PROGRAM IN GLOBAL SURGERY AND SOCIAL CHANGE
Harvard Medical School

Military-Civilian Integration as a Tool to Bolster Mass Casualty Incident Response Globally

Emad S. Madha, MD; Joseph B. Aryankalayil, MD; Aldo Ayvar, MD; Matthew Arnaouti, MBBS, MA; Dellali Adzigbli, MBChB; Dabota Y. Buowari, MBBS; Rolando G. Dela Cruz, MD; John Whitaker, PhD; Wendy Williams, JD; Amila S. Ratnayake, MS; Tamara J. Worlton, MD; Michelle N. Joseph, MBBS, MSc, PhD; Ghassan T. Alswaiti, MBBS

Introduction

- 4.4 million deaths worldwide are attributable to trauma related causes each year
- Low- and middle-income countries (LMIC) are burdened with 90% of global trauma mortality
- In a model of military-civilian trauma system integration, coordination of mass casualty incident response by military and civilian entities could:
  - Construct comprehensive trauma systems
  - Reduce duplication of services
  - Expand cost-effective quality care

Objectives

- Through a widely distributed survey the study seeks to identify examples of integration globally
- In addition we aim to understand trauma system capabilities within each country to understand the environment in which integration exists
- The identified integration factors, trauma capabilities, and subsequent analysis will inform the development of a regional framework

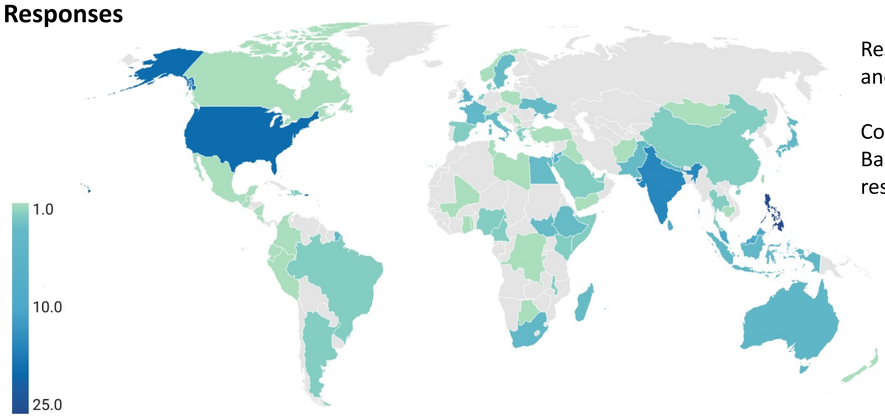
Methods

- Through a 57- question survey, 92 indicators were assessed
- We employed a Snowballing method to widely distribute the survey
- The identified indicators captured information on five key domains of an integrated civilian-military trauma system: **patient care, education/training, formal partnerships, global health engagement, and communication**
- Using participant responses, countries were categorized into three integration types (Type I to III), reflecting varying degrees of integration, from minimal to robust
- Chi Square analysis, with a significance level of 0.05, was employed to identify statistical differences between integration types and the related factors

DOD/USU Disclaimer

Results

Responses

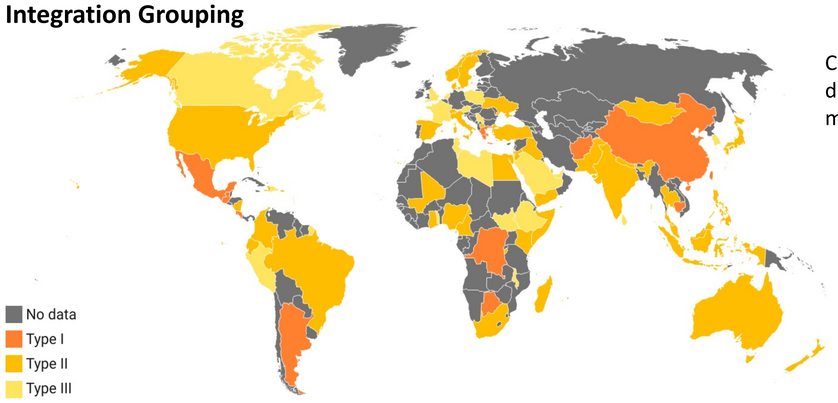


Responses from 73 individual countries and 227 respondents in total

Compared to all countries with World Bank Income Classification, similar response distribution:

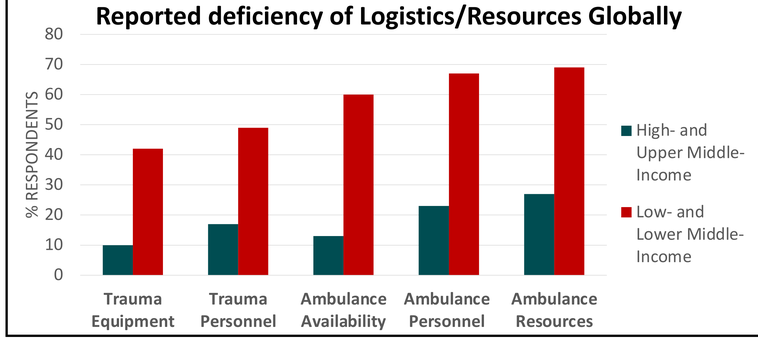
Income Status	IMPACT Study	World Bank
High	32.4%	37.3%
Upper Middle	29.2%	24.9%
Lower Middle	23.6%	24.9%
Low	15.3%	12.9%

Integration Grouping



Countries were classified into three distinct integration types, ranging from minimal (Type I) to robust (Type III)

Reported deficiency of Logistics/Resources Globally



Can integration of military-civilian trauma systems improve resource allocation and availability?

Association between availability ambulance resources and increased integration status:

Integration Type	% of Countries
Type I	36%
Type II	65%
Type III	72%
**Association did not reach significance*	

Existing Integration

Are there examples of military-civilian integration within the context of **aeromedical evacuation**?

Globally: 69% reported examples of integration

Setting	% reported
Disaster	47%
War/Conflict	35%
Peacetime	33%
Training	29%

Are there examples of military-civilian integration within the context of **pre-hospital trauma care**?

Globally: 77% reported examples of integration

Setting	% reported
Disaster	49%
Peacetime	41%
War/Conflict	39%
Training	33%

Conclusions

1. Our research helps identify **key areas** where integration can be **strengthened** and would be **beneficial**
2. This study also identifies **disaster response** as an area to leverage existing integration
3. This research seeks to build a more **collaborative and resource efficient** trauma system
4. Increased **participation improves accuracy** of our dataset which ultimately helps create a **more adaptable framework**

Please scan to take our survey and learn more about our study!