



Effectiveness of Just-in-Time Prehospital Trauma Education in Ukraine



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Introduction

- The ongoing Russia-Ukraine war has significantly increased trauma related civilian injuries and deaths at the front lines and throughout Ukraine.
- Early assessments identified an immediate need for trauma education and training among first responders due to the rapidly rising trauma volume and strained prehospital resources.
- In response, an academic-non-governmental organization partnership was formed to develop, and deliver, a live in-person prehospital training course throughout Ukraine.

Objective

- To determine the impact of targeted needs-based training on first responder preparedness, knowledge, and confidence to manage trauma patients.

Methods

- A new 16-hour course containing lectures, skills stations, case studies, and simulation called Prehospital Trauma Fundamentals (PHTF) was developed using needs assessments and international training standards.
- Course materials were translated into Ukrainian, and courses were taught with live bidirectional interpretation as required.
- During Phase 1, 10 courses were taught from Aug-Oct 2022 by both non-Ukrainian and Ukrainian instructors.
- Pre- and post- knowledge and self-confidence assessments measured course effectiveness.
- Six-to-eight-week follow-up surveys were also distributed.
- Data were analyzed using McNemar’s test for paired data and Wilcoxon matched-pairs signed-rank test.
- This project was determined to not require Institutional Review Board approval by the Mass General Brigham Office of Human Research Affairs.

Host Organization & Funding

- The Ukraine Trauma Care Response Program is an academic and non-governmental organizational partnership between Harvard Humanitarian Initiative (HHI) & International Medical Corps (IMC). HHI, through its Emergency Health Systems Program, is leading a consortium consisting of Mass General Brigham, Global Medical Knowledge Alliance, and Boston Children’s Hospital.
- Grant Funding was provided by International Medical Corps.

Figure 1: Map of Course Sites



Table 1: Participant Demographics

	n=268
Gender	
Male	93 (34.7%)
Female	173 (64.6%)
Other/prefer not to say	0
Missing	2 (0.7%)
Age (yrs) [IQR]	35 [25.5-47]
Clinical Background	
Physician	96 (36%)
Nurse	42 (16%)
Medical assistant	8 (3%)
Paramedic	29 (11%)
Student Paramedic	20 (7%)
Other	16 (6%)
Non-healthcare worker	53 (20%)
Missing	3 (1%)

Table 2: Participant Self-Confidence Assessment Score Changes

	Pre-course	Post-course	Sig*
Participant agree or strongly agree on Likert Scale			
<i>I feel comfortable handling patients requiring trauma care</i>	71.7% (129)	83.3% (150)	<0.001
<i>I feel nervous about seeing patients with traumatic injuries</i>	63.1% (113)	52.5% (94)	<0.05
<i>I feel that I lack the skills to provide care in most emergencies</i>	79.0% (143)	33.7% (61)	<0.0001
<i>I feel prepared to see patients with life threatening injuries</i>	46.1% (83)	66.1% (119)	<0.0001
<i>I feel that I understand the XABCDE of emergency care</i>	69.8% (125)	96.6% (173)	<0.0001
<i>I feel I have organized approach that allows me to be prepared to are for trauma patients</i>	59.2% (106)	90.5% (162)	<0.0001
<i>I do not feel confident in my knowledge of trauma care</i>	59.4% (107)	15.6% (28)	<0.0001
Participants feeling confident or very confident on Likert Scale			
<i>Emergency management of the injured adult</i>	40.0% (72)	80.6% (145)	<0.0001
<i>Emergency management of the injured child</i>	16.1% (29)	43.9% (79)	<0.0001
<i>Emergency management of blast injuries</i>	26.7% (48)	60.0% (108)	<0.0001
<i>Emergency management of penetrating injuries</i>	36.7% (66)	77.2% (139)	<0.0001
<i>Emergency management of blunt trauma</i>	35.2% (63)	72.1% (129)	<0.0001
<i>Emergency management of the patient with shock</i>	31.8% (57)	55.9% (100)	<0.0001
<i>Have the skills to manage an obstructed airway</i>	32.2% (58)	73.9% (133)	<0.0001
<i>Have the skills to manage hemorrhage</i>	52.2% (94)	82.8% (149)	<0.0001
<i>Have the skills to immobilize injured patients</i>	40.7% (72)	76.3% (135)	<0.0001

*Based on McNemar’s test for paired data

Results

- 268 first responders were trained in Kyiv, Dnipro, Odessa, and Zaporizhzhia. (Figure 1)
- Participants were predominantly female (65%), median age was 35yrs. (Table 1)
- Of 193 matched pre- and post-course knowledge assessment scores increased from 53.4% [SD15.4%] to 74.4% [SD15.6%] (p<0.0001).
- Assessment scores increased for most participants (93.3%).
- Self-confidence surveys demonstrated improved comfort handling trauma patients (71.7%v83.3%; p<0.001), preparedness to manage life-threatening conditions (46.1%v66.1%; p<0.0001), & belief in an organized approach to trauma care (59.2%v90.5%; p<00001). (Table 2)
- Nervousness decreased (63.1%v52.5%; p<0.05) and sense of skill deficit decreased (79.0%v33.7%; p<0.0001).
- 59 (22.0%) participants completed the follow-up survey; 100% stated the training has or will have a life-saving effect in their patient management.
- Most (62.7%) had already applied course skills and taught (64.4%) others course skills or information.

Conclusions

- PHTF increased participant knowledge, preparedness, and confidence to care for trauma patients.
- Participants successfully applied course information during the ongoing conflict, which suggests value in delivering targeted educational programs just before or during large-scale events.
- This course and lessons learned from its development and delivery can serve as a starting point for delivering first responder trauma education in other conflict and austere settings.

- Additional training through this project remains ongoing.

Limitations & Next Steps

- This study was completed using a novel trauma education program that has only been taught in Ukraine thus far.
- Phase 2 of the project has been completed and additional data are being analyzed.
- Phase 3 is currently underway and focused on transitioning the program to Ukrainian instructors.