.98	0.88
Specificity	0.36	0.79

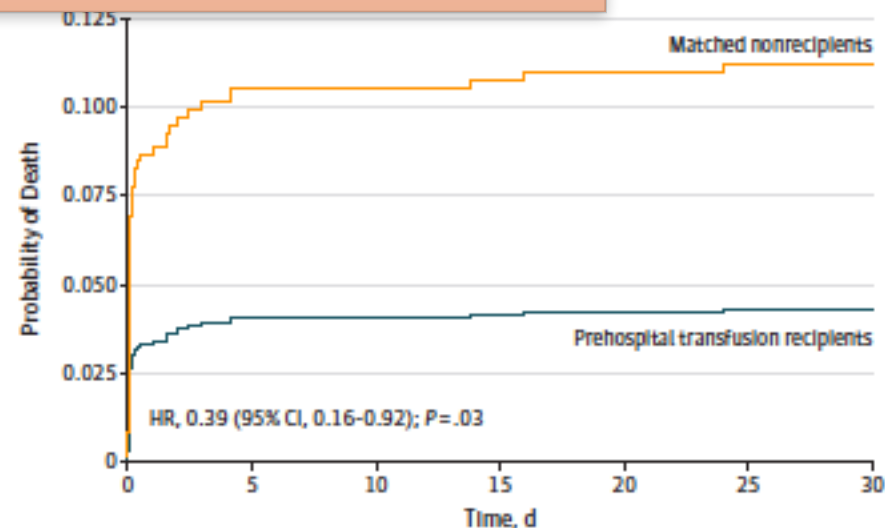
Clairance des lactates et « en route care »...



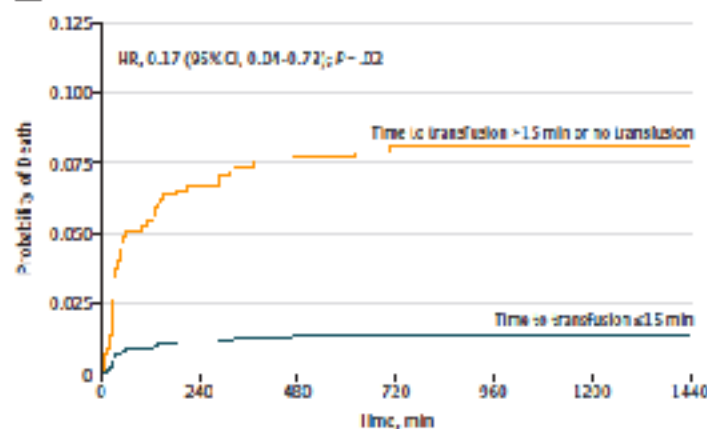
Auteur 19 jeu. 9:00 PM
Auteur 19 il y a 33 mn
Auteur 15 il y a 47 mn
Aurelien Renard il y a 51 mn
Il s'agit d'une méta analyse de 2014,

Figure 3. Diagnostic performance of lactate clearance in predicting mortality. Each circle represents a component study. The overall sensitivity and specificity were 0.75 (95% CI, 0.58–0.87) and 0.72 (95% CI, 0.61–0.80), respectively. HSROC — hierarchical summary receiver operating characteristic.

Auteur 20 jeu. 9:00 PM
 Auteur 20 il y a 33 mn
 Aurelien Renard il y a 19 mn
 Etude retrospective menée entre
 2012 et 2015 sur les blessés



A. 24-h Mortality for time to transfusion ≤ 15 min after MEDEVAC rescue vs longer delay



JAMA | Original Investigation

Association of Prehospital Blood Product Transfusion During Medical Evacuation of Combat Casualties in Afghanistan With Acute and 30-Day Survival

Duffy J, Shoresfield, MB, O'Connell J, et al. JAMA. 2015;314(11):1151-1159. doi:10.1001/jama.2015.1151.1159



Est ce que le taux d'hémoglobine peut guider la réanimation ?

L'administration de concentrés de globules rouges (CGR) apparaît raisonnable pour un taux d'hémoglobine < 7 g/dL

il est proposé de guider la transfusion de CGR sur un objectif d'hémoglobine entre 7 et 9 g/dL



**Recommandations sur la réanimation du
choc hémorragique®**

Est ce que le taux d'hémoglobine peut prédire la réanimation ?

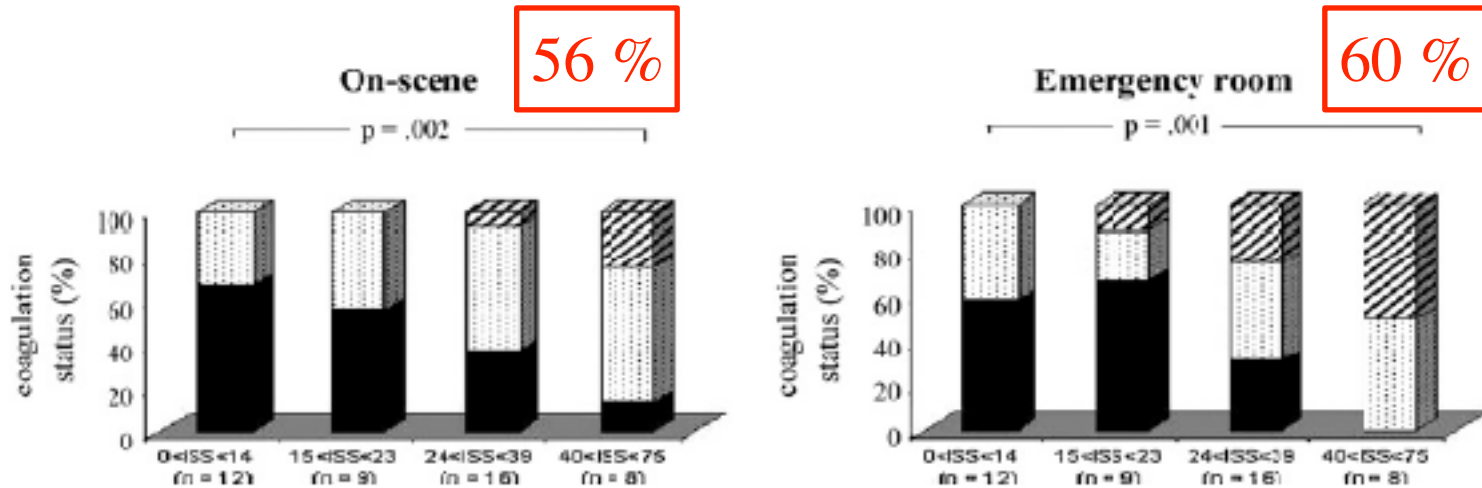
Auteur 21 jeu. 9:00 PM
Auteur 21 il y a 33 mn
Aurelien Renard il y a 25 mn
Etude rétrospective Irak
558 patients

Table 2. Results of Stepwise Logistic Regression Analysis Revealing Variables That Are Independently Predictive of the Need for Massive Transfusion

	Value	Odds ratio	95% CI
HGB (g/dL)	≤ 11	7.7	5.0 11.9
INR	> 1.5	5.9	3.5–10.2
Penetrating mechanism	Yes	2.6	1.4 4.8

HGB, hemoglobin; INR, International Normalized Ratio.

Schreiber J Am Coll Surg 2007



Injury. 2012
Early coagulopathy
in trauma patients:
an on-scene and
hospital admission
study.
[Floccard B](#)

Coagulopathy occurs very early after injury, before fluid administration, at the site of accident. Coagulation and fibrinolytic systems are activated early.

The incidence of coagulopathy is high and its severity is related to the injury and not to hypoperfusion.

Auteur 22 jeu. 9:00 PM
Aurelien Renard il y a 24 mn
Sachant que l'apparition de la
coagulopathie est précoce,
l'administration de facteurs de

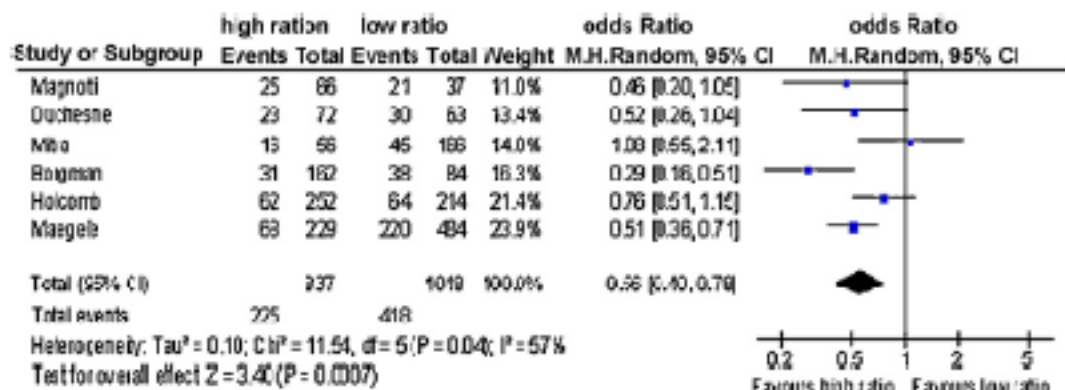
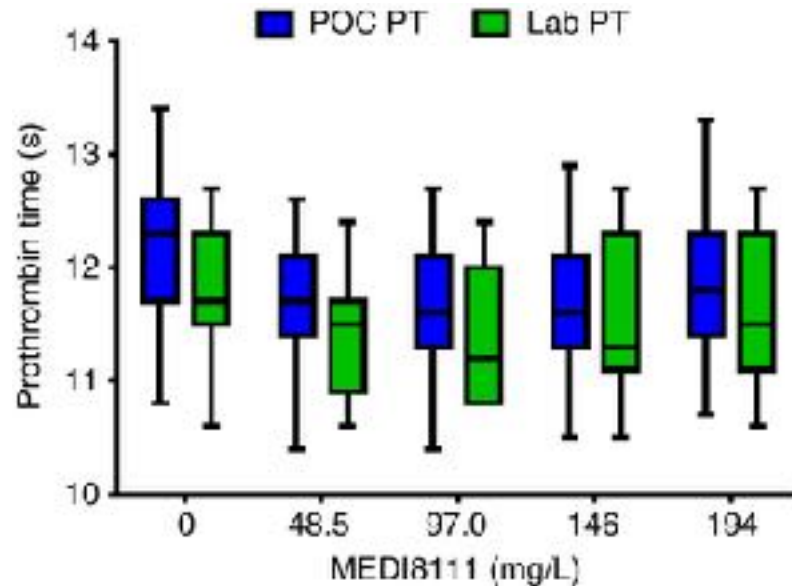


Fig. 2. Meta-analysis of 30 day/inpatient mortality between high and low plasma:RBC ratios with a cut off at $>1:2$. Odds ratios are shown with 95% confidence intervals.





ou la reprise du saignement. Le diagnostic précoce de la coagulopathie permet un traitement rapide et pourrait permettre de réduire les besoins transfusionnels et d'améliorer le pronostic. Le



Clare et al.
Res Pract Thromb Haemost. 2017 Oct; 1(2): 252–258.
Preclinical evaluation of point-of-care prothrombin time as a biomarker test to guide prothrombin replacement therapy in coagulopathic bleeding

Auteur 22 jeu. 9:00 PM
Aurelien Renard il y a 5 mn
Le premier message c'est de
respecter les principes du DC :
arrêter l'hémorragie

TAKE HOME MESSAGE

- TRIAGE : start / echo / lactates
- PFC : lactates / hemoccue (?)
- « En route care » : lactates / hemoccue / INR
- 1/3 des pathologies sont médicales : troponine / palu



JOURNÉES

THÉMATIQUES INTERACTIVES



DE LA SOCIÉTÉ FRANÇAISE
DE MÉDECINE D'URGENCE
ET JOURNÉE NATIONALE DES INFERMIERS
ET PERSONNELS D'URGENCE

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