

# How Russia's War on Ukraine Changed Russian Military Medicine: Preliminary Lessons Learned

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## Why It Matters:

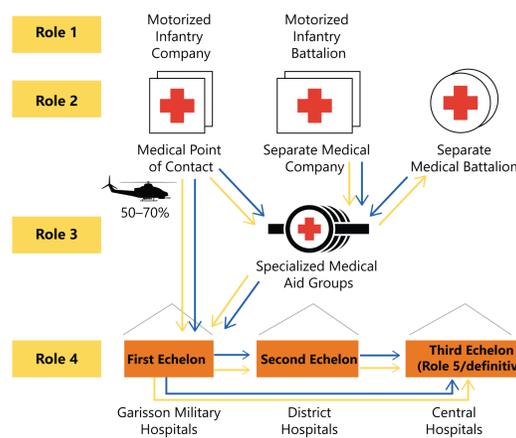


- Russian military medical lessons learned are valuable to DOW medical planners because Russian medical forces modeled their roles of care and wounding classification on **NATO standards** and use **tactical combat casualty care** for point-of-injury care. The utilization of these conventions makes comparisons to US capabilities and concepts of employment possible.
- Russian forces face a **similar problem set** to those that US forces are likely to face in a peer conflict—long lines of supply to support a large, dispersed force in unfamiliar territory with a potentially unfriendly civilian populace.
- Studying Russian innovation and lessons learned can help **DOW military planners** identify measures that would allow the US to rapidly adapt its capacity to treat the wounded. To prevent unnecessary deaths on the future battlefield (referred to as the Walker dip), DOW medical planners need to learn from our allies and adversaries.

## Russian War Adaptations

### Command & Control and Force Generation

- Given the challenges of ground maneuver, Russian military medical forces have evolved to be modular and interoperable.
- Medical forces are task-organized, blurring lines between Roles 2 and 3.
- Vascular surgeons and traumatologists at far forward Role 2 locations increased return to duty rates, particularly during the conventional phase of warfare.
- Telemedicine and virtual trainings are used to inform medical providers of best clinical practices based on changing battlefield conditions.



### Patient Movement & Unmanned Systems

- As the war has turned from conventional to drone warfare, holding times at the point of injury have increased as neither side maintains air superiority.
- The Russian military experimented with self-assembled multipurpose unmanned ground vehicles (UGVs) for casualty evacuation along the front lines.
- But “kill zones” have reduced the effectiveness of UGVs for all missions, including casualty evacuation.



### Extended Holding

- Evacuation delays have resulted in an increased ratio of personnel killed in action (KIA) to wounded in action (WIA); sources report ratios as high as 1:1.3.
- Delays also drive the need for new tactics, techniques, and procedures. For example, high rates of irreversible ischemia caused by prolonged tourniquet application highlighted training gaps. Role 2 facilities pivoted from damage control surgery to definitive surgery.
- Extended holding at the point of injury and increased KIA rates has changed injury patterns among those treated in Role 2 surgical facilities.
- Despite a reduction in injury severity, the average casualty at a Role 2 surgical facility received two surgeries.



**14.5 HOURS**  
average time from wounding during drone warfare to arrival at the first qualified surgical team

## Key Takeaways:



- Medical care must change to reflect tactical realities and resources; medical command & control, and force generation processes must promote flexibility and disseminate changing clinical practice guidance.
- With limited abilities to evacuate casualties and patients, the character of medical care and triage must change.
- Unmanned casualty evacuation requires operational protection in a conflict with drone warfare and contested logistics.
- With extended holding at the point of care, many critically injured patients will not survive to higher levels of care or first surgical intervention. While those who survive have lower injury severity scores, they still require resource-intensive care and multiple surgeries.



### Our Data and Its Limitations

- Russian-language sources including Russian defense and security periodicals.
- Written for Russian consumption to improve combat casualty care.
- Lack of information on personnel killed prior to hospitalization (killed in action).
- High rates of return to duty may reflect cultural differences.

### FUTURE RESEARCH POTENTIAL



Despite the valuable insights from this initial exploration, the Russian military medical experience in Ukraine remains an understudied topic. This research found sufficient data to provide a more comprehensive account of the Russian military medical system. Such research could shed further light in both the warfighting and medical domains. For example, new research could uncover Russia's capacity to sustain casualties in a large-scale conflict and at the same time delve more deeply into lessons learned for US medical forces.

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#### WHY CNA?

CNA, the federally funded research and development center for the Department of the Navy, has a unique combination of expertise to carry out research on this topic. CNA's Russia Studies Program has a half-century of experience analyzing Russian-language military writings—part of CNA's broad capabilities in adversary analytics. CNA's Navy Health and Human Resources Program has extensive experience examining the readiness of medical forces and medical readiness of operating forces. In this study, the two programs collaborated to give context to Russian-language open-source documents, primarily reputable Russian defense journals.

#### ACKNOWLEDGEMENTS/DISCLAIMERS

- This poster builds on findings from work sponsored by the Russia Strategic Initiative at US European Command.
- The views expressed in this presentation reflect the results of research conducted by the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of War, nor the US government.

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