

We Need a Medic!

The Russian Military Medicine Experience in Ukraine

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Abstract

This occasional paper for the Russia Strategic Initiative examines Russia's military medical system following Russia's full-scale invasion of Ukraine. It argues that Russian forces have struggled to provide adequate medical care for the wounded in Ukraine. Although the Russian government has implemented measures to meet the medical demand in Ukraine, Russia's peacetime military medical system remains ill equipped to sustain the casualties suffered while conducting large-scale combat operations (LSCO). Because of this, the Russian military medical system is at serious risk of being further overburdened as the war rages on. In addition, organizational issues such as personnel and material shortages persist. Regardless, the Russian military has shown adaptability in meeting the medical demands in Ukraine to some degree. We conclude the paper by discussing preliminary lessons the Russian military may have learned from the experience of its military medical personnel, identifying possible challenges that the US joint force may face during protracted LSCO, and suggesting areas for further research.

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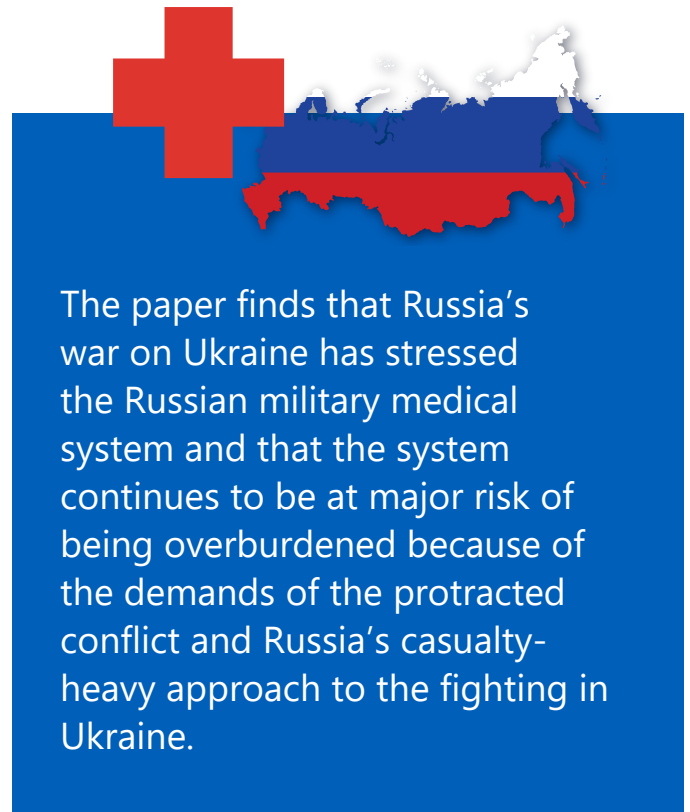
EXECUTIVE SUMMARY

In early 2022, Russia's military health system faced unprecedented circumstances. Russian military medical staff transitioned from supporting the civilian sector in the battle against the COVID-19 virus to supporting major combat operations in Ukraine. This occasional paper identifies several challenges the Russian military medical system has faced as Russia sustains its protracted campaign in Ukraine and examines several efforts undertaken by the Russian government to provide care for the wounded. It does not aim to offer a comprehensive account of the Russian military medical system; rather, it provides an initial exploration of the Russian military medical system in Ukraine.

The paper finds that Russia's war on Ukraine has stressed the Russian military medical system and that the system continues to be at major risk of being overburdened because of the demands of the protracted conflict and Russia's casualty-heavy approach to the fighting in Ukraine. The Kremlin's political assumptions about a quick victory in Ukraine, the geographical scale of the front line in Ukraine, the lack of preparation of its medical staff, and preexisting personnel and material shortages have significantly affected Russia's ability to provide care for the wounded in Ukraine.

Russian soldiers in Ukraine have mainly suffered shrapnel wounds from exploding shells and blast wounds in the extremities. Soldiers are either underequipped in battlefield medicine and/or medical supplies run out quickly, which forces them to improvise first aid. Challenges in casualty evacuation from the point of injury has led to a reliance on battlefield self- and buddy-aid as well as placing mobile medical units closer to the fighting.

Facing shortcomings in Ukraine, Moscow is establishing policies to improve care for the wounded,



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including the following: (1) using Belarusian medical capacity to relieve overcrowded hospitals in mainland Russia, (2) improving the training of its personnel and updating its procedures, (3) involving the civilian health care system to augment the military medical system's capacity by exploring legal frameworks to shorten the bureaucratic process for volunteers and having soldiers treated in civilian hospitals, (4) increasing various types of military medical facilities, (5) involving volunteer groups to rectify material shortages, and (6) placing medical personnel closer to the front line to stabilize the wounded before casualty evacuation.

Although there are signs that the mitigating measures put in place by the Russian government have achieved some objectives—Russian troops seem to be better trained and equipped in battlefield medicine than during the earlier periods of the conflict—Russian leadership often overstates

how these measures have affected the war effort. Some at the Ministry of Defense posit that Russia's peacetime medical infrastructure is not large enough to meet the medical demand of prolonged large-scale combat operations (LSCO). The weaknesses in Russia's military medical system are compounded by weaknesses in the Russian civilian medical system.

Extracting preliminary lessons from the Russian military medical experience can provide a guide to the difficulties the US military may encounter when providing care for the wounded during LSCO. Key implications include the following:

1. In protracted LSCO, the risk of the military medical service becoming seriously overburdened is significant. Establishing a framework to increase collaboration between the civilian and military medical health sectors may ease the burden on military medical personnel.
2. Providing a robust medical response in LSCO requires that medical planning be integrated with the planning of operations. Although Russian forces set up tents for medical care near the Ukrainian border in January 2022, military medical leadership and personnel were still unsure of whether Russia would launch another campaign in Ukraine. This confusion—along with the political assumptions about the conflict—led to a lack of integrated planning to meet the demands of the conflict.
3. Institutionalizing and adapting Tactical Combat Casualty Care training can likely make a crucial difference in lifesaving care during active conflicts. Although Russian soldiers struggle with first aid, certain measures have improved discernment at the front line of who should be medically evacuated. These measures include institutionalizing training, promoting self-aid, having fellow soldiers participate in the wounded's first aid process, stationing medical detachments near the fighting, and having these medical detachments stabilize patients before evacuation.
4. Medical forces will be targeted by modern enemies, whether deliberately or accidentally. When moving closer to the front, medical detachments will be forced to find creative ways to protect personnel from being targeted. To protect its mobile medical personnel, Russia has opted to disguise its ambulance vehicles, and set up medical detachments in protected structures.
5. Emerging technology is likely to play a crucial role in medical evacuations in the future. Integrating innovative technology into casualty evacuation can plug critical capacity gaps, given that mobile detachment units might be overwhelmed by casualties.

This initial exploration yielded valuable insights into the Russian military medical experience in Ukraine, but it remains an understudied topic. Little is available in the English language about the history or the general organization of Russia's military-medical system; most studies focus on the Ukrainian military medicine experience, and there is little research on sanitation or disease in the war. Future studies should delve deeper into these and adjacent topics to learn lessons for the joint force.

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INTRODUCTION

Numerous analysts have argued that Russia's war on Ukraine represents a "stress test" for the Russian state and its military.¹ Past CNA work has highlighted the challenges that Russian military logistics have faced in Ukraine.² These challenges, along with the Kremlin's initial political assumptions about the conflict, have also affected how the Russian military cares for the wounded when conducting major combat operations. Most of the open-source scholarship about the military medical lessons the US can learn from Russia's war on Ukraine has naturally focused on drawing lessons from Ukrainian military medicine, given the availability of English language sources and the US-Ukraine relationship.³ This occasional paper fills a gap by focusing on the Russian military medicine experience in Ukraine, going beyond the anecdote-level information available in the Western press.

The paper centers on the challenges the Russian military has faced in its attempts to provide medical care while conducting major combat operations and how it has mitigated said obstacles. This report uncovers how Russia manages its wounded in Ukraine based on reputable Russian defense-related periodicals (mostly journals) from 2021 through

The paper centers on the challenges the Russian military has faced in its attempts to provide medical care while conducting major combat operations and how it has mitigated said obstacles.

2024. It is not a comprehensive reconstruction, but rather an exploratory endeavor to indicate the preliminary lessons Russian forces are learning in Ukraine. The report also seeks to provide a baseline effort for future research efforts on the Russian military medical system in Ukraine.

This occasional paper begins with a short overview of the organization of Russian military medical care before describing the Russian forces' provision of medical care in Ukraine. The paper concludes by briefly identifying implications derived from preliminary Russian lessons learned for the joint force.

¹ Ruslan Pukhov, "From Special to War: Lessons from Two Years of Operations in Ukraine [От «специальной» к «военной» Уроки двух лет операции на Украине]," *Russia in Global Affairs*, 2024, <https://globalaffairs.ru/articles/ot-speczialnoj-k-voennoj/>.

² Paul Schwartz and Dmitry Gorenburg, *Russian Military Mobilization During the Ukraine War: Evolution, Methods, and Net Impact*, CNA, 2024; Michael Connell, Brooke Lennox, and Paul Schwartz, *Training in the Russian Armed Forces: An Assessment of Recent Reforms and Their Impact on Russian Operations in Ukraine*, CNA, 2023, <https://www.cna.org/reports/2023/09/Training-in-the-Russian-Armed-Forces.pdf>; Paul Schwartz et al., *Russian Military Logistics in the Ukraine War: Recent Reforms and Wartime Operations*, CNA, 2023, <https://www.cna.org/reports/2023/10/Russian-Military-Logistics-in-the-Ukraine-War.pdf>; Michael Kofman and Rob Lee, "Not Built for Purpose: The Russian Military's Ill-Fated Force Design," *War on the Rocks*, 2022, <https://warontherocks.com/2022/06/not-built-for-purpose-the-russian-militarys-ill-fated-force-design/>.

³ Aaron Epstein et al., "Putting Medical Boots on the Ground: Lessons from the War in Ukraine and Applications for Future Conflict with Near-Peer Adversaries," *Journal of the American College of Surgeons* (2023), https://journals.lww.com/journalacs/Fulltext/2023/08000/Putting_Medical_Boots_on_the_Ground_Lessons_from.31.aspx; J. Quinn et al., "Prehospital Lessons from the War in Ukraine: Damage Control Resuscitation and Surgery Experiences from Point of Injury to Role 2," *Military Medicine* (2024), <https://pubmed.ncbi.nlm.nih.gov/37647607/>.

Methodology

To identify the lessons the Russian military is learning, we surveyed Russian periodical defense journals for articles related to Russian military medicine in its campaign in Ukraine. We examined the data using the following structured questions:

1. What do the sources say about the provision of medical military care in Ukraine?
2. What lessons does the Russian military perceive (implied or stated) that Russia has learned or should learn for its future military medical care structure?
3. What challenges (implied or stated) do military medical personnel perceive amid the provision of care in Ukraine?
4. What solutions (implied or stated) do military guidance and military medical personnel propose to mitigate those challenges?

Afterward, we assembled the data based on challenges identified and mitigation measures undertaken. The final section discusses the preliminary lessons learned from the Russian perspective and identifies their relevance for the joint force.

ORGANIZATION

The Main Military Medical Directorate (MMMD) handles the provision of medical services to the Russian Armed Forces and their families. This structure is housed within the Ministry of Defense (MOD) and led by Dmitry Trishkin. The underfunded Russian healthcare sector is in crisis, and this is reflected in the military health system, which has not received significant additional resources despite years of Russian military modernization efforts.⁴

The MMMD provides care to families, veterans, and Russian soldiers through a network of national and regional hospitals. Before the war, the MMMD prioritized preserving the health of military personnel to combat obesity and alcohol and drug abuse.⁵ In combat situations, following the evacuation of the wounded, the military medical system works as a network of fixed facilities that provides care for military personnel on the battlefield. Meanwhile, higher levels of specialized care are performed in the Burdenko Main Military Clinical Hospital, the Mandryk Central Military Clinical Hospital, and the 3rd Central Military Clinical Hospital. Central hospitals of the branches of the Russian Armed Forces are included as branches of the Burdenko Main Military Clinical Hospital, and the specialized central military hospitals are included in the 3rd Central Military Clinical Hospital.

Roles of care

The canonical Russian military medical care system provides several levels of care. The initial aid is performed directly on the battlefield, and the final aid is performed by rear medical organizations such as the S. M. Kirov Military Medical Academy, the Burdenko Main Military Clinical Hospital, the Vishnevsky Central Military Clinical Hospital, and the Mandryk Central Military Clinical Hospital, along with district and base hospitals. The stages of medical evacuation between the initial and final aid range from the first aid post of the regiment or battalion to the medical company of a brigade followed by a separate medical battalion (see Figure 1). The medical battalion is supplied with the necessary medical equipment and staffed by medical specialists. At the beginning of the full-scale Russian invasion, some battalions may have served as military field therapeutic hospitals. The battalions were also reinforced with specialized doctors, including thoracic and abdominal surgeons with extensive experience from the Military Medical Academy. The medical battalion is then followed by specialized medical aid groups. These “specialized medical aid groups” are mobile medical units reinforced by specialists.⁶

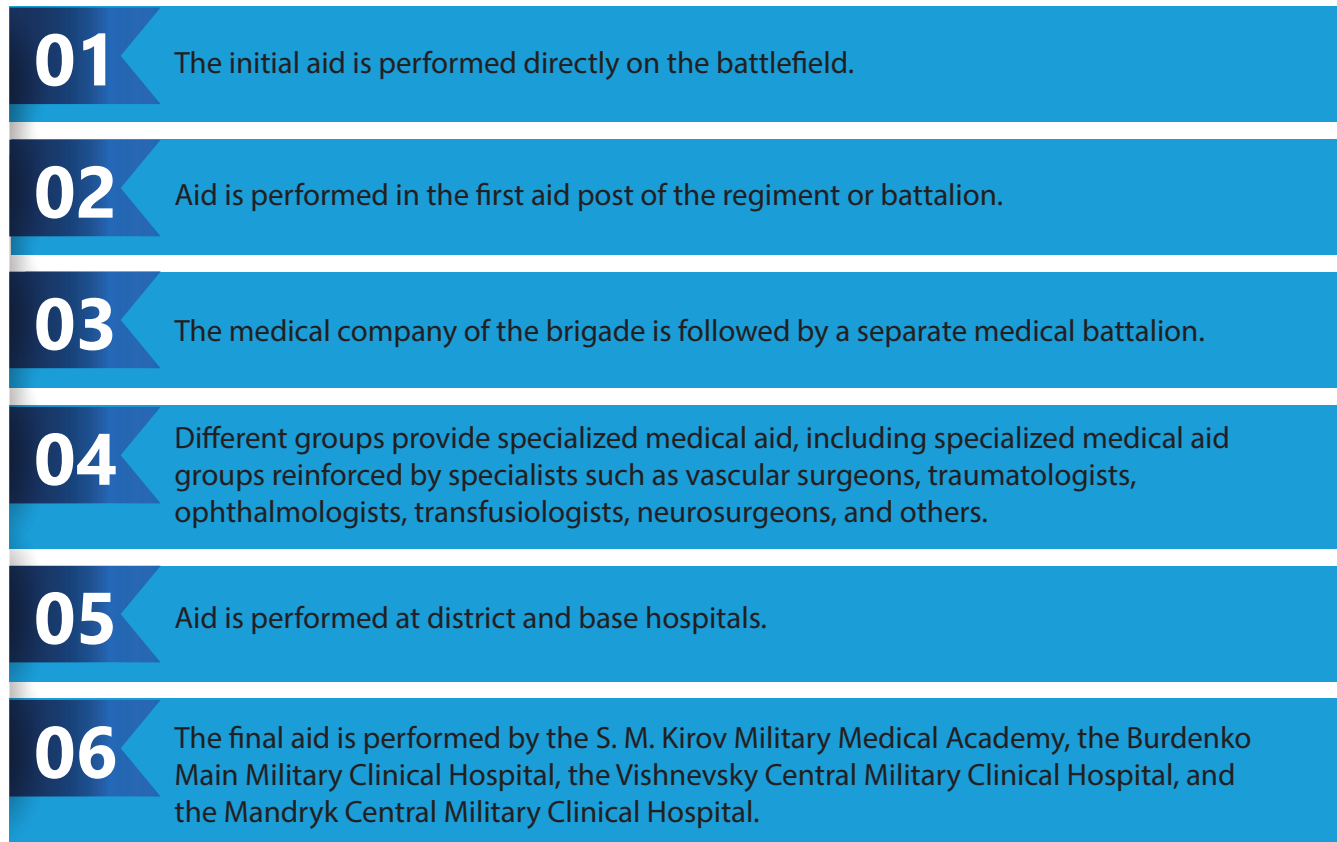
⁴ Ray Finch, “Can Russia Mobilize Military Medical Care?,” *OE Watch* (2018), <https://community.apan.org/wg/tradoc-g2/fmso/m/oe-watch-articles-singular-format/293016>.

⁵ Dmitry Trishkin, “Results of the Activities of the Medical Service of the Armed Forces of the Russian Federation in 2021 and Tasks for 2022 [ИТОГИ ДЕЯТЕЛЬНОСТИ МЕДИЦИНСКОЙ СЛУЖБЫ ОРУЖЕННЫХ СИЛ РОССИЙСКОЙ ФЕДЕРАЦИИ В 2021 ГОДУ И ЗАДАЧИ НА 2022 ГОД],” *Military Medical Journal*, no. 1 (2022).

⁶ I. Ilianskaya, “Want to Be a Real Surgeon - Follow the Army [ХОЧЕШЬ БЫТЬ НАСТОЯЩИМ ХИРУРГОМ - СЛЕДУЙ ЗА ВОЙСКОМ],” *Ameiski Sbornik*, no. 1 (2024).

Figure 1. Stages of medical evacuation between the initial and final stage of aid in the classical Russian military medical system

Stages of Medical Evacuation



Source: CNA.

The MMMD has identified four main stages of medical care and treatment for soldiers participating in combat activities in Ukraine (see Figure 2). The first stage is medical care through mobile medical units, which is how the wounded in Ukraine are primarily assisted.⁷ Typically, specialized medical aid groups occupy an important place in the general system of medical and evacuation support for troops in

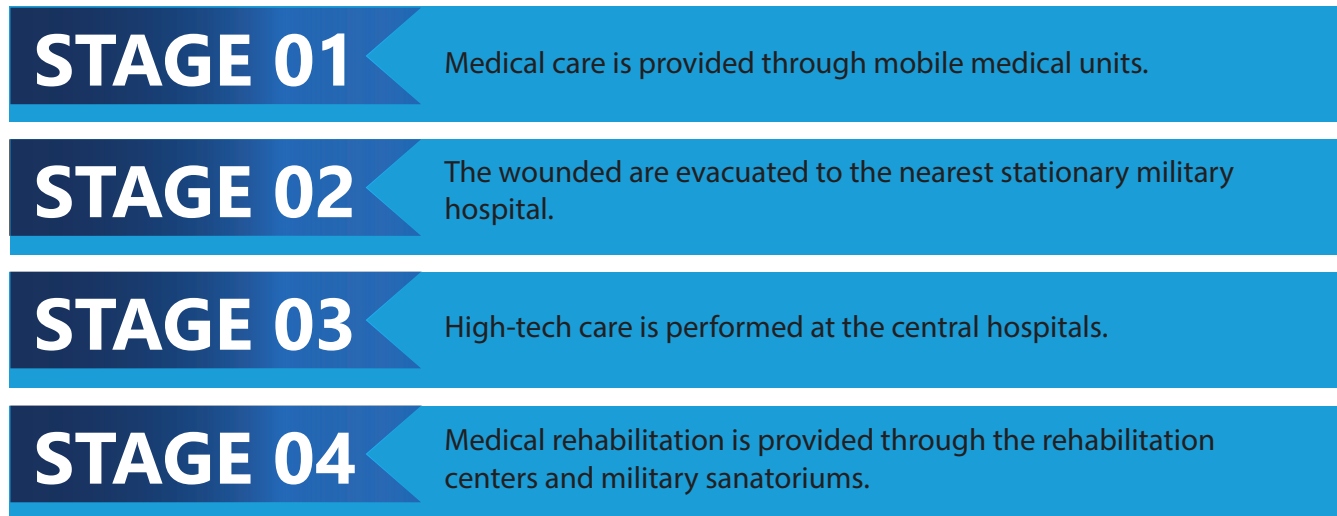
peacetime and war time.⁸ The term “specialized medical aid groups” refers to mobile units of the medical service of the Russian Armed Forces, designed to receive wounded and sick servicemen arriving from the troops of military districts (including from areas of mass sanitary losses) and provide them with qualified medical care, treatment, and preparation for further evacuation. The MOD has set

⁷ D. V. Trishkin, “Results of the Activities of the Medical Service of the Armed Forces of the Russian Federation in 2023 and Tasks for 2024 [Итоги деятельности медицинской службы Вооруженных Сил Российской Федерации в 2023 году и задачи на 2024 год],” *Military Medical Journal*, no. 1 (2024).

⁸ I. G. Korniyushko, A. M. Shelepov, and L. M. Kostenko, “Improvement of Organizational Break-Down Structure and Technical Supply of Specialized Medical Aid Group [Совершенствование организационно-штатной структуры и технического оснащения медицинских отрядов специального назначения],” *Military Medical Journal*, no. 3 (2008).

Figure 2. Stages of medical care in the Russian military medical system—Ukraine experience (2022–2024)

Stages of Care



Source: CNA.

“specialized medical aid groups” in the territory it occupies in Ukraine.⁹ These groups consist of highly qualified specialists: surgeons, anesthesiologists, therapists, operating nurses, nurse anesthetists, and many others.¹⁰

The second stage of medical care is initial lifesaving care in stationary military hospitals belonging to the districts. At this stage, staff use “tactics of damage control” to provide lifesaving care and stabilization with the goal of minimizing surgical intervention and performing one-stage definitive surgical treatment after stabilizing the wounded.¹¹ The third stage is high-tech medical care provided by the elite central

hospitals: the Burdenko Main Military Clinical Hospital, the Mandryk Central Military Clinical Hospital, and the A. A. Vishnevsky 3rd Central Military Clinical Hospital. The most severe patients (including those who need prosthetics) are concentrated in the S. M. Kirov Military Medical Academy, the Burdenko Main Military Clinical Hospital, and the Vishnevsky Central Military Clinical Hospital.¹² The final stage is medical rehabilitation, which occurs at rehabilitation centers and military sanatoriums.¹³ Russia has 52 sanitary resort organizations (sanatoriums) and has leveraged 23 rehabilitation centers to care for soldiers who require full rehabilitation.

⁹ “The Ministry of Defense Showed the Work of Military Doctors in a Mobile Hospital in the Kharkov Region [МО показало работу военврачей в мобильном госпитале Харьковской области],” *Izvestiya*, 2022, <https://iz.ru/1358019/2022-07-01/mo-pokazalo-rabotu-voenvrachei-v-mobilnom-gospitale-kharkovskoi-oblasti>.

¹⁰ “You Tear Everyone from the Hand of Death: How Medical Special Forces Work in the Zone of the SMO [Каждого вырывает из рук смерти: Как работает медицинский спецназ в зоне СВО],” TASS, 2024, <https://tass.ru/obschestvo/20200463>.

¹¹ Charles Bartles, “Details Emerge on the Russian Medical System in Ukraine,” Foreign Military Studies Office (FMSO), June 24, 2024, <https://fmso.tradoc.army.mil/2024/details-emerge-on-the-russian-medical-system-in-ukraine/#>.

¹² Anton Alekseev, “Helping the Wounded: In Depth [в полном объёме],” *Krasnaya Zvezda*, no. 142 (2022).

¹³ Trishkin, “Results of the Activities of the Medical Service of the Armed Forces of the Russian Federation in 2023 and Tasks for 2024.”

The notion of treating the sick and wounded at the lowest possible level and evacuating them through various echelons for treatment originated in the Soviet medical system.¹⁴ Military personnel often arrive with shrapnel wounds from exploding shells and blast wounds, as well as bullet wounds, burns,

and other injuries from Ukraine. The most common wounds are in the extremities, while injuries such as burns, frostbite, bruises, fractures, concussions, bullets, and fragments stuck in soft tissues are classified by military doctors as minor wounds.¹⁵

¹⁴ Lester W. Grau and William A. Jorgensen, "Handling the Wounded in a Counter-Guerrilla War: The Soviet/Russian Experience in Afghanistan and Chechnya," *U.S. Army Medical Department Journal* (1998).

¹⁵ Lida Kurnosova, "More Than 5% of 'Potentially Saveable' Military Personnel Die on the Battlefield Without Receiving Medical Care [Более 5% «потенциально спасаемых» военных умирают на поле боя, не получив медпомощь]," *Vestka* (2024), <https://verstka.media/bolee-5-procentov-potencialno-spasaemyh-voennyh-umirayut-na-pole-boya-ne-poluchiv-medpomoshch>.

CHALLENGES

In this section, we analyze challenges the Russian military medical system is facing because of the campaign in Ukraine. The first subsection focuses on the weaknesses of Russia's military medical system. The second subsection discusses the lack of medical planning during the initial stages of Russia's full-scale invasion as well as Russia's political assumptions about the conflict. The third subsection describes challenges in casualty evacuation, and the final subsection focuses on the preliminary lessons the Russian military may have learned from the conflict.

Weaknesses in the military medical system

The weaknesses in Russia's military medical system reflect and are compounded by weaknesses in the Russian civilian medical system. Because of the challenges of the COVID-19 pandemic, the Russian military medical system was focused on the peacetime mission and had trouble pivoting to combat. In addition, work by the Foreign Military Studies Office (FMSO) has shown that Russian elites have long been concerned about Russia's failure to increase its military medical facilities as part of its military modernization efforts.¹⁶

Since February 2022, military surgeons have not only been forced to operate around the clock but have also contended with blood supply shortages, prompting medical staff to donate their own blood to the wounded.¹⁷ During the initial stages of the full-scale invasion, medical personnel near the front line prioritized performing minimally sufficient surgery, stopping bleeding, stopping acute respiratory



The weaknesses in Russia's military medical system reflect and are compounded by weaknesses in the Russian civilian medical system.

insufficiency, and fixing fractures to stabilize the wounded to send them to the rear hospitals.¹⁸

Overburdening the military health system has remained the major concern for senior military staff. Early in the conflict, medical personnel within the medical battalions near the front line feared a large accumulation of the wounded as they struggled to standardize processes, including the training of inexperienced junior personnel.¹⁹ Major land combat operations result in high rates of casualties, even given modern medical technology. Large numbers of Russian troops with shrapnel wounds have required immediate lifesaving care as well as ongoing specialty care and holding. Given the lack of casualty movement capacity, the collapse of the military medical system may have seemed to be a real possibility. After all, Russia was even forced to evacuate soldiers to Belarus during the first months of the full-scale invasion and resorted to using

¹⁶ Finch, "Can Russia Mobilize Military Medical Care?"

¹⁷ Ilianskaya, "Want to Be a Real Surgeon."

¹⁸ MOD, "Russian Military Doctors Performed a Complex Operation to Remove the Fuse of a 122-mm Mine from a Soldier's Leg [Российские военные медики провели сложнейшую операцию по извлечению взрывателя 122-миллиметровой мины из ноги военнослужащего]," 2023, <https://sc.mil.ru/social/health/news/more.htm?id=12452100@egNews>.

¹⁹ Ilianskaya, "Want to Be a Real Surgeon."

Belarusian train stations or airbases to transport the dead and wounded.²⁰

Many of the wounds from the war in Ukraine have also been difficult to treat. For instance, the MOD recently published an article reporting that the medical team at the S. M. Kirov Military Medical Academy had to carry out a complex operation to remove the end fuse of a 122-mm mine from the soft tissue of a servicemember's leg.²¹ The staff had to work in bulletproof vests because the fragment—reportedly sticking out of the soft tissue in his right shin—could explode during surgery. This case was allegedly the first of its kind in Russia.

Anecdotes within the pages of defense journals suggest that the military medical system is experiencing a personnel shortage. During the beginning of the war, surgeons reported a shortage of nurses qualified to assist during surgeries.²² To this day, Russia still does not have enough plastic surgeons to meet the needs of wounded soldiers, and the most sought-after subspecialists seem to be traumatologists and vascular surgeons for advanced medical evacuations.²³

Civilian doctors perceive the boundaries between the civilian and military medical systems to be both unfair and demoralizing to civilian doctors drafted into the military. Every doctor in Russia is eligible for military service by law, and doctors can

be called up to service as either enlisted troops or officers in the Russian armed forces.²⁴ Only doctors with field medicine training are selected as officers, and most civilian doctors lack training in field medicine because only five medical educational institutions in the country offer military training for medical personnel in Russia. The institutions include two facilities in Moscow as well as locations in Crimea, Rostov-on-Don, and Vladivostok.²⁵ Medical specialists who have neither graduated from military institutions nor served in the military are inducted as privates.²⁶

Mitigation

Overall, the Russian government seems to be taking steps to improve the ability of its military medical system to mobilize as Russia prepares for a long war. The MOD has also had to reckon with medical personnel shortages and the burnout of medical staff. To remedy its shortages, the MOD has called up medical workers from the reserve and drawn on individuals who have completed conscription, entered a medical educational institution, and begun to work as specialist doctors because of the partial mobilization.²⁷ In general, doctors with a military occupational specialty were called upon to serve. To the latter, the MOD offers a contract with the rank of lieutenant and provides an assignment

²⁰ Evan Gershkovich, "Russia Evacuates Wounded Soldiers to Belarus as Its Casualties in Ukraine War Rise," *Wall Street Journal*, 2022, <https://www.wsj.com/articles/russia-evacuates-wounded-soldiers-to-belarus-as-its-casualties-in-ukraine-war-rise-11646239336>.

²¹ "Russian Military Doctors Performed a Complex Operation."

²² I. Ilianskaya, "Three Shields of a Military Surgeon [Три щита военного хирурга]," *Ameiski Sbornik*, no. 2 (2024); Ilianskaya, "Want to Be a Real Surgeon."

²³ R. R. Kasimov et al., "Specialized Surgical Care in a Modern Military Conflict: Role and Place at the Advanced Stages of Medical Evacuation [СПЕЦИАЛИЗИРОВАННАЯ ХИРУРГИЧЕСКАЯ ПОМОЩЬ ВСОВРЕМЕННОМ ВОЕННОМ КОНФЛИКТЕ: РОЛЬ И МЕСТО НАПЕРЕДОВЫХ ЭТАПАХ МЕДИЦИНСКОЙ ЭВАКУАЦИИ]," *Military Medical Journal*, no. 2 (2024).

²⁴ Marina Garichyan, "Are Russian Doctors Banned from Leaving the Country? What Should Doctors Expect Next and Are the Restrictions Legal? [Российским врачам запрещают покидать страну? Что ждать медикам дальше и законны ли ограничения]," *MSK1.RU*, 2022, <https://msk1.ru/text/world/2022/10/15/71736371/>.

²⁵ Garichyan, "Are Russian Doctors Banned from Leaving the Country?"

²⁶ Garichyan, "Are Russian Doctors Banned from Leaving the Country?"

²⁷ Alekseev, "Helping the Wounded."

in the military medical service.²⁸ Officials have noted that medical personnel from the civilian sector have played a part in mitigating losses.²⁹

To draw more on civilians, Russia has crafted a legal framework to allow volunteer formations to provide medical care in military medical organizations and has established new documentation procedures for the military medical commission.³⁰ At times, the wounded are evacuated to civilian hospitals, but the procedure for the transfer is unclear.³¹ It has also resorted to recruiting doctors from other countries (notably from countries in Africa).³²

In addition, Russia is increasing its military medical facilities by constructing hospitals in Ryazan, Belgorod, Bryansk, Makhachkala, Yuzhno-Sakhalinsk, Mirny, Vladikavkaz, Kursk, and Sevastopol. Russia has built new 100-bed medical buildings in Samara, Pskov, Krasnoznamensk, Kostroma, St. Petersburg, Moscow, and Ivanovo, and Russia is attempting to expand its medical capacity in occupied Ukrainian territory.³³

Nonetheless, the lofty goals of the Russian government cannot be accomplished overnight, especially if Russian leadership resorts to piecemeal or symbolic solutions to remedy the deficiencies within Russia's military medical system. For instance,

To draw more on civilians, Russia has crafted a legal framework to allow volunteer formations to provide medical care in military medical organizations and has established new documentation procedures for the military medical commission.

during the fall of 2022, Russian officials issued a recommendation that civilian medical personnel in St. Petersburg should not leave the country on business trips.³⁴ In response, a group of doctors claimed that this recommendation was a meaningless gesture meant to give authorities the ability to say that they were doing something.³⁵ Instead, experts argued that the government should provide civilian doctors with field training and pointed out that the bureaucracy made it difficult for medical personnel to volunteer.³⁶ The president of the Doctors Defense League argued that the government could provide civilian doctors with field training and pointed out that the bureaucracy made it difficult for medical personnel to volunteer.³⁷

²⁸ Alekseev, "Helping the Wounded."

²⁹ Alekseev, "Helping the Wounded."

³⁰ Order of the Minister of Defense of the Russian Federation of February 15, 2023, No. 68, 2023, 'On Determining the Procedure for Providing Volunteer Formations with Weapons, Military Equipment, Material and Technical Means and Food Supplies, Clothing and Other Types of Provision, Provision of Medical Assistance to Citizens Staying in Them' [Приказ Министра обороны РФ от 15 февраля 2023 г. № 68 "Об определении порядка обеспечения добровольческих формирований вооружением, военной техникой, материально-техническими средствами и порядка продовольственного, вещевого и иных видов обеспечения, оказания медицинской помощи гражданам, пребывающим в них"], <https://www.garant.ru/products/ipo/prime/doc/406367627/>.

³¹ Ilianskaya, "Three Shields of a Military Surgeon"; Ilianskaya, "Want to Be a Real Surgeon"; Trishkin, "Results of the Activities of the Medical Service of the Armed Forces of the Russian Federation in 2023 and Tasks for 2024"; Alekseev, "Helping the Wounded."

³² Maria Kholina, "Russia Recruits African Doctors Due to War and Mobilization - UK Intelligence," MSN, 2024, <https://www.msn.com/en-gb/money/other/russia-recruits-african-doctors-due-to-war-and-mobilization-uk-intelligence/ar-BB1lglxZ>.

³³ "Details Emerge on the Russian Medical System."

³⁴ "The Authorities of St. Petersburg Reported That Doctors Were Not Prohibited from Traveling Abroad [Петербург сообщил, что медикам не запрещали выезжать за рубеж]," *Kommersant*, 2022, <https://www.rbc.ru/politics/13/10/2022/634854d89a79470cc89e593a>.

³⁵ Garichyan, "Are Russian Doctors Banned from Leaving the Country?"

³⁶ Garichyan, "Are Russian Doctors Banned from Leaving the Country?"

³⁷ Garichyan, "Are Russian Doctors Banned from Leaving the Country?"

In addition, medical staff has had to adapt their tactics in response to operational conditions and environments. For instance, the Russian MOD claimed that medical personnel erased the medical crest from their medical vehicles to mitigate the risk of being targeted by Ukrainian forces.³⁸ Medical detachments have also moved from tents to concrete structures, when possible, to prevent coming under fire.³⁹ On top of this, medical facilities and personnel are at risk of being struck by enemy fire in Russia. Deep strikes into Russian territory have created obstacles to treating the wounded at stationary hospitals. An anecdote from military medical personnel alleges that fragments of a missile shot down by Russian air defense fell on the hotel where medical staff resided.⁴⁰

Lack of planning

COVID-19 provided an opportunity for the MMMD to reckon with challenges that should have proved to be instructive during large-scale combat. First, the pandemic provided an opportunity for junior and midcareer military medical personnel to reckon with shortages. For example, Russia faced shortages of oxygen, which prompted it to invest in mobile installations for oxygen storage and distribution.⁴¹ Second, the pandemic provided Russia an opportunity to refine tactics, techniques, and procedures for tracking patient movements. The Russian military was charged with evacuating COVID-19 patients from remote garrisons, and even at that time, the military's medical evacuation system had long needed improvements.⁴²

However, an array of factors has impeded the military medical service from applying any applicable lessons from dealing with the pandemic. Along with the Kremlin's political assumptions about the conflict, the military medical community was unprepared for the conflict because of their focus on the peacetime mission and because they were not included in the planning of operations. Russian military medical personnel on the ground generally did not believe that a conflict would take place, even though preparations had begun. Because medical planning was not integrated into operational planning, the military medical system likely had difficulty providing care to the wounded early on.

By early 2022, Russia had begun to set up medical detachments in the territory bordering Ukraine. Very few medical staff showed awareness of the impending conflict, even if they themselves had participated in the deployment of medical supplies near the Ukrainian border.⁴³ For instance, the chief surgeon of the Western Grouping of Troops recalled realizing at the end of 2021 that the Minsk agreements were over, despite the fact that his colleagues had dismissed this idea.⁴⁴ Therefore, the level of organization required by the military health service to support large-scale combat operations (LSCO) was unmet when the conflict broke out.⁴⁵

Russia also did not envision much Ukrainian resistance; therefore, it had not planned to supply provisions for LSCO, much less prolonged LSCO. Carrying out medical evacuations requires significant resources to keep track of the state and numbers of armored ambulances, trained medical aircrew, and

³⁸ Alekseev, "Helping the Wounded."

³⁹ Alekseev, "Helping the Wounded."

⁴⁰ I. Ilianskaya, "Work Like Work [РАБОТА КАК РАБОТА]," *Armeiski Sbornik*, no. 8 (2023).

⁴¹ S. Porokhov and N. Kainbekov, "Life Saving Installation [СПАСИТЕЛЬНАЯ УСТАНОВКА]," *Armeiski Sbornik*, no. 4 (2022).

⁴² Oleg Pochinyuk and Leonid Khairemdinov, "With an Emphasis on the Experience Gained from the Special Operation [АКЦЕНТОМ НА ПОЛУЧЕННЫЙ ОПЫТ СПЕЦОПЕРАЦИИ]," *Krasnaya Zvezda*, no. 95 (2023).

⁴³ I. Ilianskaya, "How Are They Worse Than Me? [ЧЕМ ОНИ ХУЖЕ МЕНЯ?]," *Armeiski Sbornik*, no. 10 (2023).

⁴⁴ Ilianskaya, "Want to Be a Real Surgeon."

⁴⁵ Ilianskaya, "Want to Be a Real Surgeon."

medical evacuation helicopters. Because medical personnel lacked advance knowledge of the conflict, and because the Kremlin expected the conflict to be brief, senior military medical personnel failed to rectify preexisting shortages of personnel. As a result, surgical units were unable to properly organize the surgical work of medical units at the front when the conflict proved to last longer than expected.⁴⁶

Although the expanded military buildup before the Ukraine invasion included equipping operating rooms and improving forward intensive care capabilities, the official priorities of the MMMD were still skewed toward mitigating the risks from COVID-19.⁴⁷ Hence, officials were unable to procure appropriate equipment at the necessary scale. More importantly, when the conflict began, Russian military medical personnel struggled to acquire sufficient materials to treat the wounded. Notably, they struggled with blood shortages so severe that personnel from the medical battalions donated their own blood, highlighting the importance of prioritizing who needs emergency medical attention first and of securing fresh blood (along with the ability to transfuse blood while on the battlefield or at remote locations).⁴⁸

Mitigation

Despite the personnel shortages, the military seems to be more aware of the importance of preparing a new generation of surgeons since the outset of the full-scale invasion of Ukraine. The war has served as a training ground for junior and midcareer personnel; defense-related journals tend to repeat



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that more than 70 percent of specialists now have field experience.⁴⁹ The remarks of several surgeons imply that Russia's campaign in Ukraine has made preparing a new generation of surgeons more of a priority than before, especially since having personnel who have seen combat can improve outcomes.⁵⁰

To better train its forces, Russia has taken steps to make more advanced medical training content readily available online. For instance, the S. M. Kirov Military Academy created a publicly accessible portal on the treatment of combat pathology that includes educational modules in military professional disciplines: military field surgery, military field therapy, military traumatology and orthopedics, military anesthesiology and resuscitation, physical and rehabilitation medicine, military psychiatry, military toxicology, and medical defense.⁵¹

⁴⁶ Ilianskaya, "Want to Be a Real Surgeon."

⁴⁷ Phil Stewart, "Exclusive: Russia Moves Blood Supplies Near Ukraine, Adding to U.S. Concern, Officials Say," Reuters, 2022, <https://www.reuters.com/world/europe/exclusive-russia-moves-blood-supplies-near-ukraine-adding-us-concern-officials-2022-01-28/>; Ilianskaya, "How Are They Worse Than Me?"

⁴⁸ Ilianskaya, "Want to Be a Real Surgeon."

⁴⁹ MOD, "Military Doctors Continue to Provide Assistance to Participants in a Special Military Operation [Военные медики продолжают оказывать помощь участникам специальной военной операции]," 2023, <https://sc.mil.ru/social/health/news/more.htm?id=12477305@egNews>.

⁵⁰ Ilianskaya, "Three Shields of a Military Surgeon"; Kasimov et al., "Specialized Surgical Care in a Modern Military Conflict."

⁵¹ Trishkin, "Results of the Activities of the Medical Service of the Armed Forces of the Russian Federation in 2023 and Tasks for 2024."

To rectify material shortages, volunteer groups have played a crucial role in ameliorating the shortage of medical supplies, particularly through knitting gauze fabric and coordinating blood drives.⁵² Civil society has also moved to assemble first aid kits for soldiers.⁵³

Casualty evacuations

Challenges in casualty evacuation from the point of injury have led servicemembers to rely on battlefield self- and buddy-aid as well as mobile medical units operating far forward. Medical evacuations have long been a deficiency in the Russian military. According to the Department of Defense's Tactical Combat Casualty Care (TCCC), the actions of the wounded servicemember and the wounded person's comrades in the first minutes after the traumatic injury, as a rule, determine whether the wounded person will survive or not. Russia also applies TCCC guidance and reiterates this very guidance in its defense periodical journals.

Russian publications commit to the guidance of the "golden hour," which is the time immediately after a traumatic injury during which medical treatment is likely to prevent death, and the "platinum 10 minutes," which is the first 10 minutes after the injury.⁵⁴ An investigation by Vetska noted that during the fall of 2022 and the spring of 2023, the average time in which seriously wounded people were evacuated from the combat zone in Ukraine was 3.5 hours.⁵⁵ This finding would be consistent

with Russia's casualty-heavy approach to fighting in Ukraine, one in which mass casualty evacuations are challenging.

Many of the wounded are held at the point of injury longer than the golden hour because of the nature of the combat in Ukraine, and these delays often lead to worse outcomes. For instance, in one battlefield report, a wounded soldier was injured, and his comrades correctly applied a tourniquet to his wounds.⁵⁶ The soldier was then supposed to be transported to Temryuk in Krasnodar, but he missed the ambulance. He said that he does not remember how long he was lying on the ground, but a Kamaz truck picking up dead bodies noticed him and quickly took him to the hospital.⁵⁷ During the ride to the hospital, he suffered from severe blood loss and abdominal damage. He was in a coma in the hospital for five days.⁵⁸

Other publicized interviews with soldiers suggest that Russian forces need to improve their timing and their organizational capacity when performing medical evacuations. Medical evacuations are performed under heavy fire, which often results in long wait times for soldiers. For example, in an interview, a soldier recalled that he had suffered from shrapnel wounds in both of his legs and waited to be medically evacuated while heavily losing blood. As a result, a fellow soldier tried to evacuate him via car.⁵⁹ The car was then struck by Ukrainian forces. The long wait for medical evacuation cost him both of his legs once he reached a medical detachment.⁶⁰

⁵² V. Sosnitskiy, "Alana's Warmth," *Ameiski Sbornik*, no. 3 (2024).

⁵³ Sosnitskiy, "Alana's Warmth."

⁵⁴ Yu. Evkurov and A. Pavlov, "Tactical Medicine in Combined Arms Units [ТАКТИЧЕСКАЯ МЕДИЦИНА В ОБЩЕВОЙСКОВЫХ ПОДРАЗДЕЛЕНИЯХ]," *Ameiski Sbornik*, no. 5 (2022).

⁵⁵ Kurnosova, "More Than 5% of 'Potentially Saveable' Military Personnel Die on the Battlefield."

⁵⁶ I. Ilianskaya, "Put Death Aside and Live! [ОТСТАВИТЬ СМЕРТЬ И ЖИТЬ !]," *Ameiski Sbornik*, no. 6 (2023).

⁵⁷ Ilianskaya, "Put Death Aside and Live!"

⁵⁸ Ilianskaya, "Put Death Aside and Live!"

⁵⁹ I. Ilianskaya, "Everything Will Be Alright [ВСЕ БУДЕТ ХОРОШО]," *Ameiski Sbornik*, no. 11 (2023).

⁶⁰ Ilianskaya, "Everything Will Be Alright."

Mitigation

Throughout Russia's war on Ukraine, Russian medics have faced the challenge of having to provide medical and evacuation support on a significant scale, during intensive combat operations, and at distances that exceed the standard timing for medical evacuations. During earlier military experiences, Russia had adapted its approach to medical evacuations. For example, during the Chechen wars—and during the Soviet–Afghan war to an extent—Russia evacuated the wounded via helicopter to hospitals. Russia's use of helicopters in Afghanistan represented a noticeable shift from the classical Russian model for medical evacuations, which was based on ground evacuations. Even so, Russia faced serious issues in implementing air evacuations in Afghanistan. In contrast, Russia carried out most medical evacuations on the ground during its campaigns in Chechnya, and it did not perform as many air evacuations, especially after the Chechens shot down several medical evacuation helicopters.⁶¹

To optimize medical evacuation in Ukraine, Russia has borrowed different aspects of these past military experiences.⁶² Traditionally, medical evacuations and search and rescue are missions of army aviation.⁶³ A full replica of the Afghanistan model would be difficult to carry out in Ukraine because Russia lacks air space superiority in the conflict; therefore, helicopters would be vulnerable to Ukrainian targeting. Russia would also face challenges replicating its practices in Chechnya because the geographical scale of the front line in Ukraine is significantly larger than the front line in Chechnya was.⁶⁴ Medical evacuations in Ukraine are extremely

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The environment in Ukraine has prompted an emerging public debate on removing soldiers from dangerous combat situations. One such mitigation is the employment of uncrewed ground vehicles (UGVs) for medical evacuation and supply. There are volunteer and civil society efforts involved in the development, testing, and assembly of UGVs, which are typically big enough to carry a single soldier.⁶⁶ As a result, some defense companies have opted to invest in UGV development for evacuations, logistical support, and even mining. For instance, at the Army-2023 military forum, the MOD displayed the "Zubilo" combat and logistics UGV that is currently undergoing trials and is expected to be fielded in Ukraine combat this year.⁶⁷

⁶¹ Grau and Jorgensen, "Handling the Wounded in a Counter-Guerrilla War."

⁶² Ilianskaya, "Want to Be a Real Surgeon."

⁶³ Lester Grau and Charles Bartles, *The Russian Way of War: Force Structure, Tactics, and Modernization of Russian Ground Forces* (Foreign Military Studies Office (FMSO), 2016).

⁶⁴ Ilianskaya, "Want to Be a Real Surgeon."

⁶⁵ Grau and Jorgensen, "Handling the Wounded in a Counter-Guerrilla War."

⁶⁶ Sam Bendett, "Russian UGV Developments Influenced by Ukraine War," *European Security & Defense* (2024), <https://euro-sd.com/2024/06/articles/38818/russian-ugv-developments-influenced-by-ukraine-war/>.

⁶⁷ Boris (Colonelcassad) Rozhin, Telegram post, July 6, 2023, https://t.me/boris_rozhin/129198.

In response to its experiences in Ukraine, Russia has begun to put medical personnel closer to the wounded. In this model, medical battalions are reinforced by specialists who can better discern who can be stabilized and who needs a medical evacuation. Once the wounded are closer to the rear areas, Russia evacuates them via helicopter, although it also seems that Russia conducts some air evacuations on their own side of the frontline.

It was only in 2020 that Defense Minister Sergei Shoigu, Deputy Minister of Defense Colonel General Yu-bek Bamatgireyevich Yevkurov, and Deputy Defense Minister Timur Vadimovich Ivanov intensified their efforts to introduce formal tactical medicine training. As a result, all military commands made additions to combat training programs, and the MOD attempted to institutionalize training for all soldiers.⁶⁸ In July 2022, the Russian government sought to formalize first aid procedures, and it delegated the power to develop and approve first aid training to the MOD.⁶⁹ In turn, the MOD created the Center for Tactical Medicine in 2022, introduced tactical medicine courses, and expanded its remote consultation mechanisms between doctors on the ground and doctors in the best medical facilities in Moscow and St. Petersburg.⁷⁰

As a result, training has been tailored to the issues that Russian soldiers have faced in Ukraine. Classes are mainly conducted under the guidance of instructors who have gained combat experience during the conflict.⁷¹ In theory, a soldier should be able to stop bleeding, apply a tourniquet, tamponade a wound with a homeostatic bandage, use a dressing package, and anesthetize.⁷² Soldiers train on the use of painkillers, anti-shock drugs, hemostatic agents, anti-burn agents, and techniques to prevent frostbite.⁷³ The role of the field paramedic should be to check the quality of the first aid that has already been applied and commence evacuation.⁷⁴ In general, the conflict has forced Russia to update its tactical medicine training across the services and expand its telehealth services. Although shortages of medical kits persist, the MOD has ensured that the basic medicines for first aid now include painkillers and tourniquets.

The MOD has also invested in self-help. In general, the MOD has maintained that soldiers themselves must provide first aid before the arrival of the evacuation group.⁷⁵ Surgeons have also argued that the first stage of treating the wounded should begin with self-aid, implying that mobilized personnel suffer from a lack of training on tactical medicine.⁷⁶

⁶⁸ Yu Yevkurov and A. Pavlov, "Tactical Medicine in Combined Arms Units [ТАКТИЧЕСКАЯ МЕДИЦИНА В ОБЩЕВОЙСКОВЫХ ПОДРАЗДЕЛЕНИЯХ]," *Armeiski Sbornik ARMY COLLECTION*, no. 5 (2022).

⁶⁹ Kirill Shamiev, *Brass Tacks: Why Russia's Military Fails to Reform*, 2024, <https://ecfr.eu/publication/brass-tacks-why-russias-military-fails-to-reform/>.

⁷⁰ Trishkin, "Results of the Activities of the Medical Service of the Armed Forces of the Russian Federation in 2023 and Tasks for 2024."

⁷¹ MOD, "Naval Infantry of the Northern Fleet Conducted Classes in Tactical Medicine [Морские пехотинцы Северного флота провели занятия по тактической медицине]," Dec. 12, 2023, <https://sc.mil.ru/social/health/news/more.htm?id=12491888@egNews>.

⁷² Alekseev, "Helping the Wounded."

⁷³ MOD, "A Class on Tactical Medicine Was Held with Young Reinforcements of the Motorized Rifle Formation of the Central Military District in the Sverdlovsk Region [С молодым пополнением мотострелкового соединения ЦВО в Свердловской области провели занятие по тактической медицине]," Dec. 16, 2023, <https://sc.mil.ru/social/health/news/more.htm?id=12489719@egNews>.

⁷⁴ Alekseev, "Helping the Wounded."

⁷⁵ "Tactical Medicine Preparedness, Tactical Medicine, Special Operations Medicine in Combat Units [Военно-медицинская подготовка, тактическая медицина, медицина спецопераций в боевых подразделениях]," *Военное Обозрение*, Aug. 12, 2021, <https://topwar.ru/185810-voenno-medicinskaja-podgotovka-takticheskaja-medicina-medicina-specoperacij-v-boevyh-podrazde-lenijah.html>; Evkurov and Pavlov, "Tactical Medicine in Combined Arms Units [ТАКТИЧЕСКАЯ МЕДИЦИНА В ОБЩЕВОЙСКОВЫХ ПОДРАЗДЕЛЕНИЯХ]"; D. Gubonov, "Use of Improvised Means for First Aid [Использование подручных средств для оказания первой помощи]," *Armeiski Sbornik*, no. 12 (2023); D. Gubonov, "Using Improvised Means for Providing First Aid [Использование подручных средств для оказания первой помощи]," *Armeiski Sbornik*, no. 11 (2023).

⁷⁶ Ilianskaya, "Three Shields of a Military Surgeon"; Ilianskaya, "Want to Be a Real Surgeon."

The rationale for such training is that a doctor or medical instructor is rarely in the front ranks of combat formations, even if mobile medical units are deployed.

Consequently, the MOD has issued guidance for soldiers who find themselves in the red zone of contact that encourages fellow soldiers to take a more active role in identifying the wounds by loudly asking for the status of the wounded person and how the person received their injuries.⁷⁷ An example is “left hand—clean; left leg—I see blood!”⁷⁸ This is crucial because the wounded might not understand the nature of their wounds and may thus be unable to perform self-help. For instance, medical personnel often deal with wounded soldiers who do not know whether they have been treated by their comrades.⁷⁹ Medical personnel also may not notice tourniquets under winter clothes.⁸⁰

The guidance encourages personnel in the red zone to continue the military task at hand if possible. The combat mission trumps the self- and buddy-aid mission, and soldiers must continue to prosecute the operation because the survivability of the individual is contestable if the unit does not survive. If the wounded is in immediate proximity of enemy fire and if no safe conditions for self-help exist, the soldiers must continue to execute the combat mission.⁸¹ According to guidance in defense-related journals, personnel should clamp the wound with their hands while the commander decides whether to attempt to change positions according to the needs of the mission and the likelihood that the wounded will survive.⁸² Lastly, the senior commander is responsible for creating the conditions for soldiers to provide mutual aid and to move the wounded to cover.

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Nonetheless, Russian analysts have critiqued the implementation of TCCC. Some have maintained that Russia and the United States have different categories of medical personnel and that medical personnel in similar categories have different skills. TCCC was first implemented in the US among line special forces and did not include training for medical staff.⁸³ Some Russian analysts have argued that the original US model was not appropriately modified to account for the categories of Russian medical trainees and the equipment and medicines provided to Russian forces.⁸⁴ Therefore, the model may have not been properly adapted for the Russian context.

Russian troops in Ukraine are also often forced to improvise first aid and lack proper or sufficient supplies to perform it. For these reasons, the defense-related journals have issued recommendations for how to improvise first aid to immobilize broken bones and prevent blood loss.⁸⁵ The journals encourage soldiers to use a wide range of materials

⁷⁷ D. Gubonov, “If the Scout Is Unlucky [ЕСЛИ РАЗВЕДЧИКУ НЕ ПОВЕЗЛО...],” *Armeiski Sbornik*, no. 4 (2024).

⁷⁸ Gubonov, “If the Scout Is Unlucky.”

⁷⁹ Ilianskaya, “Three Shields of a Military Surgeon.”

⁸⁰ Ilianskaya, “Three Shields of a Military Surgeon.”

⁸¹ Gubonov, “If the Scout Is Unlucky.”

⁸² Gubonov, “If the Scout Is Unlucky.”

⁸³ “Tactical Medicine Preparedness.”

⁸⁴ “Tactical Medicine Preparedness.”

⁸⁵ Gubonov, “Use of Improvised Means for First Aid”; Gubonov, “Using Improvised Means for Providing First Aid.”

to immobilize broken bones, including rods, sheets of plastic, cardboard, plywood, tightly rolled clothes, folders, files, boxes, CDs, antenna headsets, boards, PVX panels, sticks, picket fences, branches, bundles of stems, wires, fittings, skis, canes, and umbrellas.⁸⁶ Meanwhile, to prevent severe blood loss, the journals recommend that soldiers use ropes, watches, tape, and belts.⁸⁷ As a last resort, the guidance states that soldiers should use wires and laces.⁸⁸ In addition, soldiers should improvise bandages and use patches or duct tape to close wounds.⁸⁹ Soldiers can also use burning pots to cauterize wounds.⁹⁰

One other adaptation Russian forces have made is implementing telemedicine. The experience of the Russian military in combating the COVID-19 pandemic laid the groundwork for the MMMD to expand Russian telemedicine—an area in which the MMMD had been trying to improve to provide sufficient medical care and specialists to remote areas. These efforts have included setting up complexes for remote diagnostics and stationary centers for remote consultations, allowing doctors to be able to consult with other medical personnel from leading centers in the country.⁹¹

Potential lessons learned

The following section focuses on what measures MOD doctors prescribe to counter Russia's challenges in providing care for the wounded. This section should be considered preliminary, as the number of articles in Russian medical journals focusing on the war is still limited—most articles in 2023–2024 were still focused on the COVID-19 pandemic—and the sample of articles was not large enough for us to make solid determinations.

⁸⁶ Gubonov, "Use of Improvised Means for First Aid."

⁸⁷ Gubonov, "Using Improvised Means for Providing First Aid."

⁸⁸ Gubonov, "Use of Improvised Means for First Aid"; Gubonov, "Using Improvised Means for Providing First Aid."

⁸⁹ Gubonov, "Use of Improvised Means for First Aid"; Gubonov, "Using Improvised Means for Providing First Aid."

⁹⁰ Gubonov, "Use of Improvised Means for First Aid"; Gubonov, "Using Improvised Means for Providing First Aid."

⁹¹ Ray Finch, "Improving Medical Care in the Russian Military," *OE Watch* (2018).



One other adaptation Russian forces have made is implementing telemedicine. The experience of the Russian military in combating the COVID-19 pandemic laid the groundwork for the MMMD to expand Russian telemedicine—an area in which the MMMD had been trying to improve to provide sufficient medical care and specialists to remote areas.

The main preliminary lesson learned from Russia's experience in Ukraine seems to be that modern large-scale conflict requires standardized medical training and treatment for casualties. In addition, the organization of the military health system should fit the type of conflict, the operational environment, and the tactical medical situation.

Russia's full-scale invasion of Ukraine has prompted its medical military community to acknowledge challenges in military medicine and to discuss potential solutions. Military medical personnel have argued that the military should determine the principles for a medical support model for its armed forces and that these principles should consider the

conditions of the conflict.⁹² They further argue that Russia's classical military medical health model is ill-suited for the operation in Ukraine and that Russia continues to conduct its campaign in Ukraine using a peacetime model.

Considering the possibility that the conflict will escalate, Kalachev et al. argue that Russia should strive for a model between war and peace, and they suggest that the current rate of casualties is unsustainable for the peacetime model.⁹³ This argument implies that military medical staff are aware of the risks of overburdening the military medical health system. According to the authors, the military requires manpower and support to ensure the timely provision of medical care, and career military doctors may not be able to meet Russia's needs. They propose that Russia should legally consolidate its modern military medical doctrine and make it an integral part of the military doctrine of the Russian Federation.

The authors argue that Russia needs to develop standardized policies and practices that can be implemented across the military to avoid piecemeal solutions to common challenges. In their view, the military doctrine should set out the basic principles and standard approaches to integrating the military

medical service and civilian healthcare (including ensuring mobilization readiness for a conflict) during peacetime and war time. The doctrine should also stipulate a procedure for forming temporary unified management to support groups of troops in the various stages of the military medical structure. The authors also argue that Russia should provide a medical response to the war using a whole of government approach, combining the medical care efforts across departments and agencies, including the civilian Ministry of Civil Defense, Emergencies, and Disaster Relief.

We also found concerns about the military medical system being overwhelmed in several articles.⁹⁴ For instance, medical personnel from the MMMD, the 442nd Military Clinical Hospital, and the S. M. Kirov Military Academy allude to concerns about the possibility of overwhelming the military medical health system.⁹⁵ Kasimov et al. argue that Russia needs to have an operational reserve of specialists (primarily surgeons, orthopedic traumatologists, and vascular surgeons) and to provide short-term courses for general surgeons in traumatology and transfusion medicine. They argue that these two steps will in turn strengthen Russia's ability to handle casualties.

⁹² O. V. Kalachev et al., "On the Need to Transform the System of Medical Support for Troops (Forces) in Modern Conditions [О НЕОБХОДИМОСТИ ПРЕОБРАЗОВАНИЯ СИСТЕМЫ МЕДИЦИНСКОГО ОБЕСПЕЧЕНИЯ ВОЙСК (СИЛ) В СОВРЕМЕННЫХ УСЛОВИЯХ]," *Military Medical Journal*, no. 2 (2024).

⁹³ O. V. Kalachev et al., "On the Need to Transform the System of Medical Support for Troops (Forces) in Modern Conditions [О НЕОБХОДИМОСТИ ПРЕОБРАЗОВАНИЯ СИСТЕМЫ МЕДИЦИНСКОГО ОБЕСПЕЧЕНИЯ ВОЙСК (СИЛ) В СОВРЕМЕННЫХ УСЛОВИЯХ]," *Military Medical Journal*, no. 2 (2024).

⁹⁴ Kasimov et al., "Specialized Surgical Care in a Modern Military Conflict."

⁹⁵ Kasimov et al., "Specialized Surgical Care in a Modern Military Conflict."

CONCLUSION

The following section offers a set of preliminary implications for the joint force based on the limited sample of documents we examined in this occasional paper. The military's provision of medical care to Russian soldiers in Ukraine is poor, but it is improving. The sources suggest that the Russian military medical system is at serious risk of being severely overburdened. Moscow's poor planning, its assumptions during the initial phases of the conflict, and issues within its force structure have significantly stressed its military medical service. As the war continues, the risk will remain.

Although the MOD has taken steps to remedy personnel and material shortages for treating the wounded in Ukraine, organizational challenges persist and are unlikely to diminish. Providing readily available care to the wounded requires a predictable workforce that is sufficiently manned and trained. Articles by military medical personnel and interviews with surgeons in defense journals seem to portray an awareness that a new generation of surgeons is needed. Nonetheless, bringing up a new generation of surgeons requires a consistent investment from the MOD and time. Unless accompanied by widespread reforms, these goals may lead to lackluster results. Nonetheless, Russia maintains several options to augment its capacity to treat the wounded, including expanding the categories of medical personnel to be called into service.

Russia has managed to mobilize its resources to meet the demands of a large-scale conflict to some degree. Although Russian leaders have overstated the positive effects of its recent decisions to meet high medical demand, the MOD has shown some adaptability by updating training and materials to reflect the needs of Russian soldiers. These include the following actions: (1) evacuating the wounded to Belarus using Belarusian capacity to augment bolster the Russian military healthcare service; (2)

Moscow's poor planning, its assumptions during the initial phases of the conflict, and issues within its force structure have significantly stressed its military medical service. As the war continues, the risk will remain.

placing mobile detachments closer to the front to stabilize personnel before evacuating them, thereby expending fewer resources on evacuating soldiers who are unlikely to survive their injuries; (3) partially integrating military and civilian healthcare through the exploration of legal frameworks and the enactment of a partial mobilization; (4) expanding military-medical facilities; (5) investing in the medical training of its soldiers and encouraging buddy-aid; and (6) promoting and taking lessons from volunteer efforts.

Implications

In examining the Russian military's provision of medical care in Ukraine, we uncovered challenges that may emerge for the US military during protracted LSCO. Some of these challenges are not new and were discussed in previous work on the experiences of the Russian military medical service in other conflicts. The preliminary implications described below are drawn from the obstacles Russian forces have faced and the mitigation measures implemented. The preliminary implications for the US military are as follows:

1. In protracted LSCO, the risk of the military medical service becoming seriously overburdened is significant. As a result, establishing a framework

- to increase collaboration between the civilian and military medical health sectors may ease the burden on military medical personnel.
2. Medical logistics are imperative, and military medical staff should be included in planning matters related to LSCO. Even though Russian forces set up tents for medical care near the Ukrainian border in January 2022, military medical leadership and personnel were still unsure of whether Russia would launch another campaign in Ukraine. This confusion—along with the political assumptions about the conflict—led to a lack of integrated planning to meet the demands of the conflict.
 3. Institutionalizing and adapting TCCC training can likely make a crucial difference in lifesaving care during active conflicts. Although Russian soldiers struggle with first aid, certain measures have improved discernment at the front line of who should be medically evacuated. These measures include institutionalizing training, promoting self-aid, having fellow soldiers participate in the wounded’s first aid process, stationing medical detachments near the fighting, and having these medical detachments stabilize patients before evacuation.
 4. Medical forces will be targeted by modern enemies, whether deliberately or accidentally. When moving closer to the front, medical detachments will be forced to find creative ways to protect personnel from being targeted. To protect its mobile medical personnel, Russia has opted to disguise its ambulance vehicles and set up medical detachments in protected structures.
 5. Emerging technology is likely to play a crucial role in medical evacuations in the future. Integrating innovative technology into casualty evacuation can plug critical capacity gaps, given that mobile detachment units might be overwhelmed by casualties.

Limitations and further research

The arguments in this paper are preliminary, and we do not intend them to be predictive of how Russian military medicine may develop during the war. For this occasional paper, we relied on the contents of Russian defense-related periodical journals. These journals often attempt to present Russian forces in a favorable light and at times attempt to exaggerate Russian military prowess. Although the reliability of the source material is questionable, we inferred useful implications from the source material.

In general, this paper provides an initial examination of the sources available to examine the problems Russian forces have perceived and the logic behind the solutions Russian analysts have proposed. Much has been written about Ukraine’s military medicine and its implications for the US military, but few studies have covered Russian military medicine. Open-source scholarship regarding Russian military medical care is rare. Notably, most of the open-source work on the subject has been conducted by the FMSO based at Fort Leavenworth, which has provided short analyses and translations in the pages of *Operational Environment Watch*.⁹⁶ The most thorough open-source work on the subject has been the work of Lester W. Grau and William A. Jorgensen on the Soviet military medical experience in Afghanistan and the Russian military experience in Chechnya.⁹⁷

⁹⁶ “Details Emerge on the Russian Medical System”; Finch, “Can Russia Mobilize Military Medical Care?”; Ray Finch, “Lack of PTSD Treatment for Russian Soldiers,” Foreign Military Studies Office (FMSO) (2022), <https://fmso.tradoc.army.mil/2022/lack-of-ptsd-treatment-for-russian-soldiers/>.

⁹⁷ Grau and Jorgensen, “Handling the Wounded in a Counter-Guerrilla War”; Lester W. Grau and William A. Jorgensen, “Medical Implications of High Altitude Combat,” *U.S. Army Medical Department Journal* (2003); Lester W. Grau and William A. Jorgensen, “Medical Support in a Counter-Guerrilla War: Epidemiologic Lessons Learned in the Soviet-Afghan War,” *U.S. Army Medical Department Journal* (1995).

Studying the provision of Russian military medical care in Ukraine can yield key insights into the issues the US and its partners may face when handling the wounded during LSCO. A larger study would draw on more types of sources (including social media), broaden the timeline under examination, and expand the scope of the analysis. For example, this microstudy was unable to examine the

epidemiological and sanitary challenges that Russian soldiers are facing in Ukraine and the ways that the MOD has mitigated these challenges. In conclusion, although insufficient, this scholarship has sought to assess how the Russian military health effort has contributed to the sustainment of the Russian war effort in Ukraine.

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