

# Pre-hospital treatment in a major haemorrhage incident

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Team

# Overview

- History
- Where we are now in Yorkshire as well as the wider UK
- Blood on YAA
- The future



# Our approach to major haemorrhage

Airdesk

C ABC

CAT/celox

Thoracotomy

Splinting pelvis/limbs

TXA

Fluids (crystalloid/blood)



# Survival With Emergency Tourniquet Use to Stop Bleeding in Major Limb Trauma

*COL John F. Kragh, Jr., MC, USA,\* Thomas J. Walters, PhD,\* David G. Baer, PhD,\*  
LTC Charles J. Fox, MC, USA,† Charles E. Wade, PhD,\* Jose Salinas, PhD,\*  
and COL John B. Holcomb, MC, USA\**

*Kragh et al*

*Annals of Surgery • Volume 249, Number 1, January 2009*

**Objective:** The purpose of this study was to determine if emergency tourniquet use saved lives.

**Summary Background Data:** Tourniquets have been proposed as lifesaving devices in the current war and are now issued to all soldiers. Few studies, however, describe their actual use in combat casualties.

**Methods:** A prospective survey of injured who required tourniquets was performed over 7 months in 2006 (NCT00517166 at ClinicalTrials.gov). Follow-up averaged 28 days. The study was at a combat support hospital in Baghdad. Among 2838 injured and admitted civilian and military casualties with major limb trauma, 232 (8%) had 428 tourniquets applied on 309 injured limbs. We looked at emergency tourniquet use, and casualties were evaluated for shock (weak or absent radial pulse) and prehospital versus emergency department (ED) tourniquet use. We also looked at those casualties indicated for tourniquets but had none used. We assessed survival rates and limb outcome.

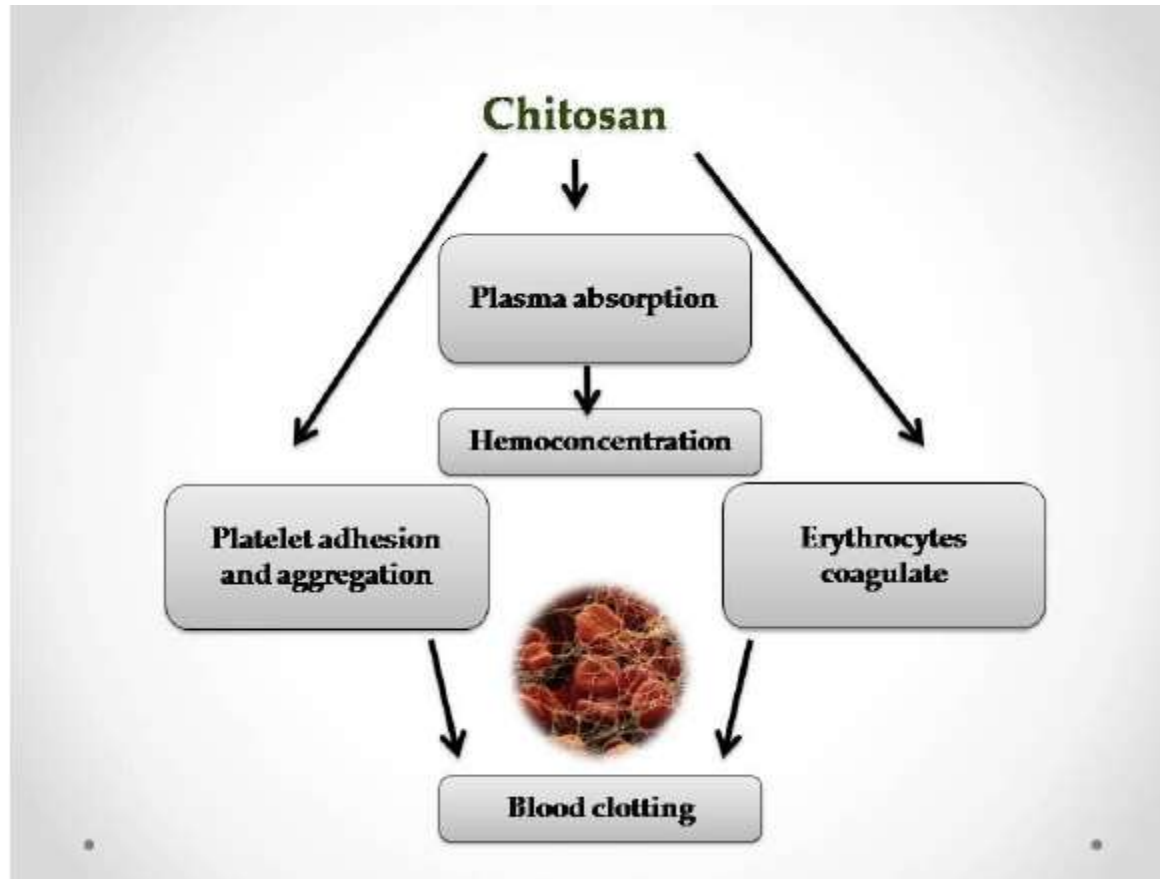
**Results:** There were 31 deaths (13%). Tourniquet use when shock was absent was strongly associated with survival (90% vs. 10%;  $P < 0.001$ ). Prehospital tourniquets were applied in 194 patients of which 22 died (11% mortality), whereas 38 patients had ED application of which 9 died (24% mortality;  $P = 0.05$ ). The 5 casualties indicated for tourniquets but had none used had a survival rate of 0% versus 87% for those casualties with tourniquets used ( $P < 0.001$ ).

**No amputations resulted solely from tourniquet use.**

ated with saved lives, and prehospital use was also strongly associated with lifesaving. No limbs were lost due to tourniquet use. Education and fielding of prehospital tourniquets in the military environment should continue.

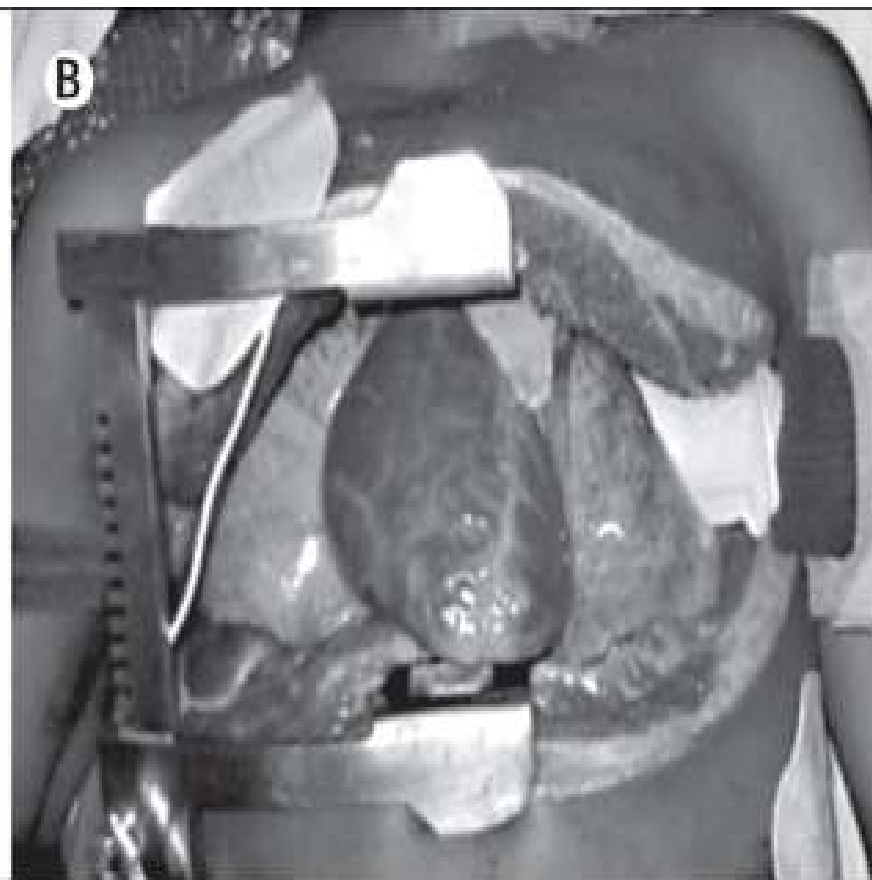
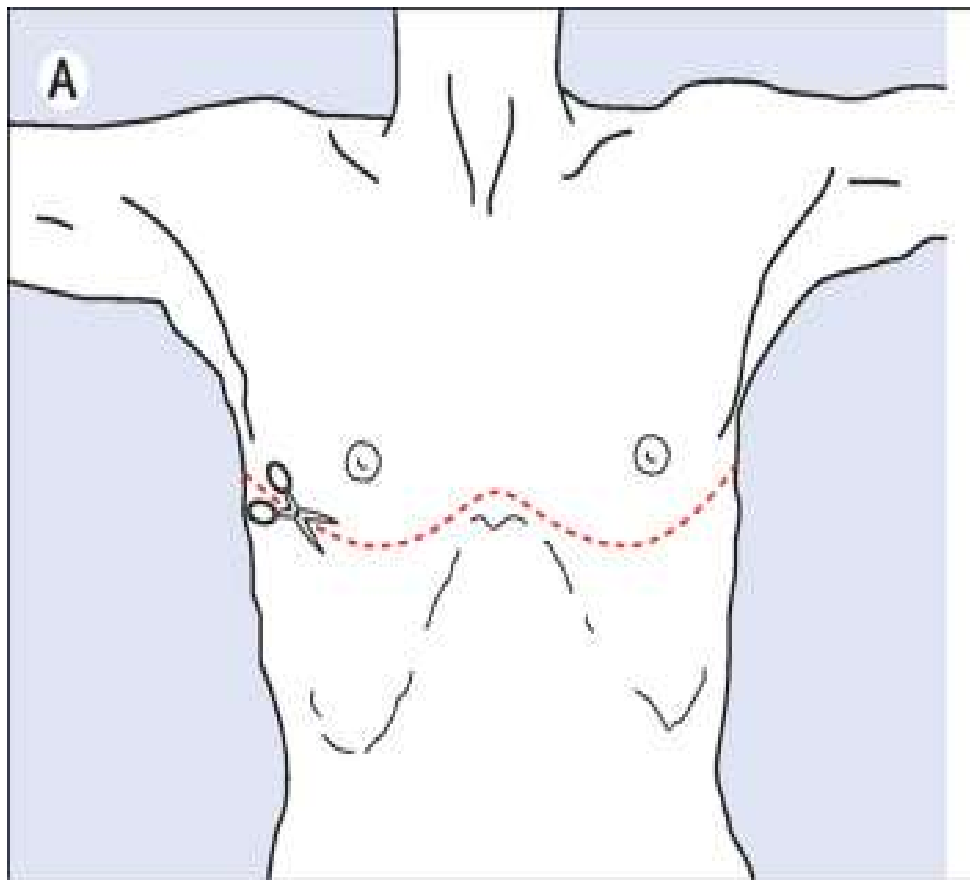






- Chitosan – polysaccharide derived from shellfish
- Promotes clotting of blood which comes into contact with it. Doesn't produce heat, no systemic effect. Not effected by anticoagulants/hypothermia
- Has other uses including weight loss and cholesterol reduction



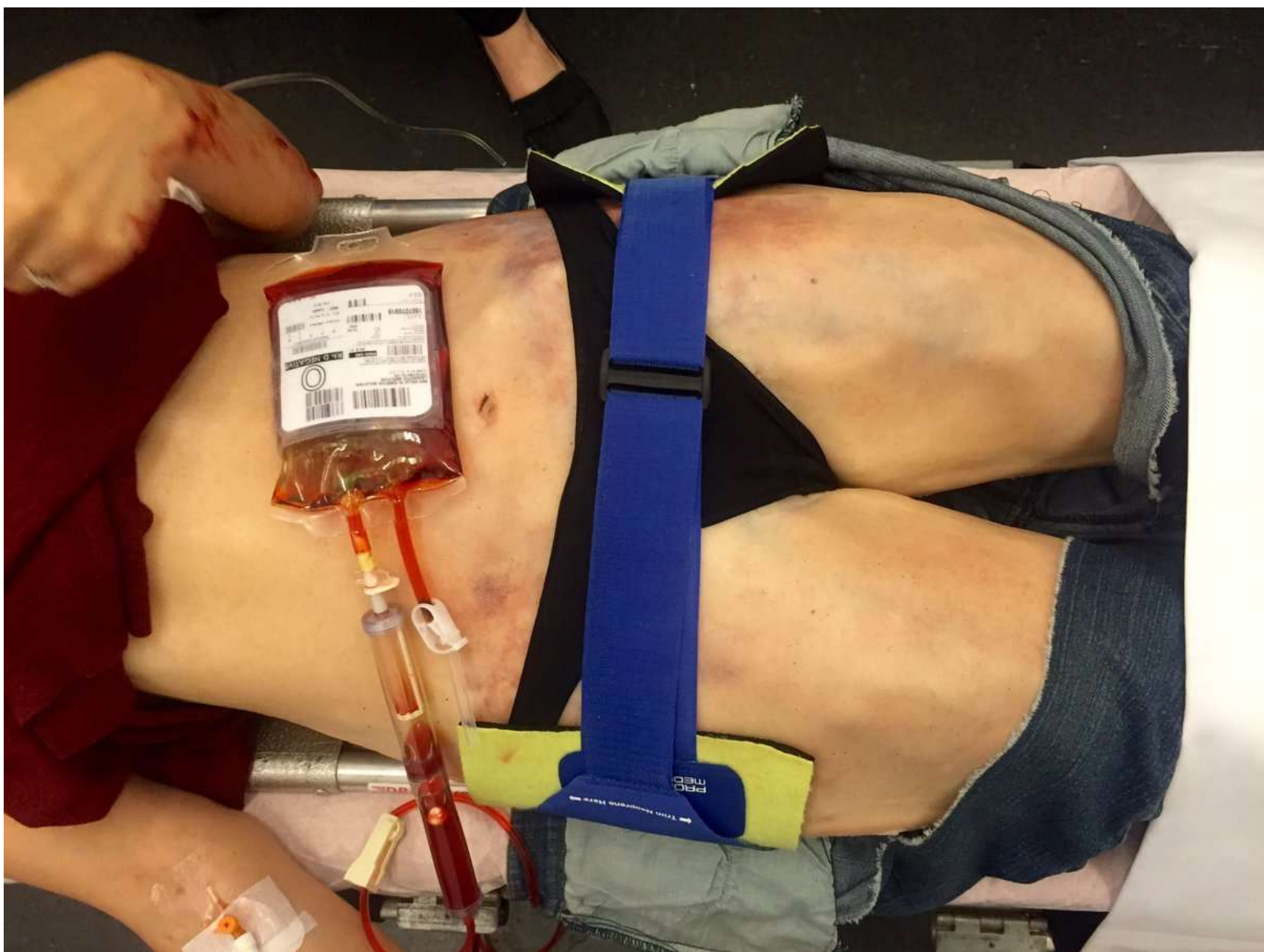


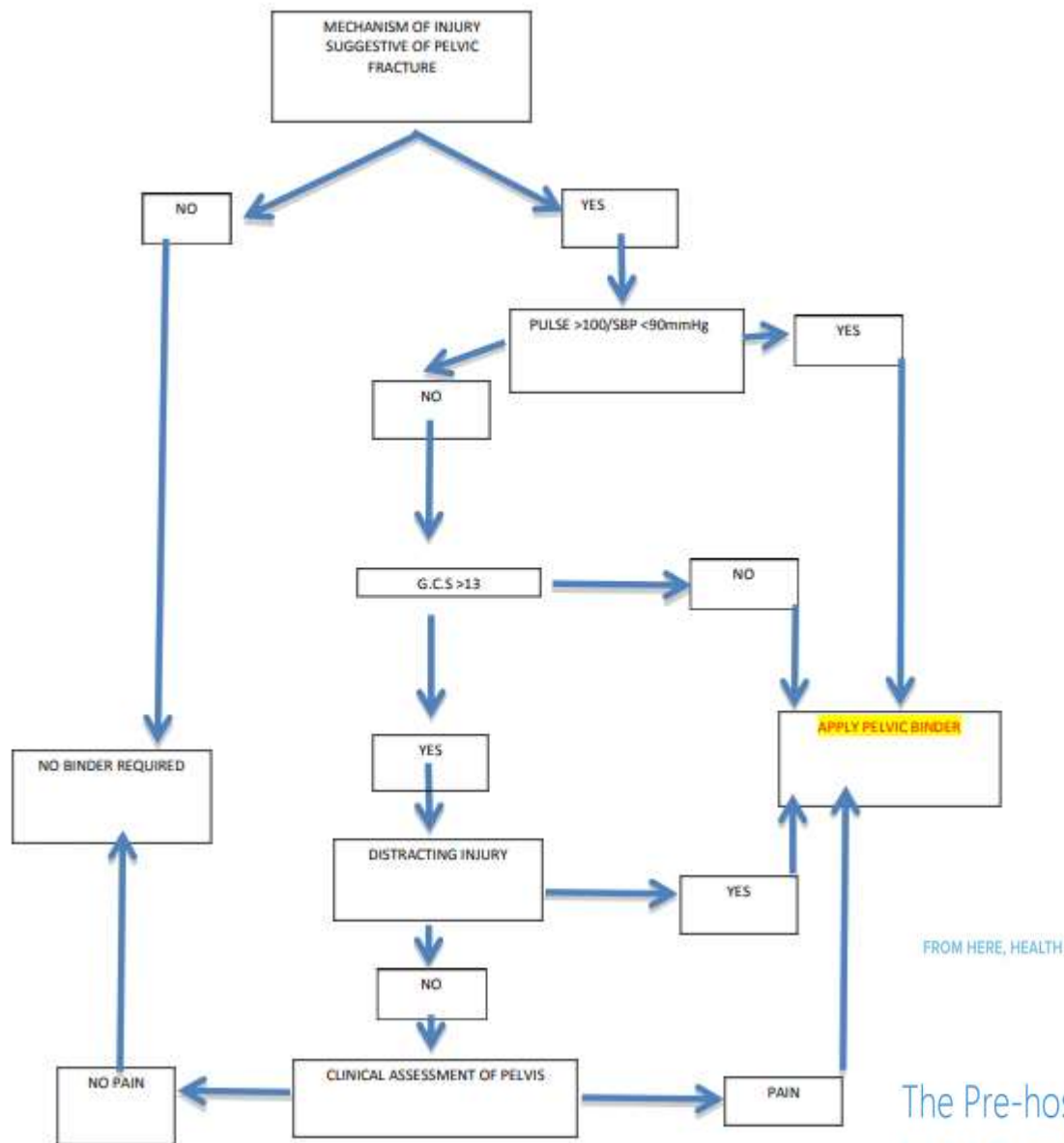
## **Thirteen Survivors of Prehospital Thoracotomy for Penetrating Trauma: A Prehospital Physician-Performed Resuscitation Procedure That Can Yield Good Results**

Davies, Gareth E. FRCP, FFAEM; Lockey, David J. FRCA, FIMC, RCS(Ed)

The Journal of Trauma: Injury, Infection, and Critical Care: May 2011 - Volume 70 - Issue 5 - p E75-E78

- Database review over 15 year
- 71 patients with stab wound to chest followed by cardiac arrest had PERT (according to SOP)
- 13 (18%) survived, 11 good neurological outcome
- Much better chance if arrested when team present or within 5 min
- All survivors had tamponade





FROM HERE, HEALTH

## The Pre-hospital Management of Pelvic Fractures: Initial Consensus Statement

I Scott, K Porter, C Laird, M Bloch, I Greaves



- RCT 20000 patients  
Worldwide
- TXA 1g followed by 1 g  
infusion after 8 hours
- All cause mortality  
14.5% vs 16%
- Fewer deaths due to  
bleeding
- The earlier the better
- All good?



- Dig a bit deeper
- Only 5% patients in each group died from bleeding
- No difference in transfusion requirements
- Patients only followed up for 28 days
- Is it applicable to a modern trauma system
- Certainly isn't a wonder drug

- What fluid? How much? Easy??
- NICE say titrate to radial pulse in blunt trauma or central pulse in penetrating torso trauma (250ml boluses crystalloid)
- What about brain injury?
- What about blood?

# What do we do in Yorkshire?

- Blood as opposed to crystalloid
- Blunt trauma with signs shock and systolic<90
- Penetrating trauma systolic<70
- In head injuries we use a degree of clinical judgement and may administer metaraminol
- We don't carry plasma at present



- Multi centre RCT in UK
- Comparing prehospital blood and plasma (lyoplas) vs standard treatment
- Currently recruited their 100<sup>th</sup> patient

COMBAT study, published this year in Lancet

125 patients randomised to FFP or saline during ground transfer to single MTC

No difference in mortality

Very quick transfer times – average 20 mins



**The Mid Yorkshire Hospitals**  
NHS Trust









PLEASE EMAIL WEEKLY BLOOD  
SHEET TO THE FOLLOWING  
ADDRESSES ON MONDAY MORNING,  
THEN PLACE SCANNED SHEETS IN  
BOX FILE (PETES OFFICE)

[MidYorksAirAmbulance@midyorks.nhs.uk](mailto:MidYorksAirAmbulance@midyorks.nhs.uk)

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[jez.pinnell@nhs.net](mailto:jez.pinnell@nhs.net)





## Activation Blister

Product is inert prior to activation

## Indication of Arming

Green when product is active



## Breach Window

Turns *blue* after temperature breach

## Unique Serial Number

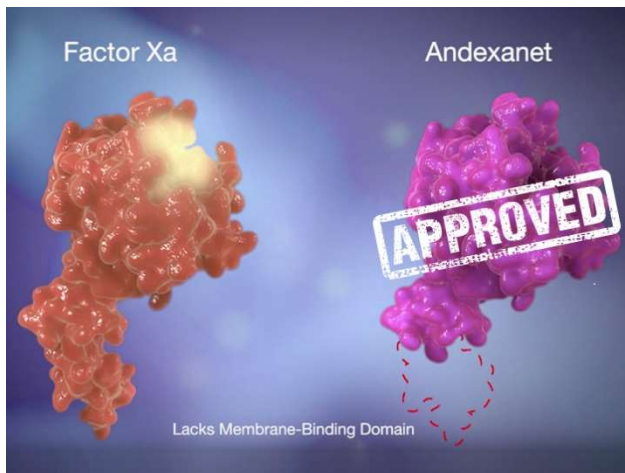
On every product

# Blood on board

- 22 patients had prehospital transfusion in 12 months
- 20 received both units
- Main issue has been buddylite blood warmer
- No blood wasted



# The Future



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