



Prolonged Casualty Care For Traumatic Brain Injuries : Development of An Anesthesia Resuscitation Ki

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Introduction

- **Hemorrhage and traumatic brain injury** remain the leading causes of death in military settings.¹
- **Prolonged Casualty Care (PCC)** is a military adaptation that provides pre-hospital care for up to 120 hours in austere settings.²
- However, developing a scalable **Anesthesia Resuscitation Kit (ARK)** for PCC is challenging when accounting for weight/size restrictions.

Objectives:

- To design, stock, and manufacture **a novel prototype ARK for battlefield use.**
- To better understand the **logistical needs of stakeholders involved.**

Methods

- **The Joint Trauma Systems Clinical Practice Guidelines (JTS CPGs)** were reviewed 
- **A modified Delphi study** was initiated using supplies listed in JTS CPGs.
- Survey was distributed to military medical stakeholders. Participants were asked **to rank medical supplies for each indication** to include in the kit. 
- **Top 3 choices** of supplies for each indication will further be included in the **second survey**

Results

Table 1: Top Ranked Medications

Medication	
Pain Management	
Oral Analgesic	Acetaminophen
IV Analgesic	Fentanyl
Sedative	Ketamine
Infection Prevention	
IV antibiotic	Ertapenem
Oral Antibiotic	Moxifloxacin
IV fluids	Lactated Ringers
Anti-Epileptic	
Initial seizure management	Midazolam
Seizure prophylaxis	Levetiracetam
High ICP management	3% saline

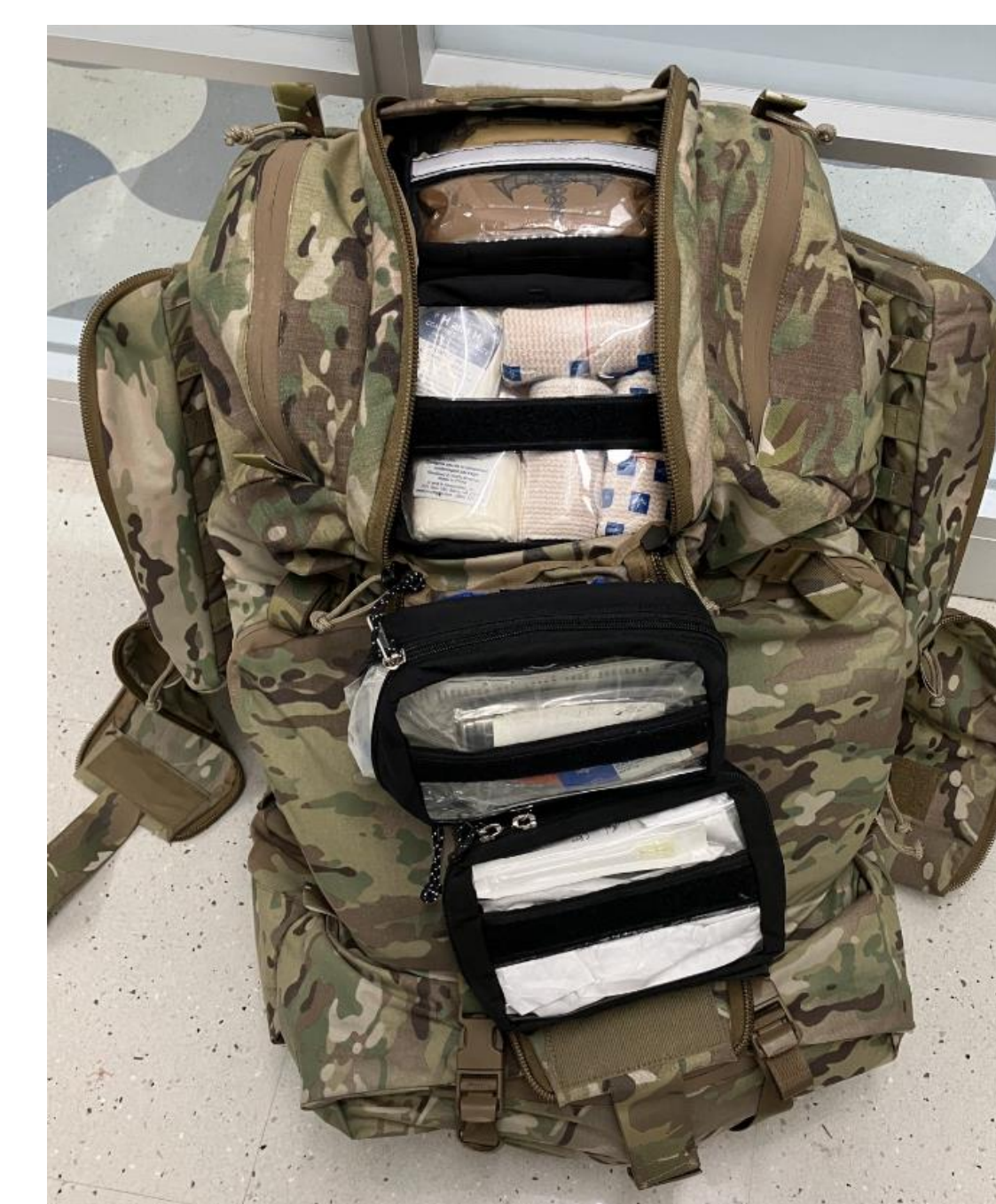
- **44 medications and 301 consumable items** ranked.
- **100 stakeholders** invited to participate; **60 surveys** completed (60% response rate)
- Top ranked choice for each indication is shown on the Table
- **Consensus** was also reached to include **vasopressors**, a point of care **ultrasound** and a **portable capnograph** as supplies in the kit
- **The second survey** is being prepared using the top 3 choices for each indication

Discussion & Conclusion

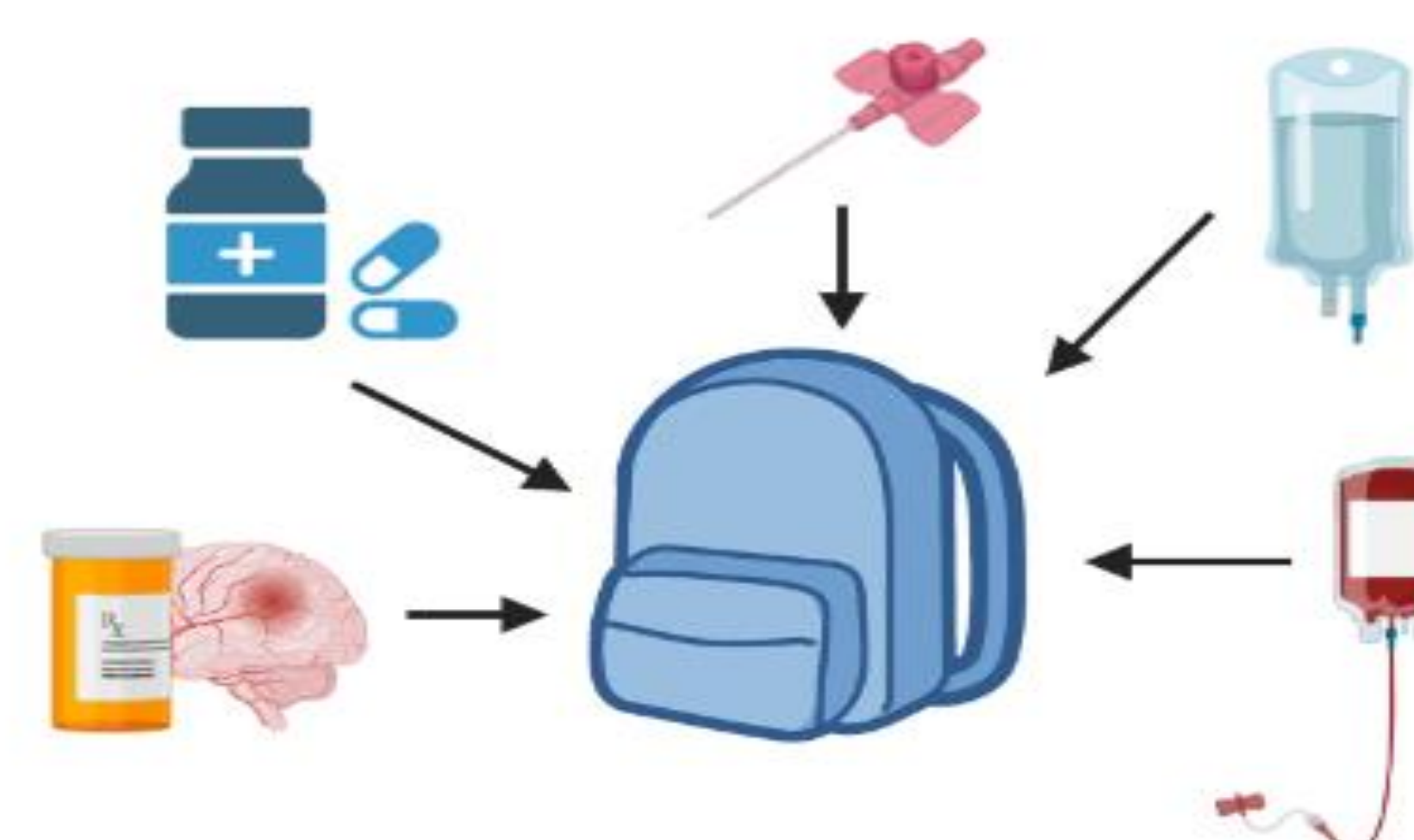
- **Strategic decision making** is required to develop an ARK that can meet the **logistical limitations of weight and volume** while providing supplies for managing TBI in PCC settings.
- Engagement of the **key stakeholders** in this selection process through **a Delphi system** has moved us closer to developing a highly useable, compact, and scalable kit for providing life-saving treatment.



ARK Prototype



Long Range Medical Backpack



References

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2. Keenan S. Deconstructing the Definition of Prolonged Field Care. *J Spec Oper Med.* Winter 2015;15(4):125.