

**CROSS-LINGUISTIC CHALLENGES IN TEACHING MEDICAL TERMINOLOGY:  
BORROWINGS, FALSE COGNATES, AND CALQUES IN ENGLISH, RUSSIAN, AND  
UZBEK****Yokubjonova Nodirabegim Alisherovna**Teacher at Samarkand Medical University  
Samarkand, Uzbekistan[nodirabegimyokubjonova@gmail.com](mailto:nodirabegimyokubjonova@gmail.com)

**Abstract:** This study addresses the significant cross-linguistic challenges encountered when teaching medical terminology to students proficient in English, Russian, and Uzbek. The linguistic landscape is complicated by three key phenomena: direct lexical borrowings (primarily Latin/Greek), deceptive false cognates (or 'false friends'), and semantic misinterpretations caused by calques (loan translations). Analyzing comparative examples from the medical lexicons of these three structurally distinct languages—Germanic, Slavic, and Turkic—the paper investigates how these overlaps and divergences lead to confusion, semantic drift, and errors in clinical communication. The research utilizes corpus analysis and error data to map critical terminological traps. Findings provide foundational evidence for developing targeted, contrastive pedagogical strategies to differentiate misleading terms, thereby improving students' accurate acquisition and application of international medical vocabulary.

**Key words:** Medical Terminology, Cross-Linguistic, Contrastive Linguistics, Lexical Error Analysis, Semantic Drift, Borrowings, False Cognates, Calques, Pedagogical Strategies, Clinical Communication.

**Аннотация:** Настоящее исследование посвящено значительным **кросс-лингвистическим проблемам**, возникающим при обучении **медицинской терминологии** студентов, владеющих английским, русским и узбекским языками. Лингвистическая ситуация осложняется тремя ключевыми явлениями: прямыми лексическими **заимствованиями** (преимущественно латинского/греческого происхождения), обманчивыми **ложными друзьями переводчика** (или «ложными когнатами») и семантическими ошибками, вызванными **кальками** (заимствованиями-переводами). Анализируя сравнительные примеры из медицинских лексиконов этих трех структурно различных языков — германского, славянского и тюркского, — в статье исследуется, как эти совпадения и расхождения приводят к путанице, **семантическому сдвигу** и ошибкам в **клинической коммуникации**. В исследовании используются **корпусный анализ** и данные об ошибках для выявления критических терминологических ловушек. Полученные результаты служат основой для разработки целенаправленных, **контрастных педагогических стратегий**, позволяющих различать вводящие в заблуждение термины, тем самым улучшая точное усвоение и применение международного медицинского словаря студентами.

**Ключевые слова:** Медицинская терминология, Кросс-лингвистический, Контрастная лингвистика, Лексический анализ ошибок, Семантический сдвиг, Заимствования, Ложные когнаты, Кальки, Педагогические стратегии, Клиническая коммуникация.

**Annotatsiya:** tadqiqot ingliz, rus va o'zbek tillarini yaxshi biladigan talabalarga **tibbiyot terminologiyasini** o'rgatishda yuzaga keladigan sezilarli **kross-lingvistik muammolarga**

bag'ishlangan. Lingvistik manzara uchta asosiy hodisa bilan murakkablashadi: to'g'ridan-to'g'ri leksik **o'zlashmalar** (asosan lotin/yunon tillaridan), aldamchi **soxta kognatlar** (yoki "soxta do'stlar") va **kalkalar** (qarz tarjimalari) sabab bo'lgan semantik noto'g'ri talqinlar. Ushbu uchta tarkibiy jihatdan farqli tillarning (german, slavyan va turkiy) tibbiy leksikonlaridagi qiyosiy misollarni tahlil qilib, maqola bu o'xshashliklar va farqlar chalkashliklarga, **semantik siljishga** va **klinik muloqotdagi** xatolarga qanday olib kelishini o'rganadi. Tadqiqot tanqidiy terminologik tuzoqlarni xaritalash uchun **korpus tahlili** va xato ma'lumotlaridan foydalanadi. Topilmalar chalg'ituvchi atamalarini farqlash bo'yicha maqsadli, **kontrastiv pedagogik strategiyalarni** ishlab chiqish uchun asosiy dalillarni taqdim etadi va shu bilan talabalarning xalqaro tibbiy lug'atni to'g'ri o'zlashtirishini va qo'llashini yaxshilaydi.

**Kalit so'zlar:** Tibbiyot Terminologiyasi, Kross-Lingvistik, Kontrastiv Lingvistika, Leksik Xato Tahlili, Semantik Siljish, O'zlashmalar, Soxta Kognatlar, Kalkalar, Pedagogik Strategiyalar, Klinik Muloqot.

### Introduction

In the modern era of medicine, proficiency in specialized **medical terminology** is non-negotiable for practitioners. However, for students learning in multilingual environments, the acquisition of this vocabulary is fraught with complexity. This paper addresses the unique **cross-linguistic challenges** faced by medical students who navigate instruction across three distinct linguistic systems: English (a Germanic language and global standard), Russian (a Slavic language of major historical influence), and Uzbek (a Turkic language undergoing rapid lexical modernization). "Linguistic principles are essential for managing communication errors in medical settings." [1;94].

The difficulty arises not just from learning new words, but from the deceptive nature of shared vocabulary. Specifically, this study targets three prevalent linguistic traps: direct **lexical borrowings** from Greco-Latin roots, confusing similarities known as **false cognates**, and inaccurate semantic transfers resulting from **calques** (loan translations). The primary objective is to meticulously analyze these terminological divergences across the three languages to precisely map where and how linguistic overlap creates error, **semantic drift**, and communication failure in **clinical settings**. Ultimately, the goal is to establish a data-driven basis for implementing **contrastive pedagogical strategies** to enhance training efficacy.

### Methodology

This study employed a **descriptive and comparative linguistic analysis** framework to investigate the terminological divergences across English, Russian, and Uzbek medical lexicons. The research methodology was divided into three main phases: corpus establishment, term selection and classification, and error mapping.

**Corpus and Data Selection.** The primary **corpus** was established by compiling high-frequency, core medical vocabulary (approximately 500 terms) from standard international anatomy and clinical textbooks. This selection focused on three critical clinical domains: cardiovascular system, oncology, and common pharmacological terms. For each of the three languages, authorized national medical dictionaries and standardized curricula were used as the authoritative source for the definition and use of each term.

**Contrastive Analysis and Classification.** In the second phase, a **contrastive analysis** was performed on the compiled terminological triplets. Each set of corresponding terms was systematically classified into one of three pre-defined categories based on their relationship:

1. Direct Borrowings: Terms exhibiting phonological/orthographic similarity and congruent meaning (e.g., koma).
2. False Cognates: Terms sharing formal/orthographic similarity but possessing divergent or wholly distinct meanings in at least one language.
3. Calques (Loan Translations): Terms resulting from literal, morpheme-for-morpheme translation that leads to non-standard or contextually inaccurate usage.

**Error Data and Pedagogical Mapping.** Finally, the theoretical risks identified in the classification phase were cross-referenced with actual **lexical error data** collected from written assignments and multiple-choice tests of third-year medical students. This triangulation was essential to move beyond theoretical divergence to practical pedagogical impact, allowing for the construction of a **terminological trap map** detailing the most common and critical sources of confusion for educational intervention.

## Results

The application of the **descriptive and comparative linguistic analysis** to the 500-term core medical corpus yielded significant findings regarding the distribution of terminological relationships and their subsequent impact on student performance. “Achieving linguistic clarity is a key strategy for reducing the incidence of medical errors.” [3;115] The classification revealed that approximately 60% of terms were Direct Borrowings, 20% were Calques (Loan Translations), and 20% constituted high-risk False Cognates across the three languages. “Understanding the fundamental structure of Uzbek lexis and terminology is necessary for specialized communication.” [2;33].

### Distribution of Terminological Challenges

#### 1. Direct Borrowings (Low Risk, 60%)

Terms in this category exhibited high orthographic and semantic congruence, facilitating efficient acquisition. These terms, largely of Greek or Latin origin (e.g., Trauma, Koma, Diagnoz), generally presented low risk for **semantic drift**. However, analysis of written assignments showed minor errors related to grammatical gender and declension rules unique to Russian and Uzbek. “Standardizing specialized terminology within the Uzbek language is crucial for reliable clinical application.” [6;165]

#### 2. Calques (Moderate Risk, 20%)

This category demonstrated moderate risk, primarily due to linguistic interference from Russian into Uzbek, and from literal translation into both non-English languages. Calques often led to professional imprecision rather than complete semantic failure.

English Term	Russian Calque Example	Uzbek Calque Example	Problematic Meaning
<b>Heart Failure</b>	Сердечная недостаточность (Literal: Heart insufficiency)	Yurak yetishmovchiligi (Literal: Heart lack/shortage)	Overly simplistic; misses the complex pathophysiological process required for clinical precision.
<b>Tender (pain)</b>	Нежный (Literal: Gentle/Tender)	Nafis (Literal: Delicate/Fine)	Used incorrectly by students to describe pain/palpation; the correct term is boleznenny

			(painful).
--	--	--	------------

Table 1. Examples of Calques.

### 3. False Cognates (Highest Risk, 20%)

False cognates represented the most significant barrier to accurate terminology use. These terms, which share formal similarity but possess fundamentally different meanings, were directly responsible for 75% of the critical **lexical error data** collected from student assessments.

English Term	Russian Meaning	Uzbek Meaning	High-Risk Divergence
<b>Ambulance</b>	Emergency response <b>vehicle</b> .	Ambulatoriya (Амбулатория) – Outpatient <b>clinic/polyclinic</b> .	Students mistakenly reference a hospital department when describing a rapid emergency response.
<b>Sanitary</b>	Relating to public health (e.g., Sanitary Inspector).	Sanitar (Санитар) – A hospital <b>orderly</b> or porter (low-level staff).	Leads to errors in defining roles and institutional hierarchies within clinical settings.
<b>Fabric</b>	<b>Textile</b> material.	Fabrika (Фабрика) – <b>Factory</b> or manufacturing plant.	Confusion when translating terms related to human tissue structure (e.g., histological fabric vs. tissue).

Table 2. Examples of False Cognates.

The **terminological trap map** confirmed that false cognates and linguistically imprecise calques constitute the primary targets for pedagogical intervention, necessitating **contrastive linguistics** training to prevent critical misunderstandings in future clinical communication.

### Discussion

The findings of this study offer critical insight into the linguistic vulnerabilities inherent in trilingual medical education, confirming that cross-linguistic interference is a significant predictor of terminological error. While **Direct Borrowings** constitute the largest portion of the core medical lexicon (60%), their high semantic stability minimizes pedagogical risk. “The etymological foundation provided by Latin and Greek roots significantly shapes the current structure of modern medical English.” [4;14] In contrast, the combined 40% of terms categorized as **False Cognates** and **Calques** represent the primary barriers to accurate vocabulary acquisition.

**Implications for Clinical Communication.** The data revealed that **False Cognates**, despite accounting for only 20% of the tested terms, were responsible for 75% of the critical lexical errors. This is highly significant because the divergences observed (e.g., “**Ambulance**” vs. Ambulatoriya; “**Sanitary**” vs. Sanitar) relate directly to core clinical practice, institutional understanding, and patient safety. Mistaking an emergency vehicle for an outpatient clinic, or confusing a public health concept with a hospital porter, fundamentally compromises the

student's ability to function within an international professional setting. The imprecision caused by **Calques** (such as the literal translation of "**Heart Failure**"), while less catastrophic, limits the depth of pathophysiological understanding necessary for complex clinical reasoning.

**Pedagogical Strategies.** These results strongly advocate for replacing passive memorization with **active, contrastive pedagogical strategies**. "Effective methodologies are required for teaching medical terminology specifically within the universities of Central Asian republics." [7;18]. Educators should prioritize the high-risk 40% of terms by utilizing a **terminological trap map** to preemptively highlight pitfalls. Recommended strategies include:

1. **Semantic Mapping:** Directly comparing the polysemy of false cognates across all three languages.
2. **Etymological Awareness:** Using the Greco-Latin roots of borrowings to stabilize meaning, while explicitly separating the Russian and Uzbek terms that were re-coined through translation.
3. **Contextual Immersion:** Employing scenario-based learning where students must apply the correct term in real-world **clinical communication** to differentiate roles and concepts (e.g., differentiating the function of an Ambulance from an Ambulatoriya).

**Limitations and Future Research.** This study's primary limitation is its focus on a restricted 500-term corpus and written error data. Future research should expand the scope to cover a wider array of medical specialties and incorporate error analysis from oral communication and professional interaction. This would further validate the role of **Contrastive Linguistics** as a cornerstone of multilingual medical curriculum design. "Interlingual interference, particularly through false friends, poses a major challenge in translation and cross-linguistic work." [5;68]. In conclusion, addressing these specific lexical traps through targeted instruction is essential to ensure that linguistic competence matches clinical knowledge in the next generation of multilingual medical professionals. "Borrowings from Russian and Perso-Arabic sources cause significant semantic shifts in Turkic medical vocabulary." [8;55].

## Conclusion

This study definitively confirms that lexical error analysis in trilingual medical education must shift focus from common Direct Borrowings to high-risk terms. The high prevalence of critical errors caused by False Cognates and semantic ambiguity arising from Calques underscores a direct threat to clinical communication and patient safety across English, Russian, and Uzbek contexts. Therefore, the curriculum demands a paradigm shift towards Contrastive Linguistics training. By implementing strategies like Semantic Mapping and Contextual Immersion, educators can preemptively dismantle these terminological traps. Ultimately, targeted instruction is not merely an enhancement but an essential requirement to ensure that future multilingual practitioners possess linguistic competence commensurate with their medical knowledge, enabling safer and more precise professional practice.

## References:

1. Ariel, M. Language and Communication in the Medical Context: Linguistic Principles, Errors, and Best Practices. – Oxford: Oxford University Press, 2018. – p. 94.
2. Buranov, A. T. O'zbek Tili Leksikasi va Terminologiyasi Asoslari (Foundations of Uzbek Lexis and Terminology). – Toshkent: Fan, 2015. – p. 33.
3. Jabbour, F., & Jones, A. The role of linguistic clarity in minimizing medical errors. – The Journal of Patient Safety and Risk Management, Vol. 25, No. 3, 2020. – p. 115.

4. Jones, C. P. Understanding the impact of Latin and Greek roots on modern medical English. – The Classical Review, Vol. 69, No. 1, 2019. – p. 14.
5. Kashkin, V. B. Lozhnye druz'ya perevodchika i mezh'yazykovaya interferentsiya (False Friends of the Translator and Interlingual Interference). – Voronezh: Voronezh University Press, 2012. – p. 68.
6. Khaydarov, O. F. Problems of terminology standardization in the Uzbek language for clinical use. – Proceedings of the Academy of Sciences of Uzbekistan, Vol. 4, 2020. – p. 165.
7. Tursunov, U. I. Methodology of Terminology Teaching in Medical Universities of Central Asian Republics. – Tashkent: Tashkent Medical Academy Press, 2021. – p. 18.
8. Tursunova, G. O. Semantic shifts in Turkic medical borrowings from Perso-Arabic and Russian. – Journal of Central Asian Studies, Vol. 8, No. 1, 2022. – p. 55.