NOBLE SLAVE

MILITARY MEDICINE IN THE ARMED FORCES OF UKRAINE

MEDICAL FORCES AND SUSTAINMENT GROUP “EAST”

Surgical profile

DISEASES IN MILITARY PERSONNEL NOT RELATED TO BATTLE INJURY

Injuries in military personnel are not only wounds or acute post-traumatic disorders. War has a comprehensive impact on both the physical and mental health of the soldiers.

In Ukraine's current war, a significant number of injuries in military personnel are classified as **non-battle injuries**, received outside the direct contact with the enemy. **These can result from traffic accidents, falls, violations of safety regulations, exposure to extreme temperatures, everyday household incidents, or industrial accidents in rear conditions.**
According to domestic and international studies, non-battle injuries account for a major share of the overall percentage of injuries in service members. Consequently, these diseases carry a significant importance for the medical service, as they can lead to a long-term loss of combat effectiveness and require the development of specific preventive measures.

In accordance with the research by the US Army, which covers the period from 2003 to 2014, **non-battle injury caused 34.1%** of total casualties (10,203 out of 29,958), and 11.5% of all deaths. [4].

Similar data is presented by CNN: about one-third (≈33%) of all injuries were unrelated to combat, and over 10% of all deaths among service members resulted from non-battle incidents. [5].
Within the domain of orthopaedic injuries, the risk of non-battle injury casualties was 2.2 - 3 times higher than the risk of combat casualties - **of all the military service members who required air medical transport from theater, 80.5% were for soldiers with a nonbattle injury, not for those wounded in action. [6]**

CLASSIFICATION AND DISTRIBUTION OF NON-BATTLE INJURIES IN MILITARY PERSONNEL

Injuries, with their origin as the primary criterion, are divided into two categories:

TYPES OF INJURIES IN MILITARY PERSONNEL

BATTLE INJURY

Battle injury – is an injury sustained by military personnel during combat (operational) missions.

NON-BATTLE INJURY

Non-battle injury – is a trauma sustained outside combat missions, including those received during training (except for those that simulate real combat), in daily life during service, off-duty hours, transportation or official trips not related to combat operations, accidents, injuries resulting from safety violations, drowning, falls, electrical injuries, etc. [1, 2, 3].

Important notice:

In the First Half of **2025**, within the Administrative-Territorial Area of Responsibility of the Medical Forces and Sustainment Group “East”, non-battle injuries and somatic disorders consisted of a significant part of surgical sanitary losses. From the total number of wounded, injured, and ill, which was - **36,943** patients, the share of non-battle injuries accounted for **3,503** (**9.5%** of the total number of patients and **55%** of all injured). Surgical somatic diseases were recorded in **10,124** patients, representing **27.4%** of the total number of wounded, injured, and ill.

THE STRUCTURE OF NON-BATTLE SURGICAL TRAUMA

The structure of non-battle surgical trauma for the First Half of 2025, within the Administrative-Territorial Area of Responsibility of the Medical Forces and Sustainment Group "East"

Traffic accident	**1349**	**38,5%**
Household trauma (falls, hits, cuts, sprains, bruises, electric shocks, poisoning with household chemicals, acids, alkalis, etc.)	634	18,1%
Injury during service not related to combat missions (construction of fortifications, loading/unloading, trauma during training)	507	14,5%
Thermal trauma: burns not related to combat missions	273	7,8%
Thermal trauma: frostbite, not related to combat missions	122	3,5%
Contact with animals: bite of a dog, cat, rat, insect, snake, etc.	254	7,2%
Other injuries	399	11,4%

In accordance with the above, it is necessary to note a significant share of **traffic accidents - nearly 38.5%** of all non-battle injuries. Road traffic injuries in the combat zone are taking the form of a "**traumatic epidemic**" in military personnel, since the combination of combat risks, stress factors, difficult driving conditions, and safety restrictions leads to a systematic increase in the number of traffic accidents with severe consequences for the personnel. In wartime situation, this issue has a strategic significance and requires comprehensive preventive measures **no less than battle injuries themselves [7]**.

HIGH FREQUENCY OF TRAFFIC ACCIDENTS IN THE COMBAT ZONE

Main factors of the high frequency of traffic accidents in military personnel in the combat zone:

Poor lighting due to switched-off streetlights - as a result of missile strikes on energy facilities and forced energy saving, especially in the evening and at night, which increases the risk of collisions and accidents.

Presence of security checkpoints - frequent stops, changes in traffic directions, and road narrows significantly increase the likelihood of traffic accidents.

Extreme urgency and stressful conditions - rapid movements in dangerous conditions, often with not fully functioning vehicles, increase the risk of losing control of the vehicle.

Traffic rules violation due to overloaded schedules and stress - drowsy driving, speed limit violations, and failure to keep a safe distance, especially at dusk or at night, increases the risk of accidents.

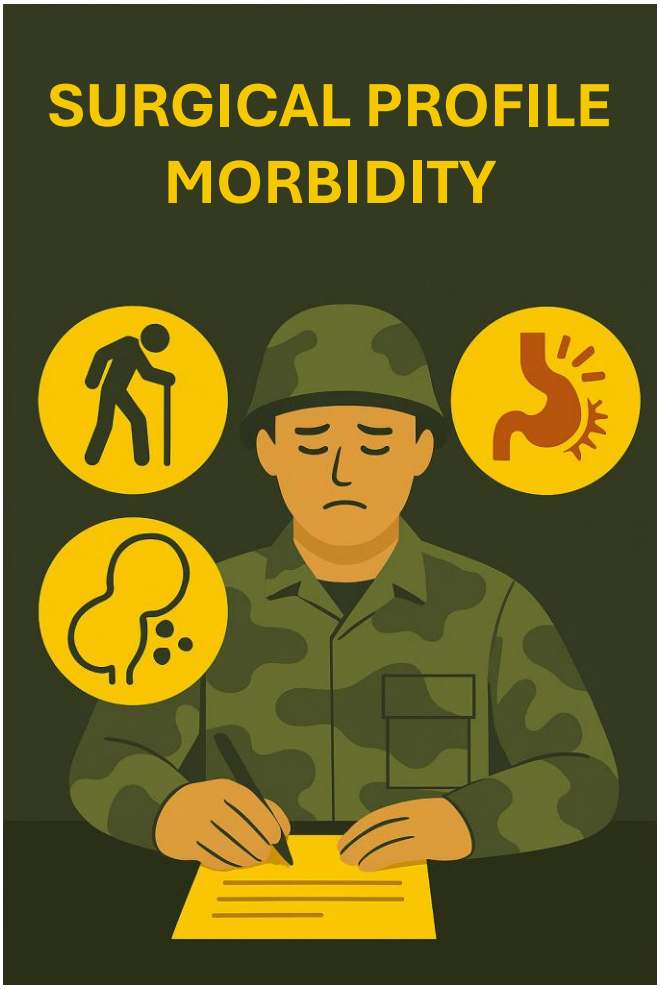
Important notice:

Traffic accidents are a serious but often underestimated threat that causes no less harm than combat actions.
They should be considered as becoming a key element of strategic safety planning in order to preserve the lives and health of personnel.
Additionally, **a relatively large percentage of non-combat injuries were animal bites - 7.2%** of all injuries, which is taking the form of a professional risk under conditions of reduced control over animal populations [8, 9].

SURGICAL PROFILE MORBIDITY

Structure of the surgical profile morbidity by nosological units for the First Half of 2025 within the Administrative-Territorial Area of Responsibility of the Medical Forces and Sustainment Group "East"

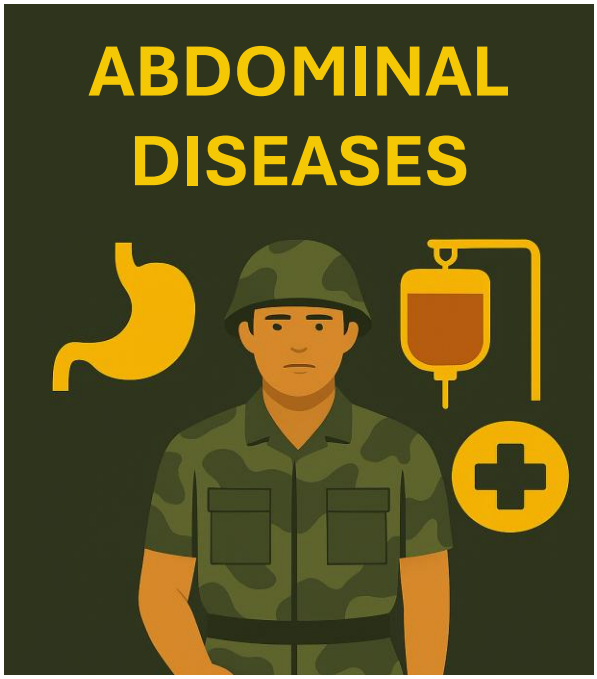
Abdominal diseases	733	**7,10%**
Anterior abdominal wall hernias	730	**7,20%**
Rectal diseases	1170	**11,80%**
Respiratory diseases	98	**1,00%**
Peripheral artery and veins diseases	362	**3,50%**
Genitourinary disorders	501	**4,90%**
Musculoskeletal disorders	2833	**28,00%**
Purulent-inflammatory diseases	1315	**13,00%**
Benign tumors of skin and subcutaneous tissue	1517	**0,15%**
Malignant neoplasms	86	**0,008%**
Other diseases	779	**0,077%**



There're 10,124 patients with surgical profile diseases in military personnel of Medical Forces and Sustainment Group "East" which make up a significant share of the sanitary losses structure. These include acute abdominal inflammatory processes (appendicitis, perforated ulcer, cholecystitis), purulent inflammation lesions of soft tissues, urologic diseases, exacerbations in chronic surgical conditions, etc. **In wartime conditions, the frequency of these diseases increases** due to the combination of physical overexertion, nutrition disorders, stress, hypothermia, limited access to timely medical care, and the need to perform tasks in field conditions. **Delayed diagnosis and limited access to planned surgical interventions** lead to a high risk of complications and prolonged treatment periods, which directly affect the combat readiness of units.

SURGICAL PROFILE MORBIDITY

The frequency of **abdominal diseases** in combat situation can increase dramatically. During peacetime in Ukraine, acute appendicitis was approximately in 20.7 cases per 10,000 population, and **acute cholecystitis – in 6.25 cases per 10,000 population**. However, due to intense daily physical exertion, constant stress, irregular eating, hypothermia, limited access to medical care, and evacuation difficulties, the frequency of these diseases largely increases in military personnel, as well as **delayed medical treatment increases the risk of complications**. For example, a delay in hospitalization (>24 hours after symptoms onset) increases postoperative mortality in appendicitis from 0.05% to 0.15% [10].



Among military personnel in the combat zone, there is an increased prevalence of such diseases as **anterior abdominal wall hernias, hemorrhoids, and lower extremity varicose veins**. The military contingent is particularly vulnerable to these diseases in combat situations due to a combination of the following factors: intense physical exertion, prolonged static or sitting positions, stress and constant pressure, irregular eating, and limited access to preventive and planned medical care. For instance, prolonged standing or sitting significantly increases **the risk of chronic venous insufficiency development -** the basis of varicose disease, which affects about 30% of adults in the civilian population.

RISK FACTORS

Risk factors for anterior abdominal wall hernias:

- Intense physical activity (lifting heavy gear and weapons, wearing body armor)
- Sudden movements with abdominal muscle strain
- Previous injuries or surgeries
- Chronic cough, constipation
- Protein and vitamin deficiency in the diet

Risk factors for hemorrhoids:

- Prolonged sitting (on duty, staying in armored vehicles)
- Limited mobility
- Irregular diet with fiber deficiency
- Chronic constipation or diarrhea
- Stress and increased intra-abdominal pressure

Risk factors for varicose veins:

- Prolonged standing or sitting
- Heavy physical exertion with weightlifting
- Compression of limbs by gear or uniform
- Lower extremity injuries

Valentyn ZINKIVSKY
MAJOR OF MEDICAL SERVICE
LEADING SURGEON OF MEDICAL FORCES AND SUSTAINMENT GROUP "EAST"

Roman KUZIV
LIEUTENANT COLONEL OF MEDICAL SERVICE
COMMANDER OF MEDICAL FORCES AND SUSTAINMENT GROUP "EAST"

Design: ***Pavlo NIEMOV***

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