CONCLUSIONS ON BATTLEFIELD MEDICINE FROM THE UKRAINIAN THEATRE OF OPERATIONS BASED ON A STUDY BY THE MEDICAL SERVICE OF THE INTERNATIONAL LEGION OF THE ARMED FORCES OF UKRAINE

Wnioski płynące z ukraińskiego teatru działań w zakresie medycyny pola walki w oparciu o opracowanie stworzone przez Służbę Medyczną Międzynarodowego Legionu Sił Zbrojnych Ukrainy

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Abstract

In February 2022, a full-scale Russian-Ukrainian war began, reshaping strategic thinking about how future combat operations might be conducted. The ongoing armed conflict has prompted a reassessment of the methods used to provide battlefield care. Lessons from the Ukrainian theatre of operations may be also used to develop medical equipment and determine the scope of training of both soldiers and medical personnel. Most data on casualties, including the primary causes of preventable injuries and deaths, remain classified. This makes it significantly difficult to collect and interpret research data and draw conclusions. A position paper entitled "War in Ukraine: TacMed Lessons Identified. International Legion Medical Service: Proposal of changes", published by the Medical Service of the 1st International Legion of the Armed Forces of Ukraine, which discusses the conclusions drawn from the Russian-Ukrainian conflict regarding battlefield medicine training and equipment, is the main source of data.

Streszczenie

W lutym 2022 roku rozpoczęła się pełnoskalowa wojna rosyjsko-ukraińska. Zmieniło to sposób myślenia odnośnie do możliwych scenariuszy prowadzenia działań bojowych w przyszłości. Trwający konflikt zbrojny zrewidował sposoby udzielania pomocy poszkodowanym w warunkach taktycznych. Wnioski płynące z ukraińskiego teatru działań możemy także odnieść do wyposażenia medycznego oraz zakresu wyszkolenia żołnierzy i personelu medycznego. Większość danych liczbowych dotyczących strat, dominującego mechanizmu możliwych do uniknięcia urazów oraz zgonów jest utajniona. Utrudnia to znacznie zebranie materiału badawczego, jego analizę i wnioskowanie na jej podstawie. Głównym źródłem informacji jest dokument *War in Ukraine: TacMed Lessons Identified. International Legion Medical Service: Proposal of changes* – opracowany przez Służbę Medyczną 1. Międzynarodowego Legionu Sił Zbrojnych Ukrainy, omawiający wnioski płynące z wojny rosyjsko-ukraińskiej dotyczące sposobu szkolenia i wyposażenia w zakresie medycyny pola walki.

Keywords: Ukraine; war; traumatic injury; Tactical Combat Casualty Care; war-related injuries

Słowa kluczowe: Ukraina; wojna; uraz; Tactical Combat Casualty Care; obrażenia wojenne

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In early January 2024, the Medical Service of the 1st International Legion of the Armed Forces of Ukraine (MSIL) published a paper entitled "*War in Ukraine: TacMed Lessons Identified. International Legion Medical Service: Proposal of changes*" [1]. MSIL is composed of doctors, nurses, and other medical professionals with competencies equivalent to those of paramedics. Its role is to provide medical support to Ukrainian troops in key operational areas. The authors of the paper highlight the importance of the guidelines developed by the Committee on Tactical Combat Casualty Care (CoTCCC), while noting that some aspects are outdated due to the realities of frontline operations in the Russian-Ukrainian war. They further identify specific areas where revisions and updates are needed.

Military medical lessons from Ukraine's battlefield

The first part of the paper discusses changes that need to be introduced in medical training. For about a decade, Ukrainian troops trained using translated CoTCCC guidelines for the standard of battlefield care. These were frequently adapted to local needs, and sometimes internally developed guidelines were issued, bearing only the CoTCCC logo.

The need to train many soldiers in basic battlefield medicine is a major factor prompting changes in the training system. According to the model used by the US Armed Forces, basic training lasts 10 weeks, with battlefield medicine included in the "yellow phase," i.e. between the first and second week of training [2]. Due to the ongoing Russian-Ukrainian conflict, the duration of basic course has been reduced, necessitating modifications to battlefield medicine training.

According to MSIL, the basic battlefield medicine course for all soldiers should last three days. An additional three days should expand the training to the Junior Combat Medic (JCM) level. The term Junior Combat Medic does not appear in official U.S. or NATO medical training guidelines, with Combat Lifesaver (CLS) being its closest equivalent.

According to the recommendations outlined in the MSIL paper, each combat team should have two JCMs. The competencies for basic soldier and JCM levels are presented in a table, structured according to the MARCH algorithm (which stands for Massive Haemorrhage, Airway, Respiration, Circulation, Hypothermia/Head injury). The source document extends the MARCH framework by introducing an additional acronym - PAWS (Painkillers; Antibiotics; Wounds; Splinting) (Fig. 1).

The document published by MSIL further expands the framework to include monitoring, pharmacotherapy, burn and fracture management, communication and documentation, as well as evacuation procedures (Tab. 1) [1].

For massive haemorrhages, MSIL (aligned with CoTCCC guidelines) recommends a rapid assessment to identify major limb bleeding (blood sweep), followed by the application of a tourniquet and wound packing. A soldier trained in JCM can also use the iTClamp device (MED Alliance Group, Oakland Drive, Sycamore, IL, USA) [1].

The recommended airway management procedures include manual manoeuvres to maintain airway patency, such as the head-tilt and jaw thrust, placing the casualty on their side with the head tilted back, and, in conscious patients with facial trauma, positioning them seated with the torso leaning forward. A nasopharyngeal airway (NPA) can be used at the JCM level. In their docu-

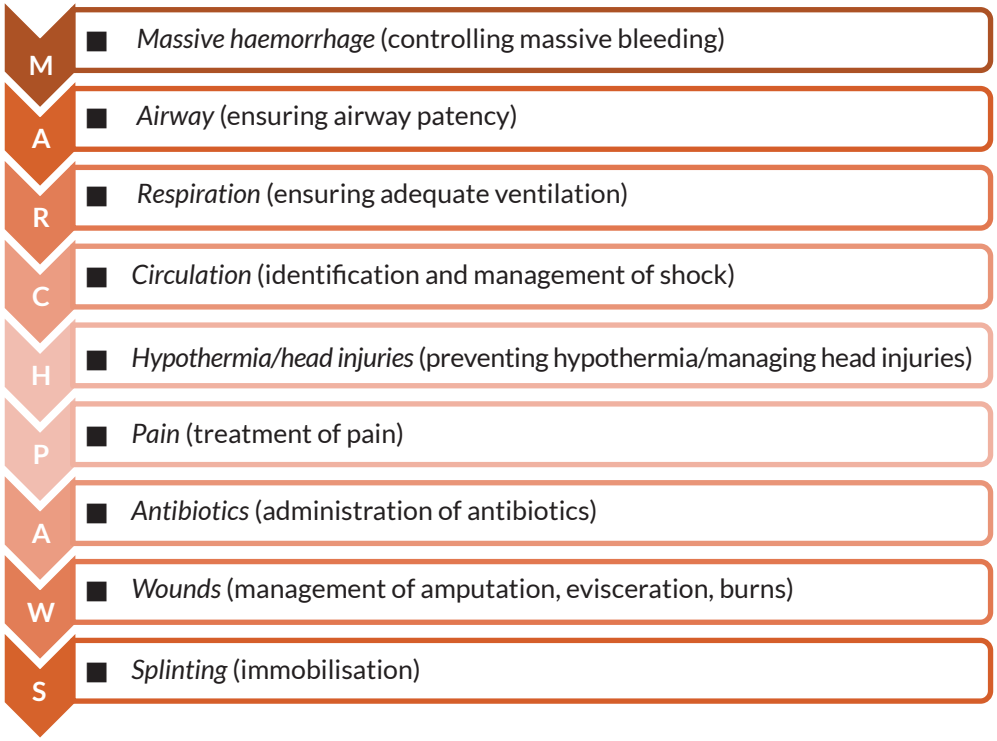

Figure 1. Explanation of the MARCH-PAWS acronym. Source: Zachaj [3]

Table 1. Comparison of the scope of competencies acquired after basic (S) and extended (JCM) training, in accordance with the assumptions of the Medical Service of the International Legion of the Armed Forces of Ukraine

Skill	Basic training (S)	Extended training (JCM)
General		
The principles for providing care to battlefield casualties	×	×
The scope of CUF and TFC	×	×
Rapid MARCH trauma assessment	×	×
Detailed examination of the casualty	-	×
Massive haemorrhage		
Principles for controlling massive haemorrhage in a battlefield setting	×	×
Identifying the symptoms of massive haemorrhage	×	×
Applying a tourniquet (high and tight)	×	×
Blood sweep	×	×
Targeted application of a tourniquet (5–7 cm above the upper edge of the wound)	×	×
Wound packing	×	×
The use of iTClamp	-	×
Direct pressure	×	×
Securing a packed wound	×	×
Airways		
Assessment of airway patency	×	×
Non-instrumental airway management (lateral position, sitting position with forward lean)	×	×
Head-tilt and jaw thrust	×	×
Nasopharyngeal airway (NPA) insertion	-	×
Respiration		
Breath assessment	×	×
Application of a vented chest seal to chest wounds	-	×
Needle decompression of tension pneumothorax	-	×
Circulation		
Assessment and control of bleeding wounds	×	×
Identification of symptoms of hypovolemic shock	×	×
Tourniquet conversion/approximation	×	×
Hypothermia & head injury		
Prevention of hypothermia	×	×
Active warming of the casualty (using chemical warmers – author's note)	×	×
Identification of head and eye trauma	×	×
Consciousness evaluation using the AVPU scale	-	×
The use of eye shield	×	×
Monitoring of basic vital signs		
Assessment of vital signs	×	×
Reassessment of the casualty's condition	×	×
Administration of pharmacological agents		
Administration of pharmacological agents included in CWMP	×	×
Administration of pharmacological agents (not included in CWMP)	-	×
Administration of oral agents	×	×
Administration of intramuscular agents	-	×
Burns & fractures		
Assessment of the severity and extent of burns	×	×
Use of a dressing intended for burns	-	×
Assessment of limbs for possible fractures	×	×
Use of splints for immobilization	-	×
Communication & documentation		
Principles for tactical medicine radio communication	×	×
Communication with the casualty	×	×
Reporting of casualties to superiors	×	×

Table 1 (continued). Comparison of the scope of competencies acquired after basic (S) and extended (JCM) training, in accordance with the assumptions of the Medical Service of the International Legion of the Armed Forces of Ukraine

Skill	Basic training (S)	Extended training (JCM)
Initiating evacuation	×	×
Completion of Tactical Combat Casualty Care Card	×	×
Evacuation		
Techniques for towing and carrying the casualties	×	×
Stretcher transportation	×	×
Preparing the casualty for evacuation	×	×

CUF – care under fire; TFC – tactical field care; MARCH – Massive hemorrhage, Airways, Respirations distress, Circulation, Head injury and hypothermia; NPA – nasopharyngeal airway; AVPU – Alert, Verbal, Pain, Unresponsive; CWMP – combat wound medication pack

Source: Own elaboration based on: 1st International Legion Medical Service Armed Forces of Ukraine. Recommended knowledge & skills standard Tactical Medicine – Warfighter (W) & Junior Combat Medic (JCM) – Assault Unit

ment, the MSIL emphasised that NPAs were applied incorrectly. It was also noted that NPAs of the same size can vary by 2–3 cm between different manufacturers. The recommendation to limit NPA use in basic soldier-level training corresponds with updated CoTCCC guidelines, which prioritise bag valve mask (BVM) ventilation with an NPA for cases of respiratory failure and oxygen saturation under 90% [4].

When assessing casualties for potential respiratory failure, basic soldiers should be able to accurately evaluate breathing and identify potential abnormalities, as emphasised by MSIL. Needle decompression of the chest and the use of vented seals are procedures typically performed by JCMs. This distinction is justified by the need for extended training, including hands-on learning primarily through clinical scenarios, which may be impractical given the limited time available for basic training.

For chest wounds, MSIL cited data from stabilization point records showing that 4% of casualties had chest injuries, of which 0.75% were penetrating wounds. Only 20% of vented chest seals were applied to open and sucking chest wounds [1]. However, no information on exclusions was provided, which is important, particularly in cases where vented seals are used for the epigastrium (a solution also recommended in battlefield medicine).

The Americans reached similar conclusions during their analysis of medical interventions in Afghanistan. Chest seals were placed in 74.2% of casualties with chest injuries; however, the majority of these dressings were not used in compliance with the guidelines that were in force at the time. Additionally, the same data indicated that 50% of casualties with clear indications for a chest seal did not receive one until reaching a stabilization point [5].

Observations by Ukrainian medics also indicate that vented seals are frequently applied to the lumbar region, thighs, and even lower extremities. In 87% of these cases, no chest seal was applied [1]. This underscores the critical importance of adequate training at the basic level, as it directly contributes to increased survival rates among the wounded and ensures optimal use of the available medical resources.

When assessing a casualty for hypovolemic shock, both soldiers and JCMs should be able to identify its symptoms (based on altered consciousness, the presence of central and radial arterial pulse, skin colour and temperature, and the presence of clammy skin), manage all bleeding wounds, and make any necessary modifications in tourniquet placement (approximation, i.e., placing the tourniquet as close to the wound as possible for targeted application, or conversion, i.e., switching from one method of controlling bleeding to another, e.g. switching to a tourniquet or a haemostatic compression dressing).

MSIL places particular emphasis on educating every soldier about the potential negative consequences of prolonged tourniquet use, describing the tourniquet as a "traumatic yet necessary tool for saving lives", which is like "a ticking bomb with a timer set for two hours." [1].

High limb amputations due to prolonged tourniquet use are frequently reported in the Ukrainian conflict. MSIL members have emphasized that many of these outcomes could have been prevented by proper approximation or conversion.

Head injuries and hypothermia, the last two components of the MARCH algorithm, significantly raise mortality among both combat and civilian trauma cases [6, 7]. Preventing hypothermia should be a core skill for all soldiers. According to the concept developed by MSIL, individual medical kits should include four chemical warmers (of unspecified type) to supplement personal equipment during the fall, winter, and spring seasons. These are to be used with a thermal blanket, preferably in olive green, khaki, or camouflage to minimize the risk of detection [8].

In the event of head trauma, every soldier, regardless of their level of medical training, should be able to identify typical symptoms and appropriately manage injuries involving the eyes. Consciousness assessment using the AVPU scale (Alert, Verbal, Pain, Unresponsive) is to be performed by JCMs [9].

The MSIL paper further details skills related to managing fractures and burns. Soldiers after elementary training are expected to identify both these types of injuries and apply basic measures to reduce their negative sequelae. Interventions involving the use of dedicated burn dressings and splints for fracture stabilization are assigned to JCMs [1].

Proper documentation should be the final step in tactical casualty care. In NATO forces, this is standardized through the use of DD Form 1380, which must accompany a wounded individual during evacuation. Data from Iraq and Afghanistan have shown that prehospital documentation was completed in only18.6% and 25.4% of cases, respectively [10]. As emphasized by MSIL, relying on verbal reports in the absence of written records increases the risk of errors, potentially compromising treatment decisions and lowering survival rates [1].

The Ukrainian Armed Forces utilize Form 100 as the standard document for recording combat injuries (Fig. 2). The International Legion has developed its own version of the DD Form 1380, replacing the traditional CABC framework (Circulation [specifically massive haemorrhage], Airway, Breathing, Circulation) with the MARCH protocol. This aligns the documentation with the CoTCCC guidelines. Additionally, the new form allows for recording tourniquet application, including approximation and conversion.

Further letters were added in the form proposed by the International Legion to denote different components of the casualty condition reporting protocol, following the MIST template (Mechanism of injury, Injuries, Symptoms [including observations and monitoring], and Treatment given), similar to the format used in the DD Form 1380 (Fig. 3) [11]. As set out in the CoTCCC guidelines, Each soldier should carry a Combat Wound Medication Pack (CWMP), and use it after sustaining an injury. CWMP typically contains paracetamol (650 mg, two extended-release tablets), meloxicam (15 mg), and moxifloxacin (400 mg).

According to MSIL, JCMs are responsible for the intramuscular administration of tranexamic acid (TXA), meloxicam, and nefopam, as well as for administering pharmacological agents identical to those contained in CWMP. Additionally, JCMs should be prepared to administer ondansetron in the form of orally disintegrating tablets. It is worth noting that ondansetron is recommended in the CoTCCC guidelines for use by medics with the highest level of training, i.e. Combat Medic/ Corpsman (Tier 3) [11].

MIST recommendations for medical equipment

From its experience, the International Legion Medical Service has proposed a list of basic medical gear every soldier should carry, as well as extra supplies for Junior Combat Medics.

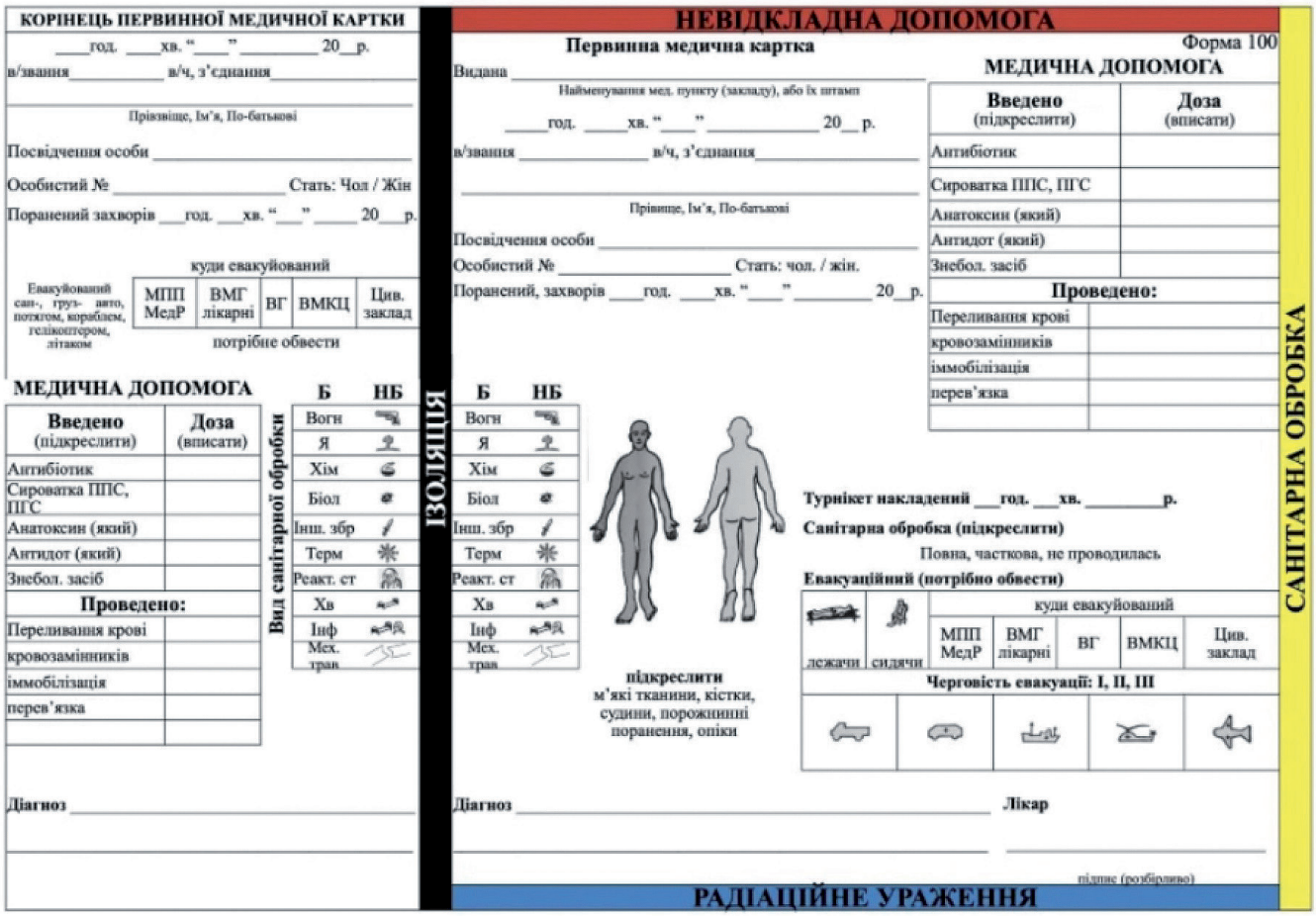

Figure 2. Form 100 used by the Armed Forces of Ukraine. Source: own elaboration

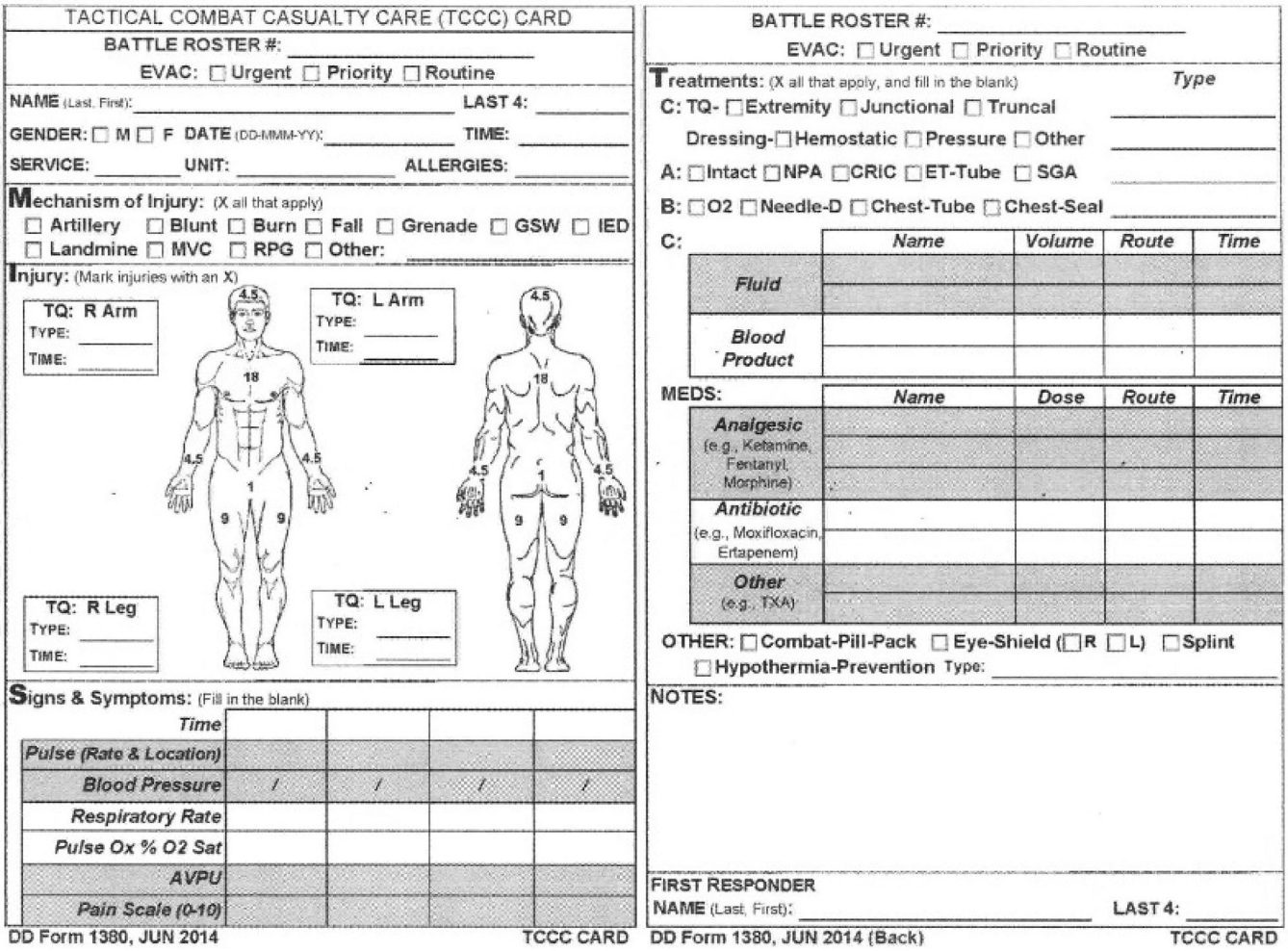

Figure 3. Tactical Combat Casualty Care Card proposed by the International Legion of the Armed Forces of Ukraine. Source: own elaboration

According to MSIL, a basic casualty kit should include a tourniquet, haemostatic dressing, wound-packing gauze, Israeli-style pressure bandages, an elastic bandage, thermal blanket, nitrile gloves, chemical hand warmers, a marker, Tactical Combat Casualty Care Card (TCCC card), a patch with a strip of duct tape, and a Combat Wound Medication Pack (CWMP) containing the following pharmacological agents: 1000 mg paracetamol, 15 mg meloxicam, and 400 mg moxifloxacin.

Every soldier should carry such a kit as part of their standard gear (Tab. 2) [1].

After utilizing the casualty's medical supplies, the Junior Combat Medic typically continues rescue operations using a properly stocked medical backpack.

The JCM's backpack should include the following items: tourniquets; haemostatic dressings; gauze for wound packing; 6-inch and 4-inch Israeli-type dressings; an iTClamp; nasopharyngeal airways; vented chest seals (MSIL strongly advocates the use of CoTCCC-recommended products); needles for decompression of tension pneumothorax; elastic bandages; trauma shears; 2.5 cm wide non-adhesive patches; a permanent marker; a TCCC card; nitrile gloves; rigid eye shields for penetrating eye injuries; a soft splint; a triangular sling; adhesive tape; a thermal blanket; and chemical warmers (with no specific type indicated).

The pharmacological agents and equipment available to JCMs should at least include the Combat Wound Medication Pack (CWMP) (as part of the basic kit), tranexamic acid (TXA), ondansetron (4 mg), meloxicam (15 mg), nefopam (20 mg), a 5 mL syringe with needle, a 10 mL syringe with needle, a 21 G or 23 G needle, and an alcohol-soaked swab. This is the minimum standard. According to MSIL, JCMs should be authorized to supplement this kit with additional items as required by the operational situation.

In addition to a medical backpack and pharmacological supplies, each JCM should be equipped with a soft stretcher (canvas stretcher) or a drag stretcher for safe dragging or towing the casualty. The paper also highlights the potential role of JCMs as members of an evacuation team, in which case the equipment may be augmented with ready-to-use solutions such as the Hypothermia Prevention and Management Kit (HPMK) (North American Rescue LLC, USA), or alternative types of stretchers (Tab. 3) [1].

MIST recommendations for medical training

The document also addressed the issue of basic training conducted in the Ukrainian Armed Forces. Accord-

Table 2. Medical supplies included in the individual equipment according to the recommendations of the Medical Service of the International Legion of the Armed Forces of Ukraine

Medical agents	Quantity
Tourniquet	4
Gauze with haemostatic agent	2
Gauze for wound packing	2
Israeli bandage 6”	2
Elastic bandage	2
Nitrile gloves (medic size)	2
Rescue scissors	1
Thermal blanket (green, 210 × 160 cm)	2
Chemical warmer	4
Marker	1
Adhesive plaster 2.5 cm	1
Duct tape	1
CWMP (paracetamol 1000 mg, meloxicam 15 mg, moxifloxacin 400 mg)	1
Tactical Combat Casualty Care Card	1

CWMP – combat wound medication pack

Source: Own elaboration based on: *1st International Legion Medical Service Armed Forces of Ukraine. Recommended knowledge & skills standard Tactical Medicine – Warfighter (W) & Junior Combat Medic (JCM) – Assault Unit*

Table 3. Recommended medical equipment included in the JCM backpack according to the Medical Service of the International Legion of the Armed Forces of Ukraine

Medical agents	Quantity
Tourniquet	4
Gauze with haemostatic agent	3
Gauze for wound packing	3
Israeli bandage 6” Israeli bandage 4”	2 2
Elastic bandage	3
iTClamp	2
Nasopharyngeal airways (NPA, 28 Fr, 30 Fr and 32 Fr)	4
Vented chest seal	4
Decompression needle for tension pneumothorax	3
Thin elastic bandage	4
Rescue scissors	1
Adhesive plaster 2.5 cm (large roll)	1
Marker	1
Tactical Combat Casualty Care Card	2
Nitrile gloves (medic size)	8
Rigid eye shield	2
Soft splint	2
Triangular sling	2
Duct tape	2
Thermal blanket (green, 210 × 160 cm)	4
Chemical warmer	6
CWMP (paracetamol 1000 mg, meloxicam 15 mg, moxifloxacin 400 mg)	2
Moxifloxacin	2 (w CWMP)
Paracetamol 500 mg (PO; tablets)	10
Tranexamic acid 10% 500 mg (ampoules)	8
Meloxicam 15 mg (ampoules)	2
Nefopam 20 mg (ampoules)	2
Ondansetron 4 mg (ampoules and/or ODT)	4
Syringe (5 mL) with needle	6
Syringe (10 mL) with needle	2
21 G/23 G needle for injections	6
Gauze pads for skin disinfection	20

CWMP– combat wound medication pack

Source: Own elaboration based on: *1st International Legion Medical Service Armed Forces of Ukraine. Recommended knowledge & skills standard Tactical Medicine – Warfighter (W) & Junior Combat Medic (JCM) – Assault Unit*

ing to the current model of such training, 13 teaching hours are allocated to battlefield medicine. During this time, soldiers receive training in casualty extraction from a tank and an infantry fighting vehicle. However, MSIL finds this training inadequate for current operational realities. It recommends reallocating this time, for example, to mastering the full tourniquet application protocol, including approximation and conversion procedures.

According to the Medical Service of the International Legion, basic training on tactical medicine should last 24 hours. The proposed training plan for the first day includes instruction on providing Care Under Fire (CUF). This training should cover the principles of tourniquet application (high and tight), as well as the procedures for its approximation and conversion, which are performed as part of Tactical Field Care (TFC). The practical skills in the basic course are complemented by learning the wound packing procedure and proper wound care, trauma examination according to the MARCH algorithm and proper preparation for transport [1].

Successful completion of the basic course is the foundation of JCM training. The JCM course begins with training scenarios based on the skills acquired during the basic course. In the following days, additional elements of the MARCH protocol are introduced during the TFC phase, along with PAWS.

According to MSIL, JCM candidates should be trained in the use of iTClamps, vented chest seals, NPAs, and thoracocentesis needles, as well as in pharmacotherapy, wound protection, and fracture stabilization. The final phase of JCM training focuses on preparation for evacuation.

The course also covers elements of prolonged care during evacuation. The trainees use porcine cadavers for procedures such as needle thoracocentesis, as well as perform supervised intramuscular saline injections to one another to ensure more realistic hands-on training [1].

Discussion

In February 2022, the nature of the conflict in the Ukrainian theatre of operations shifted away from hybrid warfare strategies, which had primarily been employed in the eastern regions of the country. The current phase of the conflict is reminiscent of the First World War, with extensive networks of trenches and fortifications spanning Ukraine's eastern and southern borders. These fortifications are dominated by artillery and rocket fire, as well as unmanned aerial vehicle (UAV) operations. These developments elicit changes not only in the concept of military operations, but also in the approach to casualty care and evacuation within this type of operational environment.

The establishment of a sustainable and efficient system of casualty care in Ukraine faces several key challenges. These include staff shortages across all levels of care, large evacuation distances, operational conditions that must be met to ensure safe evacuation, communication limitations or failures, overcrowding at casualty stabilization points, lack of standardized care procedures, and shortages of essential medical equipment.

The existing assumptions regarding the organization of battlefield medical support, rooted in doctrines developed during the wars in Iraq and Afghanistan, should be critically reviewed and adapted to the evolving operational environment, and more importantly, to the specific demands of large-scale combat operations (LSCO). Sources of insight for reorganizing battlefield casualty care should be drawn from recent experiences in the Ukrainian theatre of operations, as well as from the Israeli military operations in the Gaza Strip and the ongoing civil conflict in Myanmar (formerly Burma).

The core of an effective and well-organised battlefield casualty care system, one that adheres to the highest standards, is composed of several critical components: a uniform level of basic training in battlefield medicine, with particular emphasis on the aggressive control of massive haemorrhage; resuscitation using whole blood and blood products; a standardized and sustainable casualty management system; and comprehensive planning of medical operations [12]. The document prepared by the Medical Service of the International Legion underscores the importance of standardized medical training, both at the basic and advanced levels, adapted to the current context of the Ukrainian theatre of operations. It underscores that proficient mastery of the basic curriculum is essential for progression to more advanced training. While the document clearly outlines what should be taught and how, it notably fails to address the issue of ongoing medical training for personnel once they are deployed to the frontline.

A significant portion of the document describes the individual equipment intended for use by JCMs. The medical kits include items that are familiar to battlefield medics trained in accordance with NATO standards. The document places significant emphasis on the use of approved and standardised medical agents. Particularly noteworthy is the inclusion of nefopam among the pharmacological agents authorised for use at the JCM level. This choice likely reflects its local availability on the Ukrainian market.

What is puzzling, however, is the authors' lack of reference to current trends in both civilian and tactical medicine, particularly for the potential use of methoxyflurane and ketamine.

Methoxyflurane is an inhaled analgesic [13]. The drug causes relatively mild and uncommon adverse reactions, and shows high analgesic efficacy [14]. Studies have shown that the therapeutic effects of methoxyflurane are superior to those of other commonly used analgesics, including tramadol [15].

Ketamine is a rapid-acting general anaesthetic that belongs to the group of psychodysleptics [16]. The CoTCCC guidelines recommended ketamine as an analgesic used at the highest levels of medical training, i.e. Combat Medic/Corpsman (Tier 3) and Combat Paramedic/Provider (Tier 4). There are several administration routes for ketamine: intranasal (IN), intravenous (IV), intraosseous (IO) and intramuscular (IM). In addition to its analgesic properties, the drug also exhibits sedative and antidepressant effects, which may reduce the risk of post-traumatic stress disorder (PTSD) [17].

However, it is important to acknowledge the potential adverse effects of ketamine, including dissociation (feeling detached from reality, hallucinations). However, ketamine is considered safe for use in patients with head injuries, who represent a significant proportion of cases in combat medicine [18].

The MSIL document does not address the potential use of whole blood products or blood components by battlefield medics. While such initiatives, mainly volunteer-led, have emerged periodically in Ukraine, no systemic solution has yet been proposed in this regard.

The use of whole blood and blood products in military operations is not a new concept. The first reports on plasma and whole blood use in combat settings date back to 2011 and 2014, respectively [19]. The use of these blood products is particularly justified in the Ukrainian theatre of operations, where casualty evacuation can take some time, and there is an urgent need for rapid transition to prolonged field care (PFC).

The document also lacks data on attempts to define the organisational framework for the management of casualties, or an outline of medical planning across the various levels of combat operations. Training, uniform basic training in particular, is an essential component of such a system. This aspect is comprehensively addressed by the International Legion Medical Service. What is notably missing from the document is any mention of continuing training within defined cycles, or the possibility of expanding the programme to include interventions such as establishing intravenous or intraosseous access. Maintaining situational awareness of medical activities across all operational levels is essential for the planning of medical operations.

The paper states that basic training includes a module on the principles of providing medical care within specific operational zones. This reflects a tactical and operational rather than a strategic approach. What is clearly missing in the document is any reference to the organisation of medical operations across different levels, including how these operations are adapted to the realities of the Ukrainian theatre and the specific tasks. However, information on the necessity of creating supply facilities for medics working on the frontline, but without defining the principles of their functioning.

Medical triage is one of the critical tasks to be performed by a battlefield medic immediately after moving casualties from Care Under Fire (CUF) to Tactical Field Care (TFC) zone. This process is essential in managing high numbers of casualties that can result even from a single incident during full-scale combat operations. As such, medical triage should be introduced during initial training and further expanded at the JCM level to include the field organisation of Casualty Collection Points (CCPs).

The ability to conduct medical triage is a critical competency, without which the reduction of preventable fatalities among own forces becomes unattainable. It must therefore be integrated into all training programmes and doctrinal frameworks. Unfortunately, this gap is also evident in current CoTCCC guidelines and NATO military doctrines.

Conclusions

The paper published by the Medical Service of the International Legion serves as both a foundation and a milestone in the development of battlefield medicine within the Ukrainian theatre of operations. It is an attempt to systematise and identify the key skills that need to be developed in both soldiers and battlefield medics to reduce the number of preventable deaths. These activities have been systematised not only in terms of the range of skills, but also in terms of equipment and training.

It is important to emphasise that the information presented in the paper is drawn from experience and data collected during active combat operations within a conflict environment unlike any previously encountered by NATO forces.

Despite some shortcomings in terms of management, planning, and organisation of medical operations, the document should nonetheless be regarded as a valuable source of knowledge. It can help improve the preparation of medical personnel for future armed conflicts, where the volume of casualties, the availability of resources, and the evacuation timelines may differ substantially from current doctrinal assumptions.

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