

UDC 81'25:316

DOI <https://doi.org/10.32447/2663-340X-2025-17.7>

TRANSLATION FEATURES OF GRAMMATICAL TRANSFORMATIONS OF CRISIS MEDICINE DISCOURSE IN ENGLISH AND UKRAINIAN LANGUAGES

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In the context of wars, conflicts and emergencies, crisis medicine has become a highly specialised professional communication area requiring clarity, precision, and linguistic adaptability. This article investigates the grammatical transformations used in the translation of English-language crisis medicine texts into Ukrainian, particularly those found in emergency protocols and Tactical Combat Casualty Care (TCCC) guidelines. The study emphasises the role of grammatical shifts such as modulation, transposition, passive-to-active voice changes, noun phrase compression/expansion, gerunds and infinitives in preserving the meaning and communicative intent of the source text while aligning with the syntactic and stylistic norms of the target language. A comparative analysis of authentic English and Ukrainian versions of crisis medical documentation revealed that gerundial constructions are the most frequently transformed structures, constituting 40.7% of all observed grammatical changes. Other significant transformations include passive voice (23.4%), infinitives (18.6%), transposition (9.5%), modulation (5%), noun phrase restructuring (5.1%), and word order changes (2.7%). Each transformation type serves to enhance clarity, preserve directive function, and ensure readability in high-stakes medical contexts. The findings confirm that the accurate translation of crisis medicine discourse requires more than lexical equivalence; it depends on the translator's ability to apply functional grammatical strategies. The study contributes to the systematization of translation practices in Ukrainian medical discourse and highlights the need for further investigation into translator training and corpus-based research in the field of tactical medicine.

Keywords: crisis medicine, grammatical transformation, gerunds, infinitives, modulation, TCCC, transposition, passive voice, emergency communication.

The statement of the problem. The translation of crisis medicine discourse from English into Ukrainian presents significant challenges due to differences in grammatical structure, word order, and stylistic norms. While accuracy and clarity are critical for emergency medical texts, direct grammatical equivalence is often not possible. This necessitates the use of grammatical transformations, such as transposition, modulation, passive voice to active voice, and restructuring of noun phrases. However, these transformations remain insufficiently classified in Ukrainian translation practice, especially in the field of tactical and crisis medicine. Therefore, a systematic analysis is needed to identify and describe the most frequent and functional grammatical strategies used in this field.

The purpose and objectives of the article are to provide a comprehensive analysis of grammatical transformations used in the translation of crisis medicine discourse from English into Ukrainian to identify the most common and functionally significant strategies. To achieve this goal, the following tasks have been set:

To identify the types of grammatical transformations relevant to the translation of crisis medical texts; to analyse authentic English-Ukrainian parallel texts of clinical guidelines for the presence of such transformations; classify and quantify the most frequent types of transformations (e.g. gerund, infinitive, transposition, passive voice, modulation, word order); to contribute to the systematisation of translation strategies in the field of medical and crisis communication.

The outline of the main research material.

The conducted analysis revealed that among the primary types of grammatical transformations applied in the translation of crisis medicine discourse from English into Ukrainian, gerund constructions (both standalone and expanded with dependent elements) are the most frequently used, accounting for 40.7% of transformations. Transformations of the passive voice constitute 23.4% of the total number of grammatical changes. Infinitive constructions make up 18.6% of the analysed examples. Transposition, or the change of grammatical category (e.g., verb to noun, adjective to noun), was identified in 9.5% of cases. Compression or expansion of noun phrases appeared in 5.1% of the analysed examples. This transformation is frequently necessary due to the high level of syntactic density in English medical texts, which requires restructuring for clarity in Ukrainian. Word order transformations accounted for 2.7% of the cases. Modulation, used to shift modality or perspective while preserving the core meaning, was observed in 5.0% of the analysed material. In most cases, this involved the substitution of modal verbs or the rephrasing of propositions to convey the same pragmatic intention more naturally in Ukrainian.

Analysis of recent research and publications.

The Passive Voice is used to show that the action is directed to the subject, which is not the doer of an action but is acted upon or undergoes an action. It typically uses a form of the verb to be + past participle. (Omelianenko, 2018) The passive voice is widely used in English medical discourse due to its objectivity, focus on actions, and omission of agents when they are irrelevant or unknown. However, in Ukrainian, the overuse of passive constructions is stylistically discouraged, especially in professional and instructional texts. As a result, English passives are frequently rendered in more natural and functional active or impersonal constructions. Consider the sentence:

“ERT is performed in patients with penetrating injuries”. – *«НПТ проводять пацієнтам із проникаючими пораненнями»* (TCCC Guidelines, 2024). Here, the English passive is transformed into an active voice with a general subject implied (e.g., medical personnel). The structure shifts grammatically, but the core meaning is preserved. This approach is common in Ukrainian to avoid unnecessary passivity and enhance clarity.

“ERT should only be performed at a forward military treatment facility”. – *«НПТ слід виконувати лише у фронтовому медичному закладі»* (TCCC Guidelines, 2024). The modal passive “should be performed” is translated using the impersonal modal verb *слід* + infinitive. Ukrainian

typically avoids combining modality with passivity, instead using a more concise and idiomatic structure.

“The trauma team training should be performed regularly”. – *«Тренування травматологічної бригади слід проводити регулярно»* (TCCC Guidelines, 2024). The modal passive is replaced with an impersonal infinitival phrase, improving fluency and aligning with the standard Ukrainian medical register.

These examples demonstrate a consistent pattern: English passives in crisis medical discourse are transformed into active, impersonal, or infinitival forms in Ukrainian to match syntactic norms, ensure readability, and maintain functional equivalence. This transformation is particularly relevant in emergency contexts, where clarity, speed of comprehension, and unambiguous instructions are essential.

This type of modality is realised in both languages by means of modal verbs/their lexical equivalents and the infinitive of the determiner verb. These constructions function as a compound modal verb clause and express different meanings determined by the main modal verb, as can be seen in many of the quotations and their Ukrainian translations on the following pages (Korunets, 2008). This strategy is especially common when translating modal verbs (such as *should*, *may*, *must*) and evaluative or emotional tones. In the context of crisis medicine, modulation serves to adapt the degree of obligation, possibility, or emphasis to suit the stylistic and pragmatic norms of the target language.

“ERT should not be performed for blunt trauma with arrest before arrival and with no signs of life”. – *«НПТ не слід виконувати при тупій травмі із зупинкою серця до прибуття та без ознак життєдіяльності»* (TCCC Guidelines, 2024). Here, the English modal verb *should not* become the Ukrainian impersonal structure *не слід*, which conveys prohibition in a softer, more clinical tone, appropriate for formal medical guidelines. Another example:

“This procedure should be considered in patients with signs of life”. – *«Цю процедуру слід розглянути у пацієнтів з ознаками життя»* (TCCC Guidelines, 2024). The passive modal construction *should be considered* is replaced with the impersonal verb + infinitive: *слід розглянути*. This eliminates the passive form and creates a directive tone, aligning with the Ukrainian clinical instruction style.

“Termination of efforts should also be considered in certain scenarios”. – *«Слід також розглянути можливість припинення реанімаційних заходів у*

певних ситуаціях» (TCCC Guidelines, 2024). The Ukrainian version introduces the noun *можливість*, adding an analytical nuance that subtly shifts the tone from recommendation to cautious deliberation.

In all these examples, modulation ensures that the intended function of the original, be it obligation, recommendation, possibility, or emphasis, is preserved while adapting to the linguistic and cultural norms of Ukrainian medical discourse. It is especially vital in crisis communication, where clarity and tone must be balanced with precision.

Transposition is a grammatical transformation that involves changing the grammatical category of a word or phrase during translation. This may include shifts such as verb to noun, adjective to noun, or participle to noun phrase. In translation studies, transposition is recognized as a structural shift that preserves meaning while adapting the syntax and morphology to the norms of the target language. Although this transformation is relatively rare in scientific and technical translation (Karaban, 2004), it occurs frequently in medical texts where clarity and conciseness are crucial. A typical example is:

"The primary goal is to rapidly identify and correct any life-threatening pathology". – *«Основна мета – швидко виявлення та корекція будь-якої патології, яка загрожує життю»* (TCCC Guidelines, 2024). Here, the English verb phrases *to identify* and *to correct* are transposed into Ukrainian noun phrases: *виявлення* and *корекція*. This verb-to-noun transformation is characteristic of formal medical Ukrainian.

"Termination of efforts should also be considered". – *«Слід також розглянути припинення заходів»* (TCCC Guidelines, 2024). The English verb *to terminate* is converted into the noun *припинення*, demonstrating a consistent strategy of verbal nominalisation in Ukrainian.

"Emergency department thoracotomy has a high mortality rate". – *«Торакотомія у відділенні невідкладної допомоги має високий рівень смертності»* (TCCC Guidelines, 2024). Here, the abstract noun *mortality* is translated as *смертність*, expanded into a compound noun phrase, *рівень смертності*, to improve semantic clarity. This reflects noun-to-noun phrase transposition with precision enhancement.

In all cases, transposition enables translators to preserve meaning while aligning with the syntactic and stylistic norms of Ukrainian medical discourse. These structural changes are especially useful for expressing abstract or procedural concepts more naturally and clearly in the target language.

One of the distinct grammatical features of English medical discourse is the frequent use of compressed noun phrases, which allow for dense,

technical expressions within a compact syntactic structure. In contrast, Ukrainian typically requires a more explicit expansion of such constructions to maintain clarity and preserve grammatical correctness. This leads to frequent transformations of compressed English noun clusters into expanded Ukrainian structures involving genitives, prepositions, or attributive constructions. For example:

"The trauma team leader's responsibility is to coordinate..." – *«Відповідальність керівника травматологічної бригади – координувати...»* (TCCC Guidelines, 2024). Here, the English possessive noun phrase (*team leader's responsibility*) is transformed into a noun + genitive structure, a common syntactic pattern in the Ukrainian professional language.

"Internal cardiac massage may be required". – *«Може знадобитися внутрішній масаж серця»* (TCCC Guidelines, 2024). The phrase *cardiac massage* is expanded into *масаж серця*, clarifying the relationship between the components through the genitive case, typical in Ukrainian medical terminology.

"Performance improvement monitoring should be ongoing". – *«Моніторинг покращення показників має бути постійним»* (TCCC Guidelines, 2024). The compound noun *performance improvement monitoring* is unpacked into *моніторинг покращення показників*, providing explicit internal syntactic structure through noun + genitive + genitive expansion.

"Damage control thoracotomy protocols must be established". – *«Необхідно встановити протоколи торакотомії з контролю ушкоджень»* (TCCC Guidelines, 2024). This example transforms a three-noun cluster (*damage control thoracotomy*) into a prepositional/genitive structure *торакотомії з контролю ушкоджень*, which is syntactically clearer and stylistically more appropriate for Ukrainian medical guidelines.

Such transformations demonstrate the necessity of expansion when translating dense noun phrases from English into Ukrainian. While English favours terminological compression for brevity and precision, Ukrainian medical discourse relies on more analytical constructions to maintain clarity, especially in complex or multi-component terms.

As secondary predicative constructions, gerund complexes are formed by a noun in the genitive case or a possessive pronoun and a gerund in any of its paradigmatic forms. The choice of translation method for a gerund complex largely depends on the paradigmatic form of the gerund component, its lexical meaning, as well as the lexical meaning of the noun/secondary subject component. In addition, the function of such a gerund complex in

a sentence can also influence its translation (Korunets, 2008). The gerund, a non-finite verb form functioning as a noun in English, is frequently used in medical and instructional texts to express actions or processes concisely. In Ukrainian, however, gerunds do not exist as a distinct grammatical category. As a result, gerundial constructions are typically transformed into abstract noun phrases or infinitive-based structures during translation. This transformation ensures syntactic compatibility and clarity while maintaining the functional purpose of the original statement.

“Ensuring availability of resources is critical”. – «Критично важливим є забезпечення наявності ресурсів» (TCCC Guidelines, 2024). The gerund *ensuring* is translated as the noun *забезпечення*, a common transformation strategy in the Ukrainian professional language.

“Avoid delaying the ERT when the patient is eligible”. – «Слід уникати затримки виконання НРТ, якщо пацієнт відповідає критеріям» (TCCC Guidelines, 2024). The gerund *delaying* becomes the abstract noun *затримка*, allowing the structure to fit naturally within a Ukrainian impersonal construction.

“Confirm packaging and readiness of the ERT kit”. – «Підтвердьте упакування та готовність набору для НРТ» (TCCC Guidelines, 2024). Here, the *packaging* is translated as *упакування*, showing a gerund-to-noun shift while preserving procedural meaning.

“Conducting performance improvement monitoring helps track outcomes”. – «Проведення моніторингу покращення показників допомагає відстежувати результати» (TCCC Guidelines, 2024). The entire gerund phrase *conducting performance improvement monitoring* is transformed into a compound noun structure (*проведення моніторингу покращення показників*), enhancing syntactic clarity and aligning with Ukrainian scientific style.

These examples illustrate that gerund constructions, which are compact and versatile in English, are systematically nominalized in Ukrainian. This strategy enables translators to maintain semantic integrity while adapting structures to the norms of the target language, especially in formal, medical, and procedural contexts.

Translation of the English infinitive is greatly predetermined by its form and sometimes by its function in the sentence. The infinitive functioning as a single part of the sentence, i.e., not being a component of a secondary predication complex, usually has corresponding equivalents in Ukrainian (Korunets, 2008). Infinitive constructions in English are typically marked by the *to* + verb form, and

are widely used in crisis medicine discourse due to their syntactic economy and procedural clarity. They frequently express purpose, result, obligation, or condition, making them a key feature of instructional and clinical texts. In Ukrainian, however, such constructions often require transformation into nominal forms, prepositional structures, or subordinate clauses to preserve the intended meaning while ensuring grammatical compatibility.

“The goal is to rapidly identify and correct life-threatening injuries”. – «Метою є швидке виявлення та корекція загрозливих для життя травм» (TCCC Guidelines, 2024). The English infinitives *to identify* and *to correct* are rendered as the nouns *виявлення* and *корекція*, a typical infinitive-to-noun transformation in Ukrainian medical discourse.

“It is critical to initiate thoracotomy before cardiac arrest occurs”. – «Вкрай важливо розпочати торакотомію до настання зупинки серця» (TCCC Guidelines, 2024). Here, *to initiate* is directly translated as *розпочати*, showing infinitive preservation, especially common in Ukrainian imperative or recommendation contexts.

“To be effective, the trauma team must be trained regularly”. – «Щоб бути ефективною, травматологічну бригаду слід регулярно тренувати» (TCCC Guidelines, 2024). The infinitive *to become* part of the clause *щоб бути*, marking a purpose clause rather than a standalone verb form.

“The team leader must decide whether to proceed with ERT”. – «Керівник бригади повинен вирішити, чи продовжувати проведення НРТ» (TCCC Guidelines, 2024). The infinitive clause *whether to proceed* is restructured into the subordinate clause *чи продовжувати*, which improves naturalness in Ukrainian.

“To reduce delays, ERT equipment should be pre-packaged”. – «Щоб зменшити затримки, обладнання для НРТ слід попередньо упаковувати» (TCCC Guidelines, 2024). The infinitive *to reduce* is transformed into a subordinate purpose clause, *щоб зменшити*, clarifying the goal of the action.

“To save lives, decisions must be made quickly”. – «Щоб врятувати життя, рішення слід приймати оперативно» (TCCC Guidelines, 2024). The infinitive *to save* is rendered as *щоб врятувати*, a structure preferred in Ukrainian for conveying purpose and urgency.

These examples demonstrate that while English favours the use of infinitives for clarity and brevity, Ukrainian often replaces them with nouns or complex clauses to preserve meaning and stylistic norms. This transformation is essential in high-stakes crisis communication, where precise intent and logical flow must be maintained across languages.

Every language has a specific word order. The Ukrainian language enables more variations than English regarding word order. Therefore, a translator should avoid calques of pronominal subjects in the translation from English into Ukrainian (Sáez-Royuela Pacheco, 2018). In the translation of crisis medical discourse, word order transformations are frequently employed not only to preserve grammaticality but also to improve thematic focus, rhythm, and emphasis in the target language. For example: *"ERT should only be performed at a facility with surgical capability"*. – «*НРТ слід виконувати лише у закладі, який має хірургічні можливості*» (TCCC Guidelines, 2024). The English adverb *only* precedes the passive verb; in Ukrainian, *лише* appears after the infinitive, aligning with natural Slavic rhythm and sentence flow.

"The trauma team leader's responsibility is to coordinate procedures". – «*Відповідальність керівника травматологічної бригади – координувати процедури*» (TCCC Guidelines, 2024). While the English sentence begins with the possessive subject, Ukrainian front-loads the abstract noun *Відповідальність*, creating topical emphasis typical of formal written Ukrainian.

"All necessary supplies must be available before initiating ERT". – «*Усі необхідні матеріали мають бути в наявності перед початком НРТ*» (TCCC Guidelines, 2024). While both sentences retain their basic order, Ukrainian shifts *в наявності* toward the end to enhance semantic rhythm and clarity.

"The primary objective of the procedure is to save life". – «*Основна мета процедури – вряту-*

вати життя» (TCCC Guidelines, 2024). Here, the fronted noun phrase *Основна мета* ensures thematic foregrounding, emphasizing the strategic importance of the procedure.

"It is important that the team is trained regularly". – «*Важливо, щоб бригада проходила тренування регулярно*» (TCCC Guidelines, 2024). The introductory English phrase *It is important* becomes the fronted single-word theme *Важливо*, a stylistically preferred structure in Ukrainian formal and administrative texts.

These examples illustrate how word order shifts help accommodate the stylistic, syntactic, and prosodic conventions of Ukrainian while preserving the original communicative intent of English crisis medicine discourse. Proper word placement is especially important in medical contexts where clarity, urgency, and hierarchy of information directly affect comprehension and response.

Conclusions and directions for further research. This study has shown that grammatical transformations, such as changing the gerund, infinitive, passive voice, and word order, are important for the accurate and functional translation of crisis medicine discourse from English into Ukrainian. These strategies help to adapt structurally complex texts to the norms of the target language while maintaining clarity and accuracy. Further research should focus on larger text corpora and examine how such transformations function in different types of medical and emergency communication. Their role in machine translation and translator training should also be explored.

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ОСОБЛИВОСТІ ПЕРЕКЛАДУ ГРАМАТИЧНИХ ТРАНСФОРМАЦІЙ ДИСКУРСУ КРИЗОВОЇ МЕДИЦИНИ В АНГЛІЙСЬКІЙ ТА УКРАЇНСЬКІЙ МОВАХ

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В умовах воєн, конфліктів та надзвичайних ситуацій кризова медицина стала вузькоспеціалізованою сферою професійної комунікації, що вимагає чіткості, точності та мовної адаптивності. У статті досліджуються граматичні трансформації, що використовуються при перекладі англomовних текстів з кризової медицини українською мовою, зокрема тих, що містяться в протоколах невідкладної допомоги та настановах з тактичної допомоги пораненим у бою (TCCC). У дослідженні підкреслюється роль граматичних трансформацій, таких як модуляція, транспозиція, зміна пасивного стану на активний, стиснення/розширення іменних словосполучень, герундій та інфінітив, у збереженні змісту та комунікативного навантаження вихідного тексту при дотриманні синтаксичних та стилістичних норм мови перекладу. Порівняльний аналіз автентичних англomовних та україномовних версій кризової медичної документації показав, що герундіальні конструкції є найбільш часто трансформованими структурами, що становлять 40,7% від усіх спостережуваних граматичних змін. Інші значні трансформації включають пасивний стан (23,4%), інфінітиви (18,6%), транспозицію (9,5%), модуляцію (5%), перебудову іменної фрази (5,1%) та зміну порядку слів (2,7%). Кожен тип трансформації слугує для підвищення ясності, збереження директивної функції та забезпечення зрозумілості у складних медичних контекстах. Отримані результати підтверджують, що точний переклад дискурсу кризової медицини вимагає не лише лексичної еквівалентності, але й уміння перекладача застосовувати функціональні граматичні стратегії. Дослідження сприяє систематизації перекладацьких практик в українському медичному дискурсі та підкреслює необхідність подальшого вивчення підготовки перекладачів і проведення корпусних досліджень у галузі тактичної медицини.

Ключові слова: кризова медицина, граматична трансформація, герундій, інфінітив, модуляція, TCCC, транспозиція, пасивний стан, екстрена комунікація.