

Outcome of Prehospital Blood Products In Military Casualties In Profound Shock

MAJ Danielle Akler

August 26



Disclosures

- Major Danielle Akler MD, has no conflicts to report.
- This study was performed as part of the Israel Defense Forces Trauma and Combat Medicine Branch effort to improve the quality of combat casualty care and received no external funding or support.
- This study was conducted by Barsky et al.



About myself

Medical doctor

Infantry battalion surgeon

Brigade surgeon during October 7th and the first year of the “Swords of Iron” War

Trauma and Combat Medicine Branch (TCMB) – IDF Medical Corps

ESEP officer – USAISR



Introduction



Leading Cause of Preventable Death

Hemorrhage remains the leading cause of potentially preventable death among military combat casualties.



A Narrow Therapeutic Window

The majority of hemorrhage-related deaths occur within hours of wounding, underscoring the importance of point-of-injury intervention.

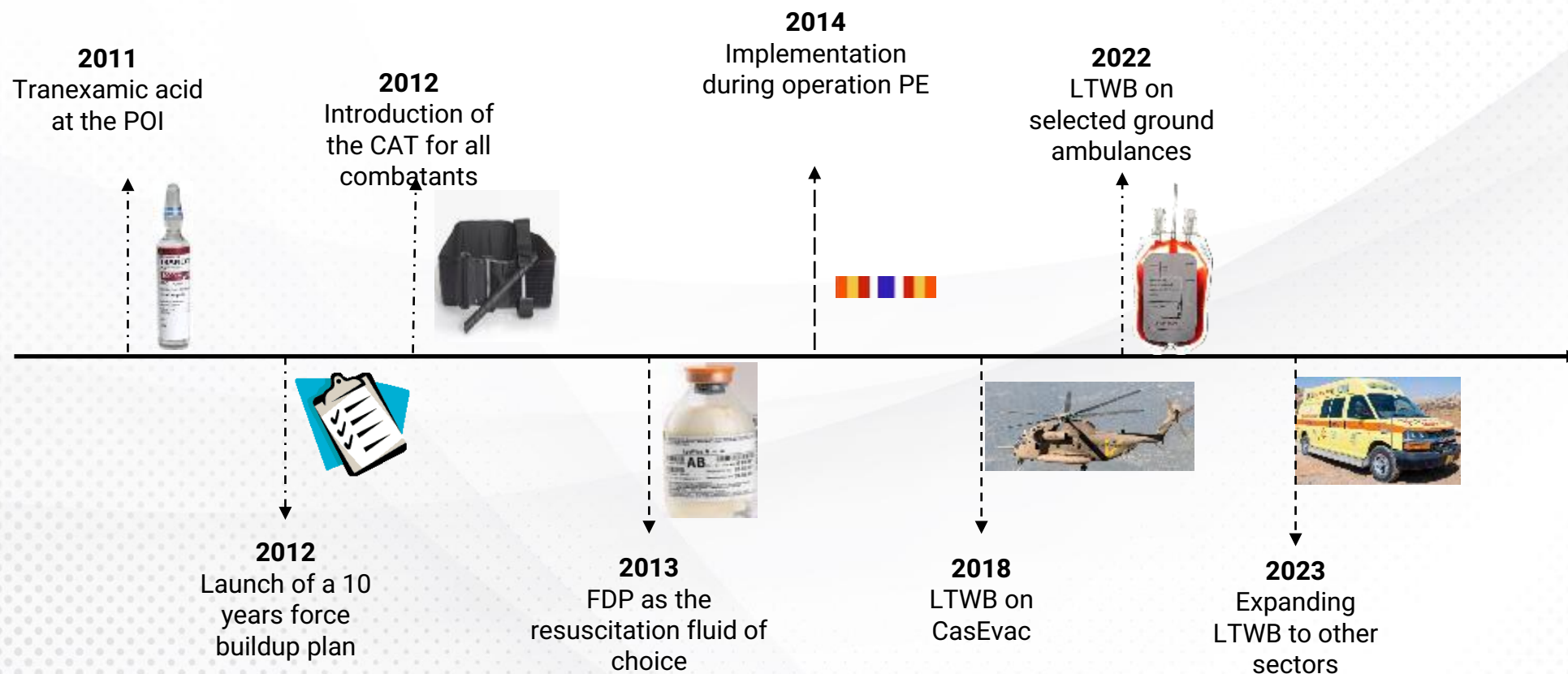


Profound Shock: the Highest-Risk Subgroup

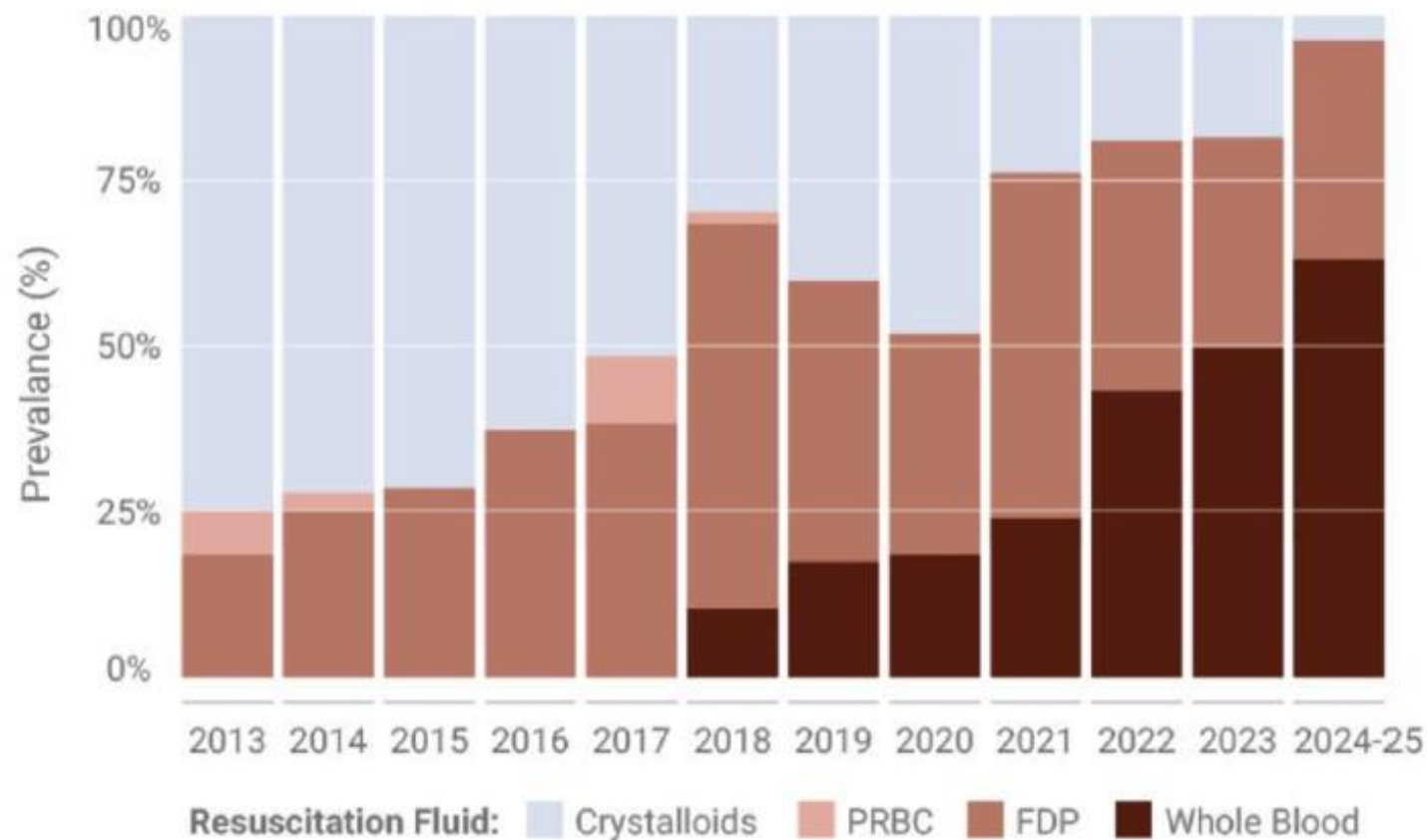
Casualties presenting in profound hemorrhagic shock constitute the most critical and time-sensitive population.



Background - IDF Medical Corps Timeline



Background – The IDF experience

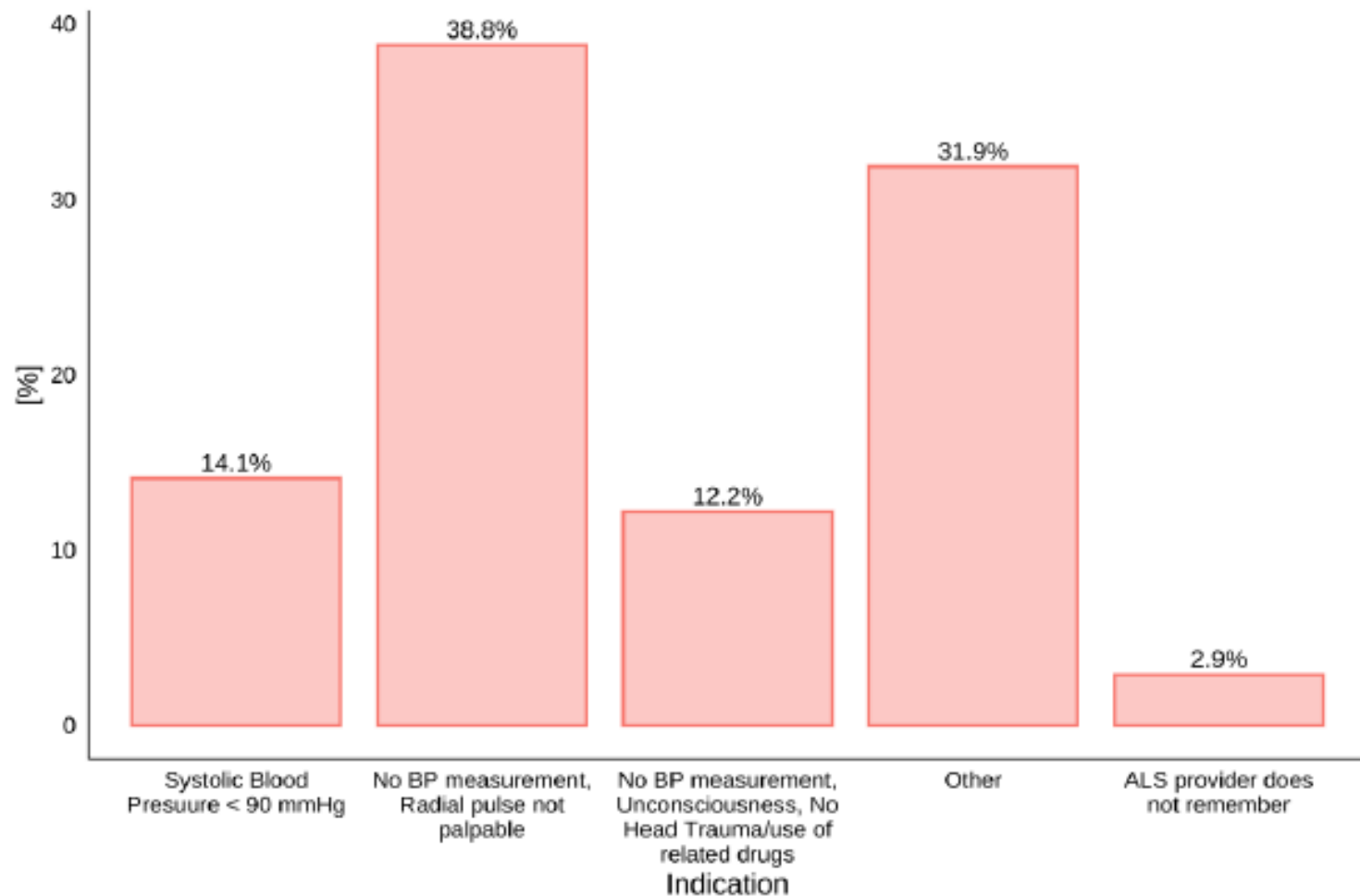


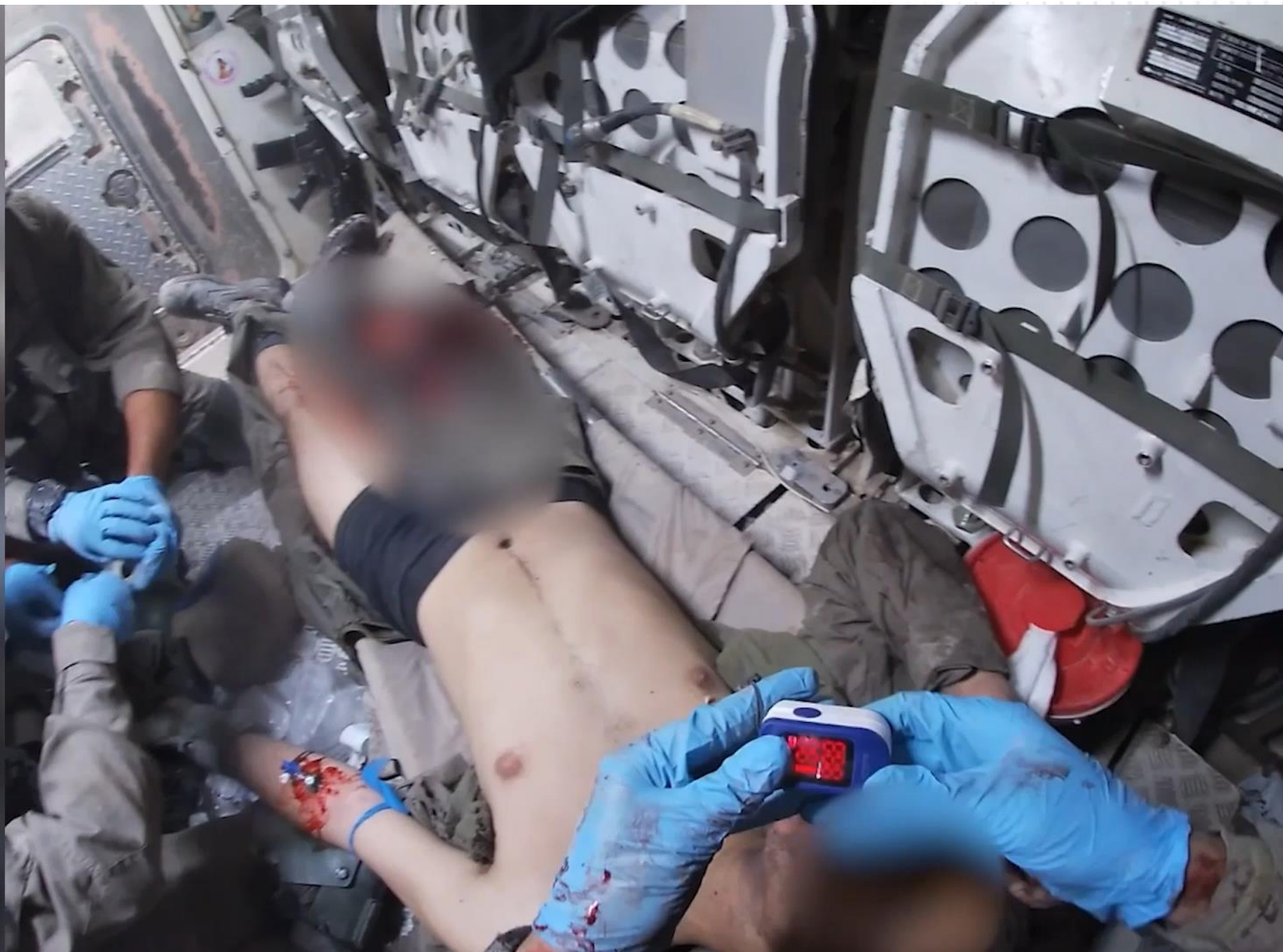
The only indication
for blood products

Profound Shock



Background – The IDF experience





Study Objective

To evaluate the association between prehospital blood product administration and survival outcomes in military combat casualties presenting in profound shock.



Methods – Study Design



Study Design

- **Retrospective cohort study**
- All casualties treated by the IDF Medical Corps, October 27, 2023 – January 1, 2025.
- Data source: IDF Trauma Registry and Israel National Trauma Registry
- Study population: casualties meeting criteria for profound shock



Definition: Profound Shock

Systolic blood pressure < 90 mmHg

or, in its absence:

- Deterioration in consciousness (AVPU score change)
- Absence of a radial pulse

This threshold defines the highest-acuity subgroup evaluated in this study.



Methods



Blood Product Group

- Whole blood
- Freeze-dried plasma (FDP)
- Combination of products



Comparison Group

- No prehospital blood products administered
- Otherwise met identical profound shock criteria



Statistical Analysis

Multivariate logistic regression was used to estimate the association between prehospital transfusion and mortality.

Adjusted for:

Injury Severity Score (ISS)

Penetrating mechanism

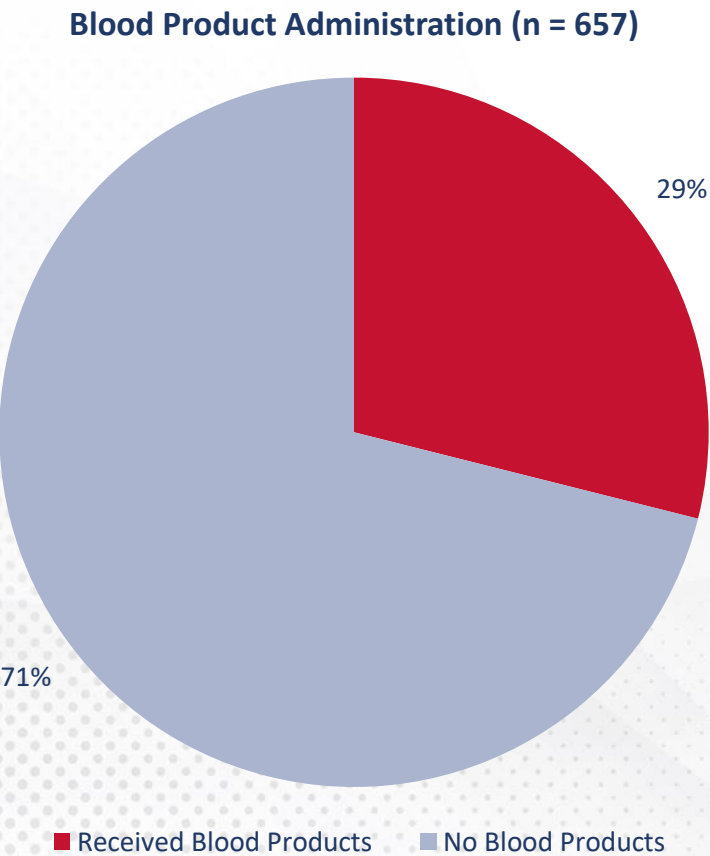
Aeromedical evacuation

Torso injury



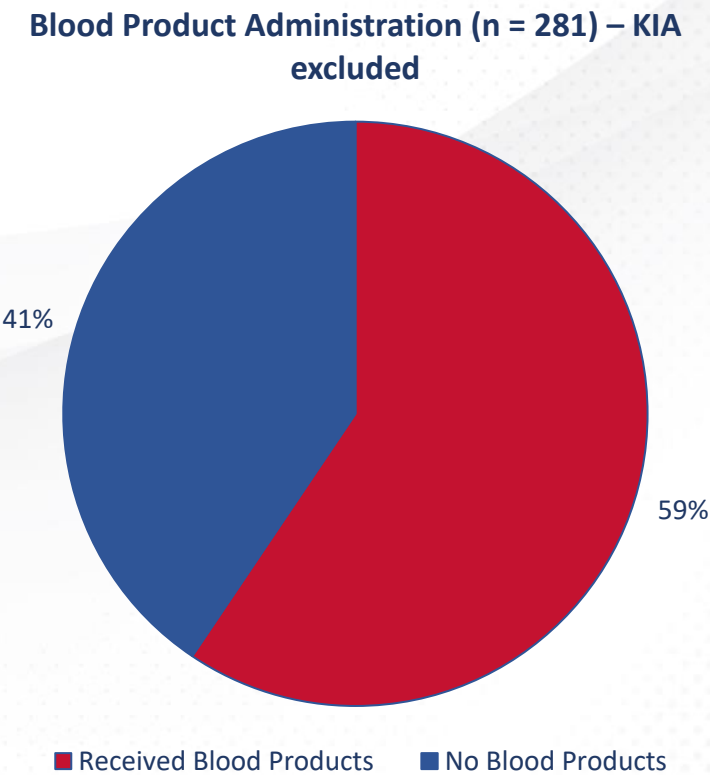
Results

A total of 657 casualties met criteria for profound shock during the study period



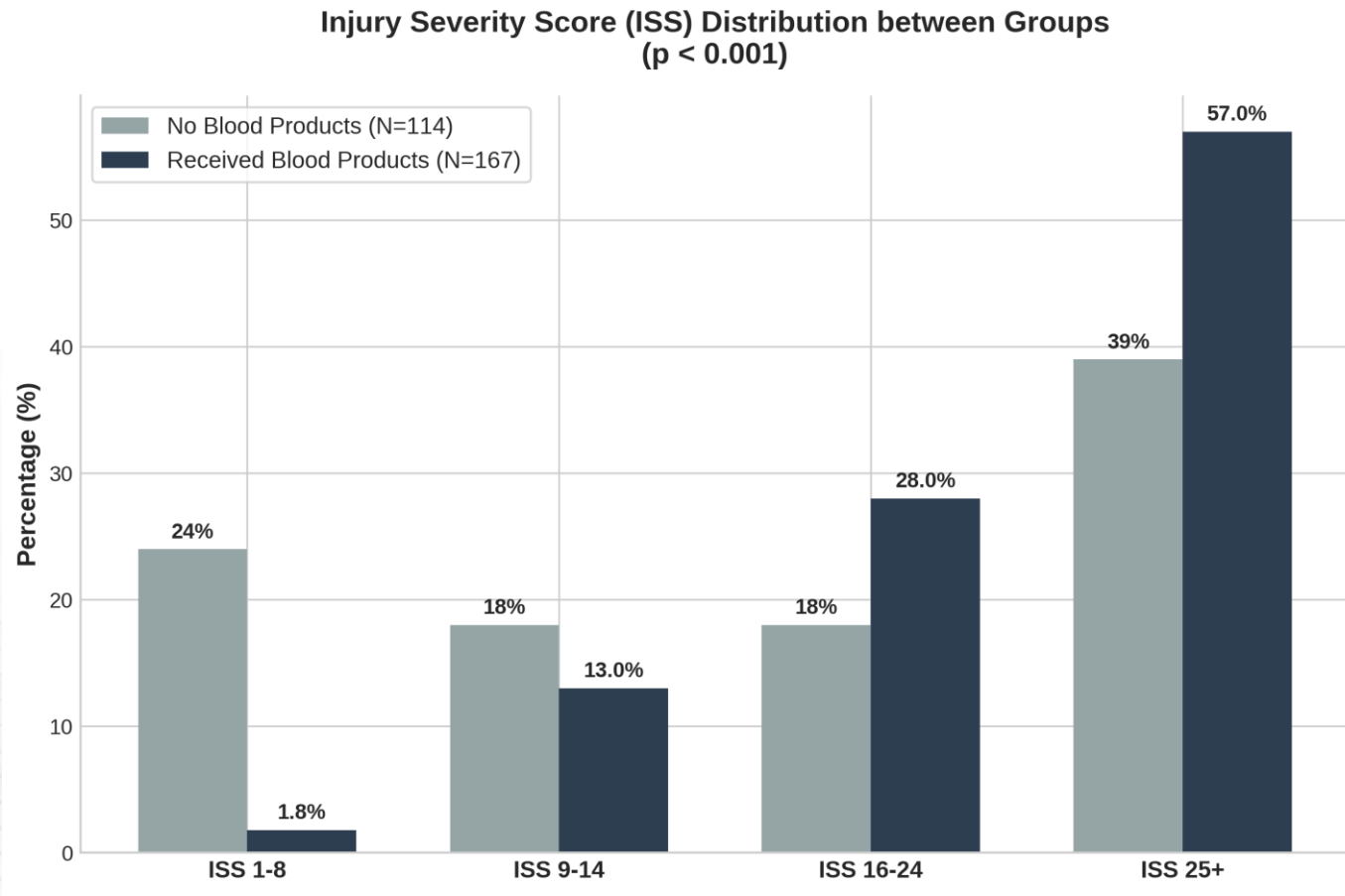
Excluding Casualties Killed in Action (KIA)

167 received blood products 114 did not



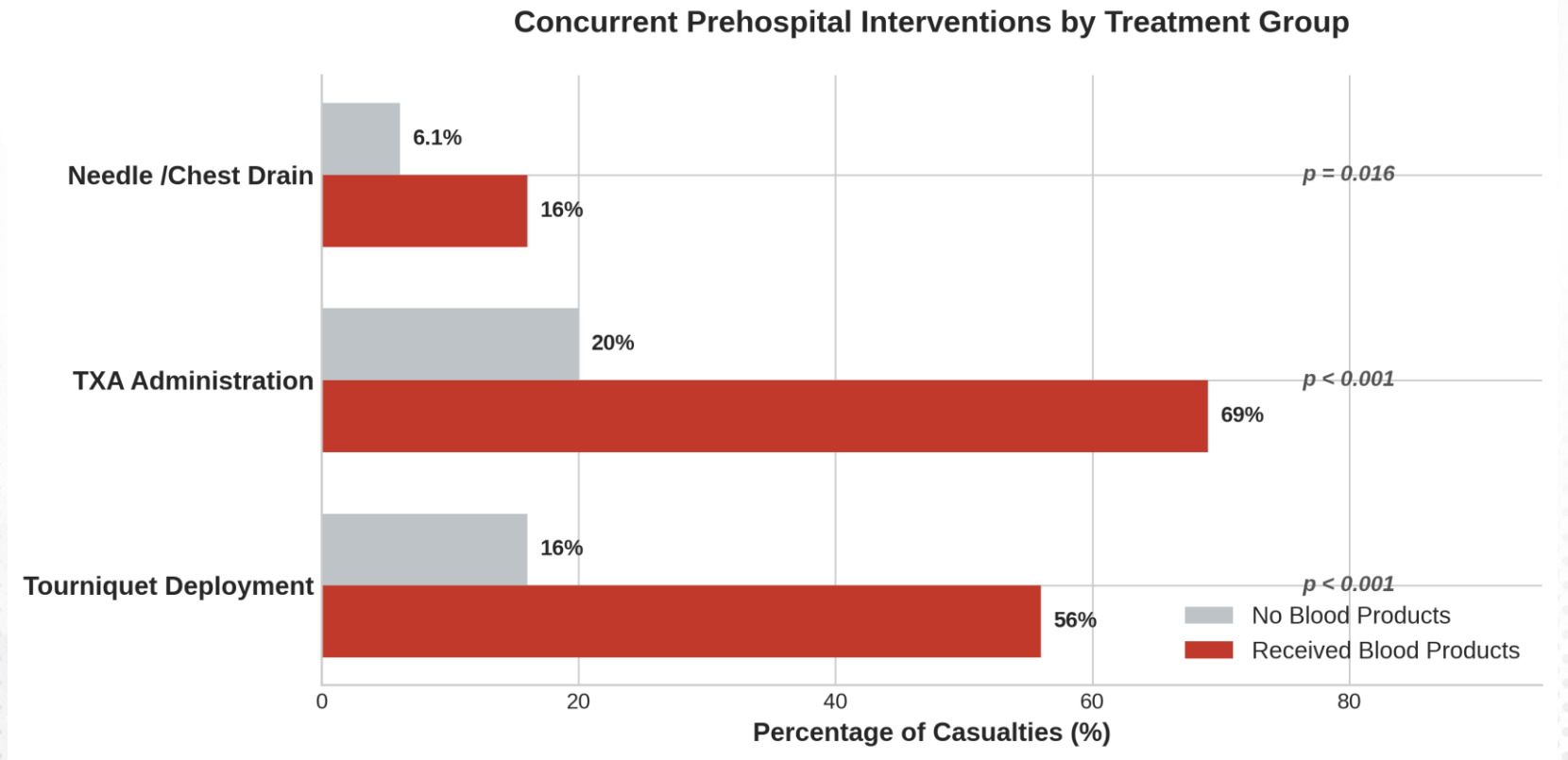
Results – ISS distribution

- 57% of casualties who received blood products had ISS>25
- Casualties who received blood products were significantly more severely injured

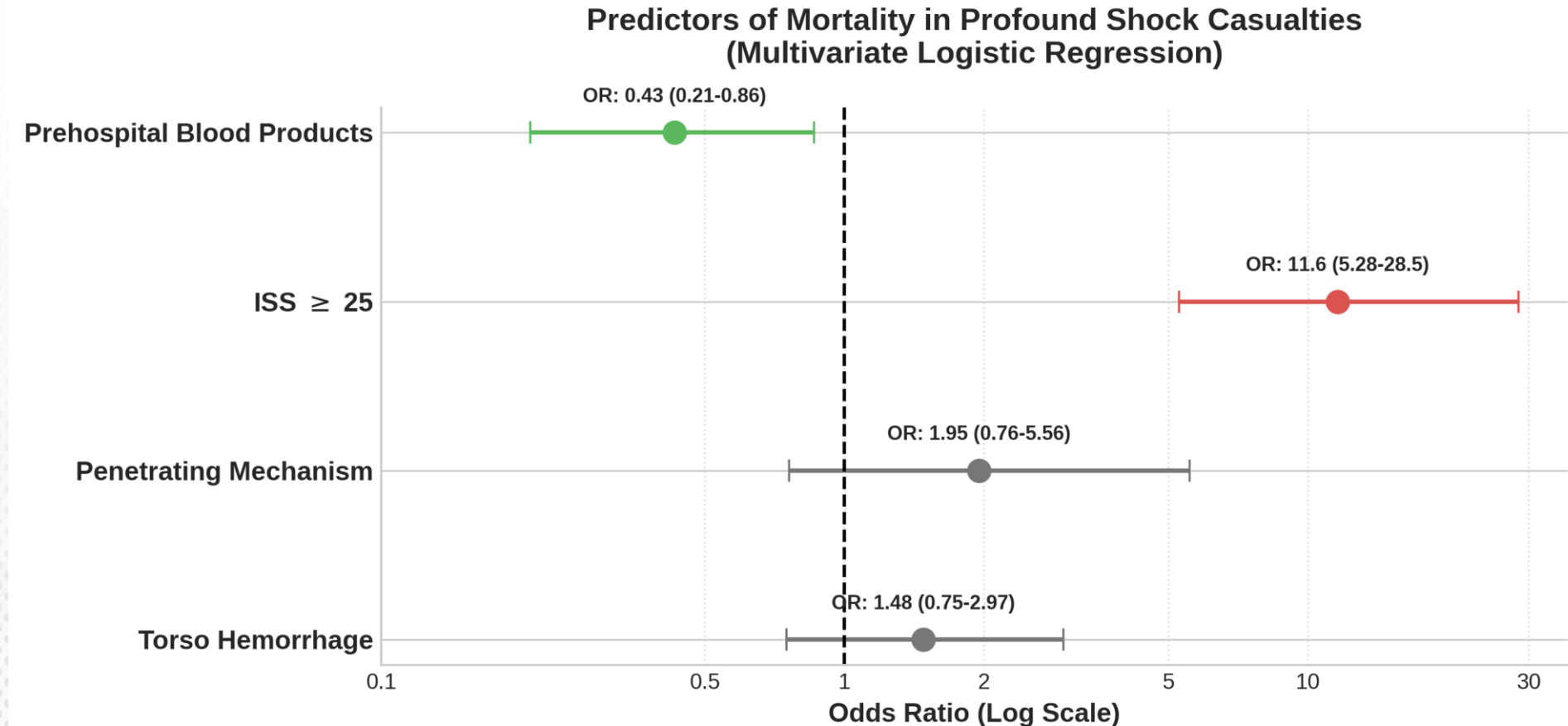


Results – Intervention rates

- Out of the study's cohort, casualties that were treated with interventions were more likely to also receive blood products.
- There was a significant correlation between TXA administration, chest decompression, tourniquet usage and blood product administration.



Results



Discussion



Which indicated casualties didn't receive blood?



Minimum indication for blood product



Broadening prehospital blood product indications





THANK YOU



At the moment of truth,
IDF MEDICAL CORPS.

