



Evacuation Time Reflects Injury Severity: Battlefield Triage

Captain Daniel Gelman

08/2026



At the moment of truth,
IDF MEDICAL CORPS.

Disclosure

Daniel Gleman MD has No conflicts to report.



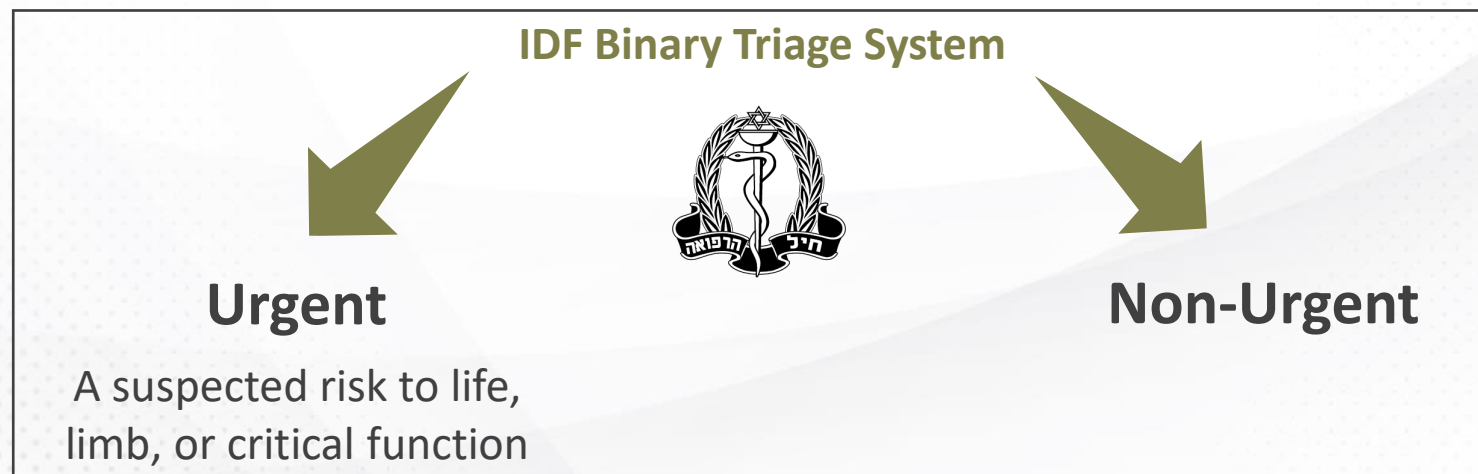
Combat Triage Problem

"...nearly all of the studied prehospital trauma triage protocols **were unable to adequately identify severely injured patients**... It is impossible to recommend a superior protocol among those investigated..."

van Rein et al. Accuracy of prehospital triage protocols in selecting severely injured patients: A systematic review. The Journal of Trauma and Acute Care Surgery. August 2017.



IDF Binary Triage System



Gelman D, et al. "High-Accuracy Performance of a Simplified Binary Triage System in Military Trauma." *JAMA surgery* (2026).



IDF Binary Triage System

JAMA Surgery | **Original Investigation**

High-Accuracy Performance of a Simplified Binary Triage System in Military Trauma

Daniel Gelman, MD, MSc; Ram Gelman, MD; Inbal Dym, MD; Tomer Talmy, MD, MBA; Ariel Furer, MD, MBA; Irina Radomislensky, BSc; Danielle Akler, MD; Cole D. Bendor, MD; Pavel Eidelman, MD, MPH; Inon Dimand, MD; Avi Benov, MD, MBA, MHA; Zivan Aviad Beer, MD, MBA, MHA; Roy Nadler, MD, MHA

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4,522 military trauma casualties treated by the IDF Medical Corps (10/2023-01/2025)

Field triage was retrospectively compared with injury severity

Anatomical scoring

ALS ≥ 3 (severe injury)

NFTI

Need for Trauma Intervention



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IDF Binary Triage System

AIS ≥ 3 (SEVERE INJURY)

91.5%

Sensitivity

8.5%

Undertriage

62.7%

Overtriage

NFTI +

91.8%

8.8%

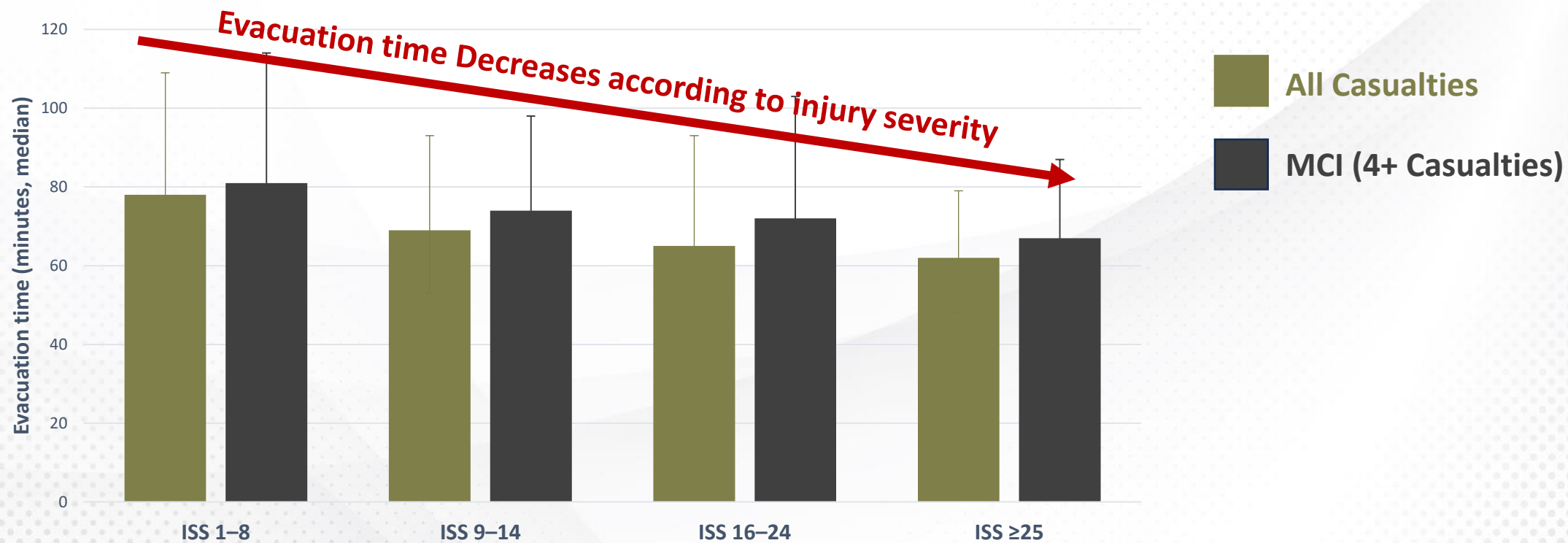
50.1%



Gelman D, et al. "High-Accuracy Performance of a Simplified Binary Triage System in Military Trauma." *JAMA surgery* (2026).



IDF Binary Triage System – Overtriage Burden



Among Urgent casualties, evacuation priority was determined by relative severity



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Objective

To determine whether earlier hospital arrival is associated with greater injury severity, as an indicator of accurate battlefield triage.



Methods

- Military casualties with **major trauma (Injury Severity Score ≥ 16)**
- Evacuated by the IDF Medical Corps (**10/2023–07/2025**)
- **Data Sources: IDF Trauma Registry & The Israeli National Trauma Registry.**



0-45 minutes



45-90 minutes



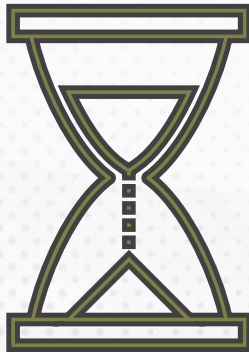
≥ 90 minutes

Primary outcome: The association between hospital arrival time and injury severity (ISS).



Study Population

545 casualties with major trauma (ISS ≥ 16)



0-45 minutes

N=96



45-90 minutes

N=333



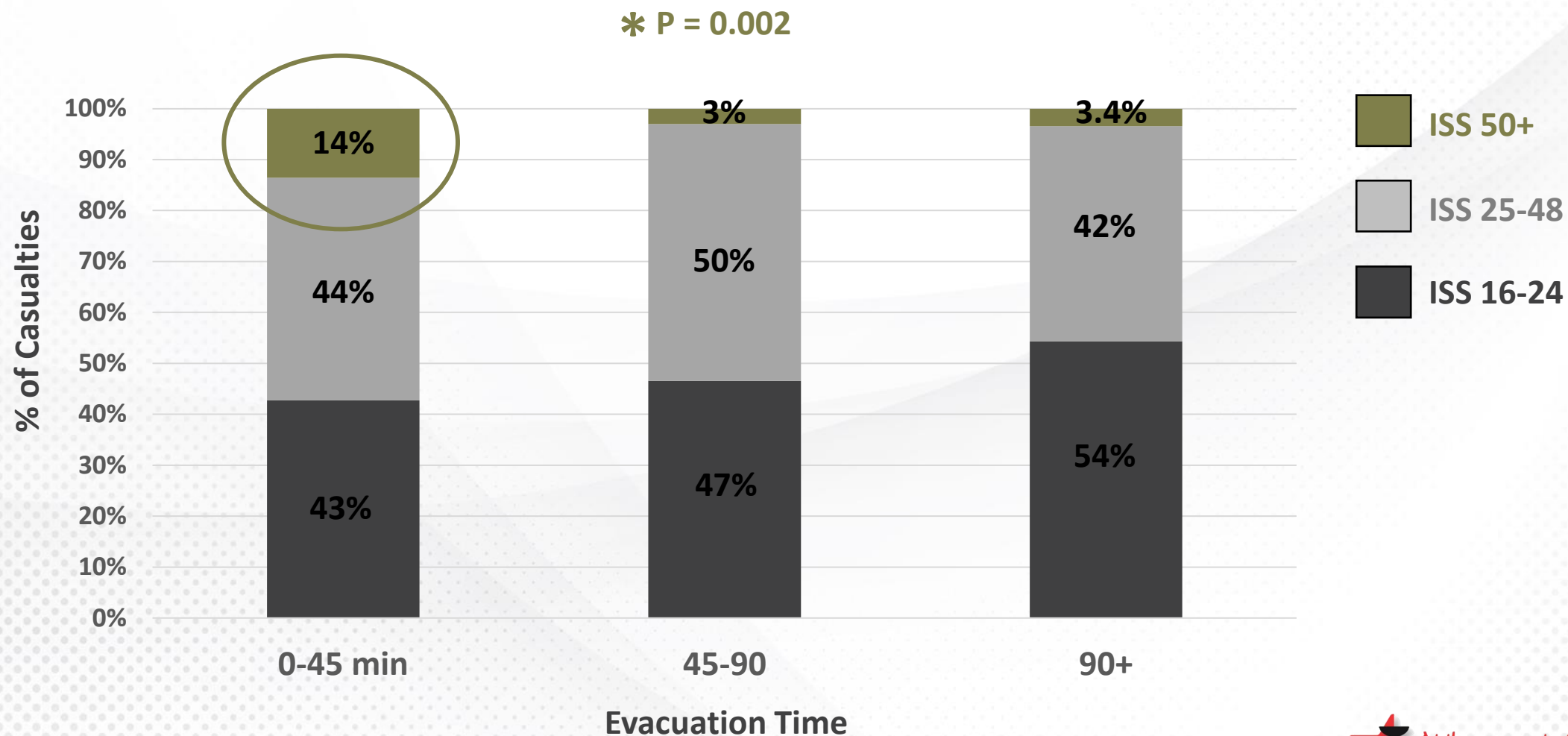
≥ 90 minutes

N=116

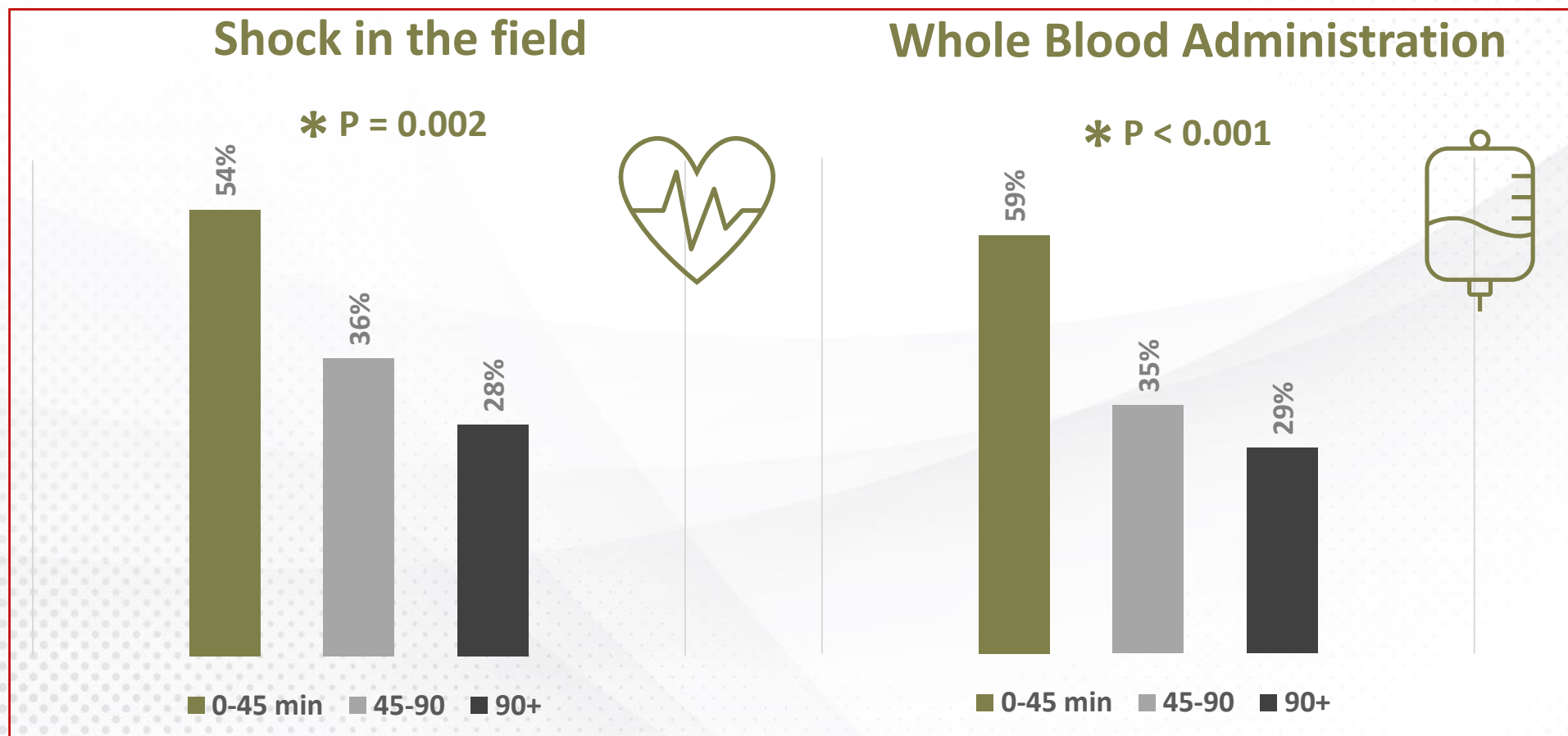
- Sex - 99% Male
- Age - 22 (20-28)



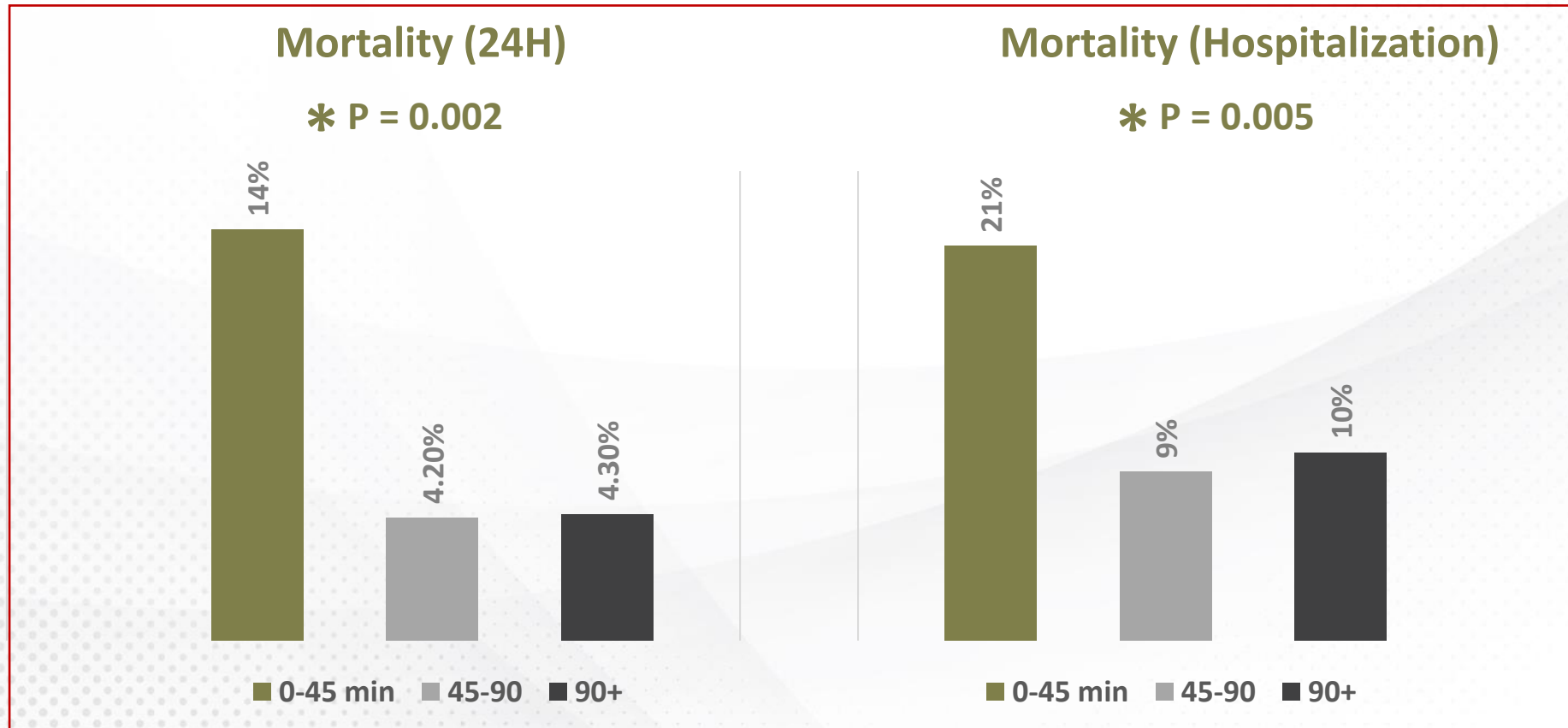
Results - Earlier Evacuation Was Associated with Greater Injury Severity



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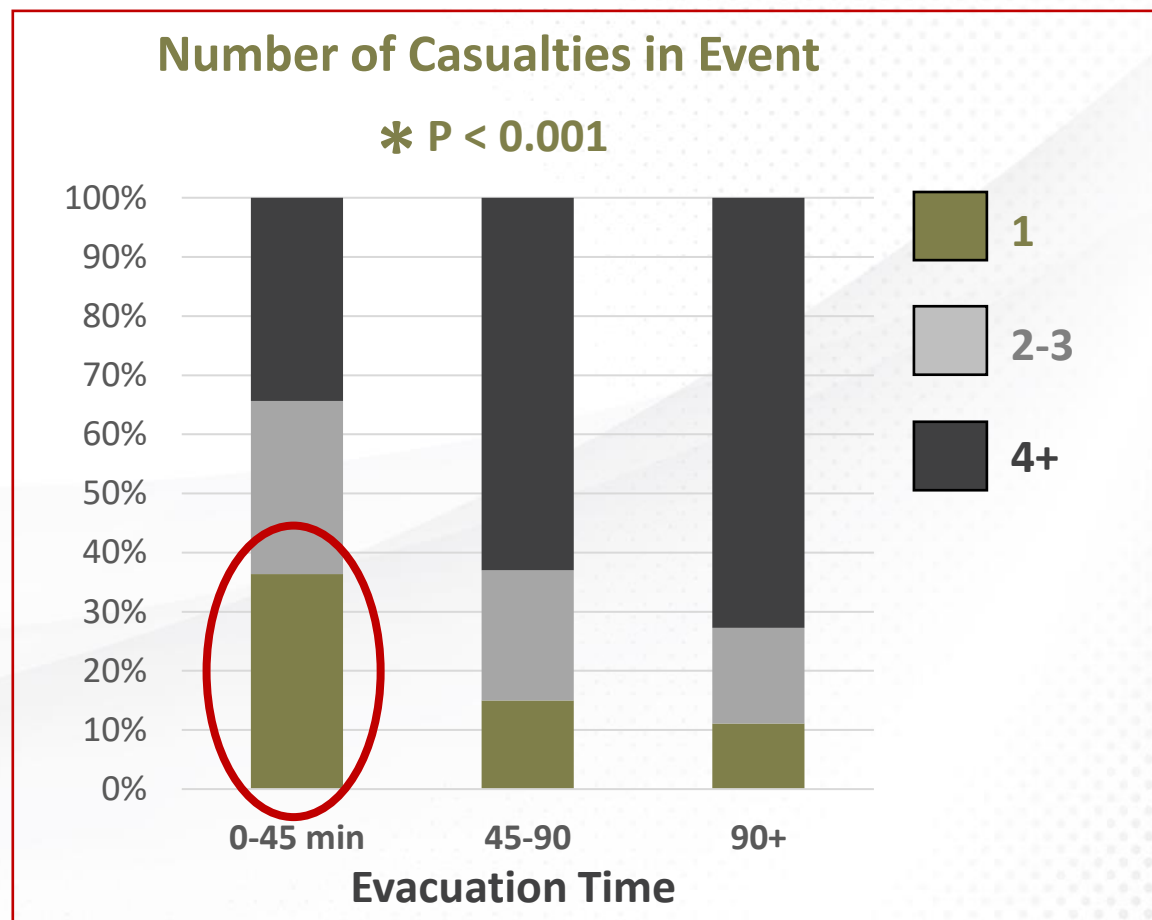
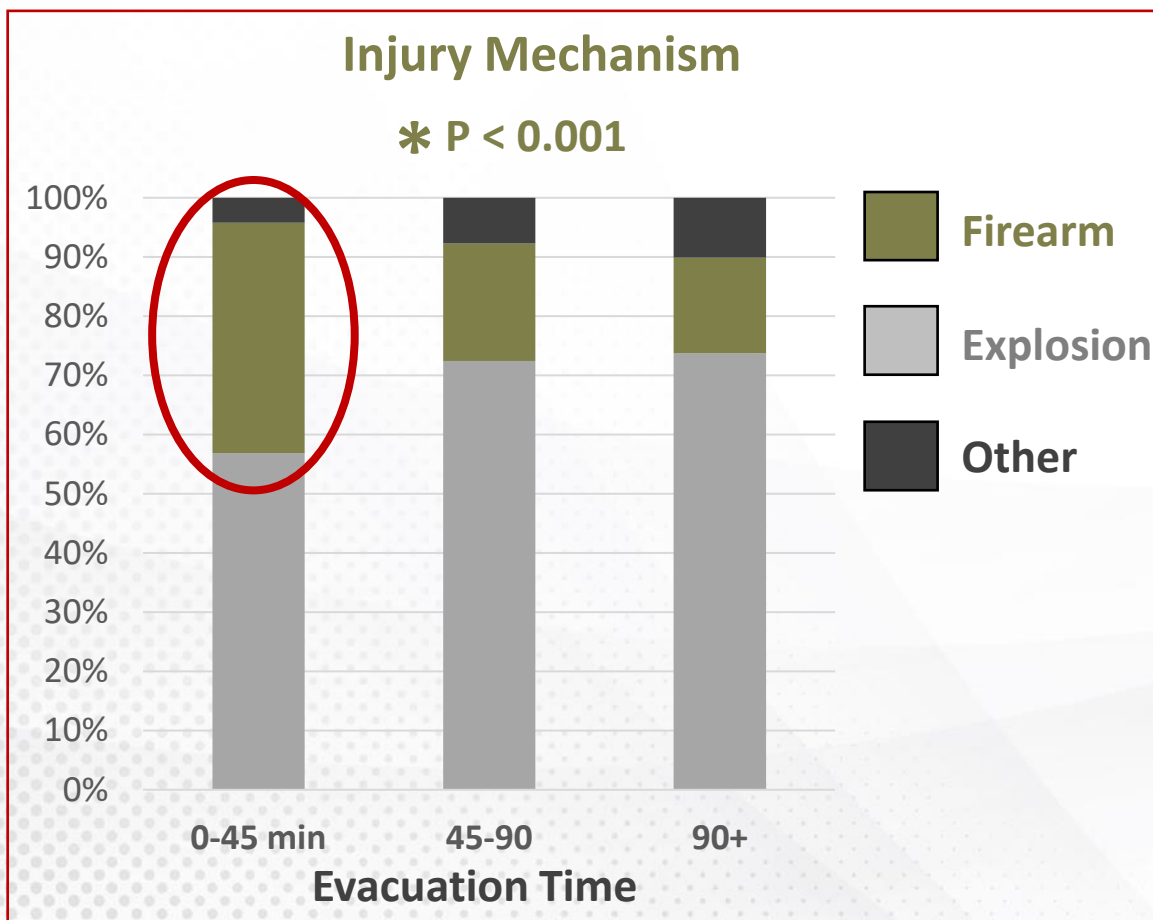
The Paradox



The fastest evacuated casualties had the highest mortality



Operational Interpretation

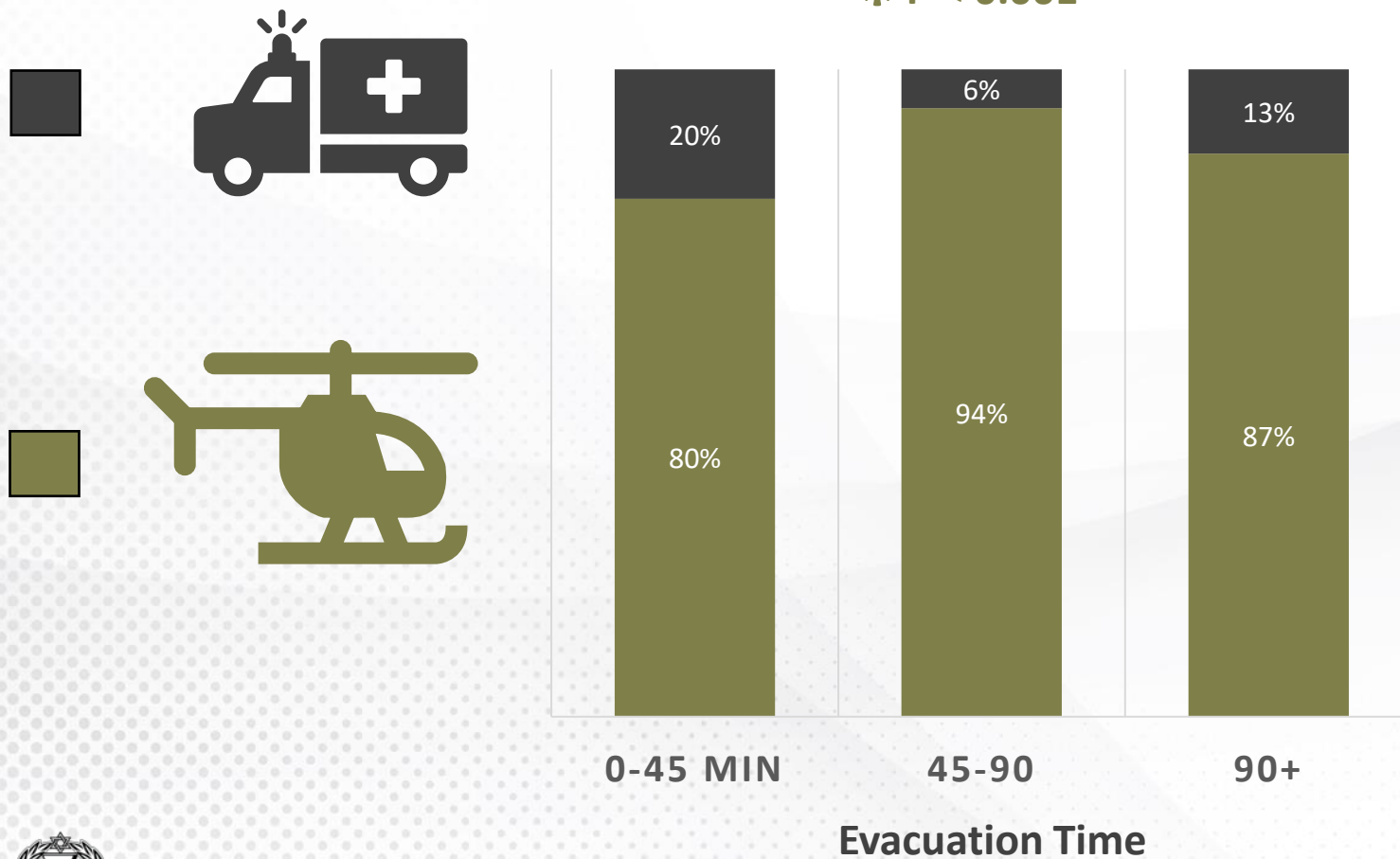


Earlier evacuation was more common in single-casualty events and firearm-related injuries



Operational Interpretation

* $P < 0.001$



Evacuation platform is influenced by operational considerations rather than injury severity alone.



Limitations



- Evacuation time is not determined solely by triage
- Selection bias (ISS ≥ 16 , Only hospitalized casualties)
- Survivor bias



Take home Message

- **Battlefield triage accurately identifies the most severe casualties.**
- **Those casualties are consistently evacuated first.**
- **The binary triage system successfully translates clinical judgment into evacuation priority.**



Acknowledgements

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THANK YOU



At the moment of truth,
IDF MEDICAL CORPS.

