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THE TRANSLATABILITY OF MEDICAL TERMINOLOGY FROM ENGLISH TO GREEK: LINGUISTIC, CULTURAL, AND TECHNOLOGICAL DIMENSIONS

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ABSTRACT

Medical terminology represents a historically rich and highly systematized domain of specialized language, shaped by the enduring influence of Greek and Latin as well as by contemporary English-dominated scientific discourse. This article examines the translatability of medical terminology from English into Greek through four complementary dimensions: linguistic, conceptual, cultural, and technological. Drawing on terminology theory, translation studies, and corpus-based approaches, the analysis highlights the morphological asymmetries between English and Greek, the semantic divergences that challenge strict term-to-term correspondences, and the cultural-ethical nuances embedded in concepts such as informed consent and palliative care. Special attention is given to the phenomenon of "reverse translation," in which English medical terms of Greek etymology acquire new meanings that do not always align with their historical roots. The study also evaluates the role and limitations of contemporary translation technologies—terminology databases, Computer-Assisted Translation (CAT) tools, neural machine translation, and Artificial Intelligence (AI)-driven semantic systems—particularly in relation to Greek, a language underrepresented in multilingual biomedical resources. The article proposes a context-sensitive model of medical translation that integrates linguistic expertise, conceptual knowledge, cultural mediation, and critical technological literacy. The findings underscore the translator's role as a terminological curator and interdisciplinary mediator, essential for ensuring precision, consistency, and cultural relevance in Greek medical terminology within a globalized scientific environment.

Keywords: Conceptual Equivalence; Greek Medical Terminology; Medical Translation; Semantic Divergence; Specialized Discourse; Terminology Management; Translation Technology

1. INTRODUCTION

Medical terminology constitutes one of the most systematized and historically layered domains of specialized language. Far beyond a mere collection of technical expressions, it represents a linguistic reflection of medical knowledge, conceptual evolution, and cultural continuity across centuries. The Greek language has played a fundamental role in shaping this lexicon: from Hippocratic and Galenic writings to later Latin translations, Greek morphemes and semantic models have profoundly influenced the structure of international medical vocabulary (Jouanna, 2012; Nutton, 2013).

In contemporary contexts, however, translating medical terminology from English into Greek is far from a straightforward lexical substitution. English—now the dominant lingua franca of global medicine—often reshapes classical Greek roots through modern scientific usage, semantic innovation, and technological mediation. This creates complex translational

Vol. 05, No. 04; 2026
ISSN: 2583-6560

dynamics, where established etymology coexists with layers of terminological modernization. As Baker (2018) and Pym (2010) note, translation requires reconciling conceptual precision with communicative functionality, particularly in specialized domains.

The present study explores the translatability of medical terminology between English and Greek through linguistic, cultural, and technological lenses. Drawing on terminological theory (Cabré, 1999; Wüster, 1991), sociocognitive models (Temmerman, 2000), and corpus-based approaches (Bowker & Pearson, 2002), it examines how translators navigate two languages historically intertwined yet shaped by different trajectories of scientific discourse. Recent research on Greek medical terminology (Moumouri, 2021; Anastasiadis-Symeonidis, 1994) and international terminology standards (ISO 704:2009; ISO 1087:2019) further illuminates the challenges and strategies involved.

By integrating insights from terminology studies, translation theory, linguistic analysis of medical language and technological developments such as Neural Machine Translation (NMT) (Koehn, 2020; Michon et al., 2020), this paper aims to provide a comprehensive model of how medical terminology can be effectively transferred from English into Greek. The analysis ultimately underscores the need for interdisciplinary competence, cultural sensitivity, and methodical standardisation in the translation of medical terms.

2. HISTORICAL AND LINGUISTIC BACKGROUND

The foundations of Western medical terminology are deeply rooted in the linguistic and conceptual traditions of ancient Greek and Latin. Greek medical writings—particularly those attributed to Hippocrates and later to Galen—introduced systematic descriptive models and nomenclatural patterns that shaped the early scientific vocabulary of medicine (Jouanna, 2012; Nutton, 2013). These texts emphasized analogical reasoning, morphological transparency, and conceptual precision, characteristics that would later influence Latin translations during late antiquity and the medieval period (Lloyd, 1983). Through this transmission, Greek morphemes, semantic structures, and taxonomic principles became embedded in the medical lexicons of European languages.

Many contemporary international medical terms still reflect this historical continuity. Words such as cardiology, dermatitis, nephrology, and gynecology are constructed from Greek roots (kardia, derma, nephros, gynē), combined with Latinized morphological endings. Their survival and productivity illustrate what Sigerist (1951) describes as the “classical stratum” of medical vocabulary—an inherited system that modern scientific terminology continues to draw upon. Lexicographical resources such as MeSH (National Library of Medicine, 2022) and Dorland’s Illustrated Medical Dictionary consistently document the persistence of this Greco-Latin morphological architecture across domains.

In English, these elements evolved into highly productive word-formation units, generating vast networks of terms through processes of derivation and compounding. For translators working from English into Greek, this historical interconnection creates a unique phenomenon: what may be described as “reverse translation” (Anastasiadis-Symeonidis, 1994). Many English medical terms originate etymologically from Greek but have undergone semantic specialization, conceptual extension, or pragmatic adaptation within modern English. As a result, the translator has to evaluate not only the original Greek root but also its contemporary English usage, ensuring both diachronic continuity and synchronic accuracy.

Vol. 05, No. 04; 2026
ISSN: 2583-6560

This duality requires an integrated linguistic perspective. As Cabré (1999) and Kageura (2002) argue, terminological systems grow through predictable morphological patterns but also through socio-cognitive factors that reshape conceptual categories over time. Greek medical terminology, therefore, reflects both its ancient legacy and its ongoing modernization within global scientific discourse. Recognizing these historical and linguistic dynamics is essential for achieving conceptual precision and terminological consistency in translation.

3. MORPHOLOGICAL AND SEMANTIC STRUCTURE OF MEDICAL TERMS

Medical terminology demonstrates a high degree of morphological systematization, relying extensively on derivation, compounding, abbreviation, and semantically motivated structures. Understanding these mechanisms is crucial for translators working between English and Greek, especially given the shared historical morphology but diverging contemporary usage.

3.1 Derivation

Derivational morphology constitutes one of the most productive processes in the formation of medical terms. Greek affixes such as hyper-, hypo-, dys-, neo-, and the suffix -itis retain stable and transparent meanings across languages and are widely used in English medical terminology (Crystal, 2010; Bauer, 2017). Examples such as hypertension → υπέρταση and hepatitis → ηπατίτιδα derive from morphemes that are semantically consistent, allowing translators to maintain structural and conceptual equivalence.

Nevertheless, derivation can sometimes yield divergent meanings due to semantic specialization in modern English. For instance, dysfunction may refer to physiological or psychological impairment depending on the context, requiring the translator to evaluate conceptual usage rather than rely solely on morphological analogy (Felber, 1984; ISO 1087:2019). For Greek, the challenge often lies in aligning inherited morphemic patterns with contemporary clinical usage, ensuring that etymological familiarity does not overshadow terminological accuracy.

3.2 Compounding

Compounding is another central mechanism in medical terminology, responsible for the creation of highly complex multi-root terms. English and Greek share parallel compounding structures due to their common classical heritage. Terms such as cardiomyopathy → καρδιομυοπάθεια or neurodegeneration → νευροεκφύλιση exemplify this formal alignment.

However, the two languages differ in their preferred syntactic realizations. English frequently employs compact synthetic compounds (e.g., heart-failure management), whereas Greek often requires analytic paraphrastic constructions (e.g., αντιμετώπιση καρδιακής ανεπάρκειας) (Booij, 2012; Lieber, 2016). These structural asymmetries mean that formal equivalence is not always feasible, and the translator must choose between morphological fidelity and syntactic naturalness.

The principles outlined in the Grammar of Words (Booij, 2012) and Ralli's (2019) detailed analysis of Greek compounding confirm that morphological transparency is crucial for terminological clarity, especially in specialized domains such as medicine.

Vol. 05, No. 04; 2026
ISSN: 2583-6560

3.3 Abbreviation

Abbreviations and acronyms—such as MRI (Magnetic Resonance Imaging), COPD (Chronic Obstructive Pulmonary Disease), ECG (Electrocardiogram), and HbA1c (Hemoglobin A1c) - constitute a highly dynamic and internationally standardised subsystem of medical communication. Their widespread use in clinical practice and biomedical literature reflects the need for efficiency and linguistic economy, but they often pose translation challenges.

In Greek medical discourse, the English acronym is frequently retained, while the full form is translated (e.g., MRI → απεικόνιση μαγνητικού συντονισμού), mirroring patterns documented in international style manuals such as the AMA Manual of Style (2020). ISO 704:2009 also emphasizes the importance of preserving international communicability while ensuring conceptual clarity in the target language.

However, the translator must verify whether Greek equivalents exist in standardised medical resources such as Medical Subject Headings (MeSH) (2022), the Unified Medical Language System (UMLS), or the International Classification of Diseases, 11th Revision (ICD-11) (WHO, 2022). When local usage diverges from international norms, consulting specialized corpora (Bowker & Pearson, 2002) becomes essential for selecting the most appropriate term.

3.4 Semantic Aspects

Medical terminology is traditionally designed to be mono-referential, ensuring a one-to-one relationship between term and concept. However, semantic variation can arise due to metaphorical extensions, register-specific adaptations, and the pragmatic needs of clinical communication (Felber, 1984; ISO 1087:2019).

Terms such as disease, condition, and disorder demonstrate overlapping but non-identical semantic fields in English, differences that must be carefully evaluated when translating into Greek (νόσος, πάθηση, διαταραχή). Greek medical lexicology (Anastasiadis-Symeonidis, 1994) highlights the importance of conceptual precision, especially because semantic inconsistency can influence patient comprehension and clinical accuracy.

Furthermore, the evolution of medical terminology through technological innovation -such as genomics, telemedicine, or immunotherapy - introduces new semantic categories that require alignment with both international standards and Greek linguistic norms (Kageura, 2002; Wüster, 1991).

Ultimately, semantic interpretation in medical translation involves balancing strict terminological equivalence with contextual appropriateness, ensuring coherence at both the conceptual and communicative levels.

4. TERMINOLOGICAL BORROWING AND EQUIVALENCE

Borrowing is a defining feature of medical terminology, reflecting both the historical depth and the globalized evolution of scientific discourse. In the interaction between English and Greek, borrowing processes are especially complex: Greek is simultaneously the historical source-language for a vast portion of international medical vocabulary and a modern recipient of English scientific terminology. This bidirectional flow creates multilayered forms of equivalence, neology, and standardisation that translators have to navigate carefully.

Vol. 05, No. 04; 2026
ISSN: 2583-6560

4.1 Internal and External Borrowing

Internal borrowing refers to the creation of new Greek terms using native morphological resources, often through recombination of classical morphemes. Examples involve formations such as κύτταρο → κυτταρολογία, where Greek morphological productivity aligns closely with international scientific practice (Haugen, 1950; Anastasiadis-Symeonidis, 1994).

External borrowing, by contrast, describes the incorporation of English forms into Greek, either directly (bypass, laser, stent) or through adapted hybrid structures. Hybridization is particularly common in clinical practice, where English terms circulate rapidly due to globalized research publication and medical device nomenclature (Haspelmath, 2009; Galstyan & Abrahamyan, 2017).

Moumouri (2021) highlights that Greek medical terminology increasingly involves a negotiation between preserving linguistic heritage and ensuring communicative alignment with international clinical usage. Translators must therefore assess not only the linguistic origin but also the institutional and professional acceptance of borrowed forms.

4.2 Internationalisms and Calques

Internationalisms - terms that exhibit cross-linguistic stability in form and meaning - play a crucial role in facilitating translation accuracy. Terms such as anemia, pneumonia, diabetes, and cardiomegaly demonstrate high degrees of formal equivalence with their Greek counterparts (αναιμία, πνευμονία, διαβήτης, καρδιομεγαλία), owing to their shared classical etymology (Wüster, 1991; Sager, 1990).

Calques, however, require more interpretive intervention. Expressions such as *magnetic resonance imaging* → *apeikonisi magnitikou syntonismou* (απεικόνιση μαγνητικού συντονισμού) exemplify concept-focused translation in which morphological fidelity must support terminological precision. As Ralli (2019) notes, Greek compounding follows specific structural and semantic constraints that guide the formation and interpretation of complex scientific terms, making accurate calquing dependent on both conceptual alignment and adherence to Greek morphological conventions (ISO 704:2009). The translator's task is therefore not only to secure semantic equivalence but also to ensure alignment with established usage in diagnostic guidelines and clinical practice, as emphasized in medical-translation scholarship (Montalt & Davies, 2007) and in authoritative terminological frameworks such as WHO (2022) and MeSH (2022).

4.3 Neologisms and Innovation

Neologism is a key mechanism through which Greek engages with emerging scientific domains. Terms such as νεοπλασία, γονιδιωματική, and ανοσοθεραπεία demonstrate how Greek morphological resources continue to generate lexemes that integrate seamlessly into international medical discourse (Rey, 1995; Cabré, 2003).

As Kageura (2002) notes, neology functions both descriptively and prescriptively: it reflects the conceptual expansion of the field while also shaping the terminological norms that future translators and clinicians will adopt. Greek's ability to form semantically transparent neologisms reinforces its historical status as a lexifier language in medicine, even as it adapts to English-dominated scientific communication.

Vol. 05, No. 04; 2026
ISSN: 2583-6560

4.4 Translational Equivalence

Translational equivalence in medical terminology extends beyond one-to-one lexical correspondences. It requires the alignment of conceptual structures, register, and usage conventions between languages. Terms such as disorder, condition, malignancy, or lesion often have multiple potential Greek equivalents (διαταραχή, πάθηση, κακοήθεια, βλάβη), and selection depends heavily on clinical context, semantic granularity, and audience (Nord, 2005; Chesterman, 2016).

Moreover, Pym (2010) emphasizes that equivalence in specialized translation is fundamentally functional: the success of a term depends on its ability to maintain communicative coherence in the target culture. As a result, translators have to often balance terminological conservatism with modern usage, relying on corpus evidence, clinical discourse, and standardised terminologies (MeSH, ICD-11).

4.5 Standardisation

Standardisation promotes terminological consistency, interoperability of medical records, and accuracy in clinical communication. International frameworks such as ISO 704:2009 and ISO 860:2007 stress the importance of harmonizing concepts and maintaining transparent term–concept relationships across languages.

In the medical field, standardisation is largely driven by institutional bodies such as the World Health Organisation (WHO, 2022), the National Library of Medicine (MeSH), and the International Health Terminology Standards Development Organisation (IHTSDO). These systems often present challenges for Greek, which remains underrepresented in multilingual terminology databases (Bowker, 2020; Michon et al., 2020). Translators must therefore act as terminological mediators, ensuring that Greek equivalents are conceptually aligned and consistent with global standards while preserving linguistic integrity.

Standardisation does not aim at homogenization but at conceptual precision. As Wüster (1991) and Sager (1990) underline, smaller linguistic communities benefit from terminological harmonization that respects local morphological and semantic norms while supporting international communicability—an especially relevant balance for Greek.

5. TRANSLATIONAL CHALLENGES BETWEEN ENGLISH AND GREEK

Translating medical terminology between English and Greek involves navigating a series of linguistic, semantic, cultural, and technological challenges. Although the two languages share deep historical ties through their common classical heritage, their modern medical discourses evolve within different socio-linguistic ecosystems. As a result, equivalence is seldom straightforward. The translator must evaluate morphology, conceptual nuance, register, and institutional norms to produce accurate and functionally appropriate renderings.

5.1 Morphological Asymmetries

Morphological structure is one of the most significant areas of divergence between English and Greek. English favors synthetic compounding and allows for long, densely packed conceptual units—heart-failure prevention strategies, drug-resistant tuberculosis management, evidence-based practice guidelines. Greek, however, typically employs more analytic syntactic patterns (πρόληψη καρδιακής ανεπάρκειας, αντιμετώπιση φυματίωσης ανθεκτικής στα φάρμακα), reflecting the language's preference for clearer structural parsing (Ralli, 2019; Lieber, 2016).

Vol. 05, No. 04; 2026
ISSN: 2583-6560

These asymmetries complicate direct translation. Greek compounding, though historically rich, operates within different morphological constraints than English (Anastasiadis-Symeonidis, 1994). Excessive loan translations of English compound structures can lead to unnatural or opaque forms. Therefore, translators must often prioritize syntactic naturalness in Greek over strict morphological mirroring.

5.2 Semantic Divergence and Conceptual Precision

Medical terminology aspires to conceptual clarity, yet semantic divergence across languages is common. Terms such as disease, illness, condition, disorder do not map perfectly onto Greek equivalents (νόσος, πάθηση, διαταραχή, κατάσταση) (Felber, 1984; ISO 1087:2019). In many cases, usage depends on clinical context, degree of formality, and diagnostic specificity.

Similarly, English terms often undergo metaphorical or register-based shifts—acute, chronic, terminal, benign—which may acquire broader connotations in non-specialist discourse. Nord (2005) emphasizes that translators must account for such pragmatic layers, especially when Greek medical terminology tends to maintain stricter denotative boundaries.

Inconsistency can also affect clinical communication. Evidence from Greek cross-cultural adaptation studies shows that even minor semantic deviations in translated health measures can lead to patient misunderstanding. Research on the adaptation and validation of Greek versions of clinical questionnaires illustrates how small discrepancies between source language and target language terms can disrupt comprehension, underscoring the need for terminological precision grounded in both linguistic and clinical expertise (Tailachidis et al., 2016; Beaton et al., 2000).

5.3 Cultural and Ethical Mediation

Certain medical terms encode cultural, institutional, or ethical frameworks that do not transfer directly between languages. Concepts such as palliative care, informed consent, or advance healthcare directives reflect Anglo-American medical-ethical traditions and legal standards. Greek healthcare discourse conceptualizes these ideas within a different cultural and regulatory landscape (Beauchamp & Childress, 2019; European Council on Bioethics, 2018).

For example, the English term *informed consent* encompasses procedural, ethical, and legal dimensions that do not fully correspond to the Greek term *enimeromeni synainesi* (ενημερωμένη συναίνεση), which expresses a similar intention but operates within a distinct institutional, legal, and professional framework. As noted in both international bioethics (Beauchamp & Childress, 2019) and Greek medical-ethical guidelines (Kyriazis, 2018), consent practices are deeply shaped by national legislation and culturally embedded norms. From a translation perspective, these discrepancies require not merely linguistic transfer but cultural and conceptual mediation, particularly in specialized medical discourse where institutional practices influence terminology choice (Montalt & Davies, 2007).

5.4 Register Variation and Audience Adaptation

Medical texts vary substantially in register—from highly technical publications to patient-centered informational materials. English often condenses information through dense nominalizations (atherosclerotic burden, pharmacological intervention), whereas Greek tends

Vol. 05, No. 04; 2026
ISSN: 2583-6560

to prefer clearer syntactic expansions (βαθμός αθηροσκλήρυνσης, φαρμακευτική παρέμβαση) (Halliday, 2004; Gotti, 2011).

The translator must align terminology with the target audience:

- Scientific audience → high terminological density (*αθηροσκλήρυνση, μηνιγγοεγκεφαλίτιδα*).
- Patient-facing materials → simplified structures (*σκλήρυνση των αρτηριών, φλεγμονή του εγκεφάλου και των μηνίγγων*).

Failure to adapt register can make texts either inaccessible to patients or insufficiently precise for clinicians. Montalt & Davies (2007) emphasize that translation strategies must be audience-specific and purpose-driven.

5.5 Technological Mediation and Machine Translation Limitations

Technological systems increasingly mediate medical translation, yet they present significant challenges, especially for highly inflected languages like Greek. Neural Machine Translation (NMT) engines frequently misinterpret morphological markers, leading to errors in case, gender, verb agreement, and term–concept alignment (Koehn, 2020; Zheleva & Petrova, 2019).

Issues commonly observed include:

- misrendering of compounds (*immunocompromised → ανοσο-«συμβιβασμένος»*),
- incorrect lexical choices (*condition → κατάσταση* even when *πάθηση* is required),
- literal calques resulting in unnatural Greek constructions.

Although CAT tools and terminology databases (UMLS, MeSH, ICD-11) enhance consistency, Greek remains underrepresented in multilingual terminological resources, limiting the effectiveness of automated term alignment (Bowker, 2020; Michon et al., 2020).
Consequently, expert human oversight is indispensable. Translators have to function as terminological curators, ensuring conceptual accuracy, cultural appropriateness, and linguistic naturalness despite technological constraints.

6. THE ROLE OF TECHNOLOGY IN TERMINOLOGY TRANSLATION

Technology has profoundly transformed the practice of medical translation, reshaping how terminology is accessed, validated, and integrated into multilingual clinical communication. For language pairs such as English–Greek, where historical ties coexist with modern divergences, technological tools provide unprecedented resources but also introduce significant challenges. Effective use of these tools requires a thorough understanding of their capabilities, limitations, and implications for terminological accuracy.

6.1 Terminology Databases and Knowledge Systems

Modern terminological databases—such as UMLS, MeSH, IHTSDO, and the ICD-11 classification—offer structured conceptual frameworks that facilitate translation consistency and interoperability between healthcare systems (WHO, 2022; National Library of Medicine, 2022). These resources allow translators to verify term–concept relations, identify preferred descriptors, and ensure alignment with international standards.
However, Greek remains underrepresented in major multilingual terminology systems, a challenge noted in studies on low-resource languages (Bowker, 2020; Michon et al., 2020). As a result, terminological gaps often require translators to:

Vol. 05, No. 04; 2026
ISSN: 2583-6560

- consult Greek medical corpora or national guidelines,
- establish local equivalents based on concept analysis,
- ensure that innovations remain morphologically and semantically coherent with Greek linguistic norms.

This dual task—consulting international databases while compensating for Greek's limited presence—illustrates the translator's role as both linguistic mediator and terminological developer.

6.2 Computer-Assisted Translation Tools

CAT tools such as SDL Trados, MemoQ, and Wordfast support the translation process by providing translation memories, glossaries, and automatic term recognition. In the context of medical translation, they contribute to:

- consistency across documents,
- adherence to standardized terminology,
- efficient reuse of domain-specific segments.

Yet their effectiveness depends on the quality of the terminological resources they incorporate. As Bowker & Pearson (2002) argue, corpus-informed termbases are crucial for ensuring that CAT-assisted translation reflects authentic linguistic usage. For Greek, translators often need to build or refine their own termbases to complement and enhance existing medical glossaries.

6.3 NMT and Its Limitations

NMT systems—such as Google Translate, DeepL, and eTranslation—offer remarkable fluency and rapid processing. However, they face challenges when handling medical terminology in languages with rich morphological structures.

Studies indicate that NMT frequently misinterprets Greek inflection, produces literal translations of the source language, or fails to differentiate context-dependent meanings (Koehn, 2020; Zheleva & Petrova, 2019). Common issues include:

- incorrect case and gender agreement,
- improper rendering of English nominal compounds,
- inconsistent translation of polysemous medical terms,
- omission or mistranslation of technical qualifiers.

These challenges arise because NMT systems operate on probabilistic pattern recognition rather than conceptual understanding (O'Hagan, 2020). Consequently, human post-editing remains essential, particularly in medical contexts involving great risk where terminological errors may have clinical implications.

6.4 Artificial Intelligence and Concept-Based Alignment

Recent advances in AI introduce more sophisticated methods of terminology management, including concept-based alignment, semantic clustering, and ontology-guided translation models (Jiménez-Crespo, 2022; Michon et al., 2020). Unlike traditional NMT, these systems aim to map linguistic expressions to underlying medical concepts, offering new possibilities for improved accuracy.

AI-driven tools can:

- identify hierarchical relationships between terms (e.g., *dementia → Alzheimer's disease*),
- detect inconsistencies in multilingual corpora,
- assist in neology by analyzing morphological patterns across languages,
- support terminology extraction from scientific literature.

Vol. 05, No. 04; 2026
ISSN: 2583-6560

Nevertheless, AI systems remain heavily dependent on the availability of high-quality, well-annotated datasets. For Greek, the scarcity of large biomedical corpora limits the performance of advanced semantic models (ELRC Reports 2020–2023). Thus, human experts continue to play a critical role in curating data, validating outputs, and ensuring linguistic and conceptual integrity.

6.5 Human Expertise in the Technological Landscape

Despite technological progress, human translators remain indispensable. As Pym (2010) and Baker (2018) emphasize, translation is not merely linguistic transfer but an interpretive act shaped by conceptual knowledge, ethical sensitivity, and communicative purpose. Medical translation, in particular, requires:

- interpreting clinical context,
- applying register-appropriate terminology,
- ensuring cultural and legal compatibility,
- validating conceptual precision against authoritative sources.

Technology amplifies the translator's capabilities but cannot replace domain expertise. The most effective workflow integrates:

1. Terminology databases for conceptual accuracy,
2. CAT tools for consistency and efficiency,
3. NMT/AI tools for preliminary drafts or terminology suggestions,
4. Expert human oversight for final validation.

Thus, technology should be viewed not as a substitute but as an extension of the translator's cognitive and analytical capacities.

7. DISCUSSION AND IMPLICATIONS FOR TRANSLATORS

The translation of medical terminology from English into Greek represents a multi-layered process that requires linguistic expertise, conceptual understanding, cultural awareness, and technological literacy. Greek occupies a unique position in this landscape: it is both the historical source of much of the world's medical vocabulary and a modern target language adapting to English-dominated scientific communication. This dual identity shapes the translator's responsibilities, strategies, and decision-making processes.

7.1 The Translator as a Terminological Mediator

In medical translation, the translator functions not merely as a linguistic intermediary but as a terminologist, responsible for maintaining conceptual precision and ensuring terminological coherence across contexts. Classical models of terminology work (Cabré, 1999; Wüster, 1991) emphasize systematicity, but contemporary sociocognitive approaches highlight the dynamic and knowledge-dependent nature of terminology (Temmerman, 2000; Krüger, 2016).

For Greek, this mediation is heightened by the historical familiarity of many terms: translators must distinguish between etymological resemblance and actual conceptual equivalence in modern English usage. The phenomenon of "reverse translation" requires a constant balancing of diachronic linguistic heritage with synchronic scientific meaning (Anastasiadis-Symeonidis, 1994; Moumouri, 2021).

7.2 Interdisciplinary Knowledge and Conceptual Competence

Effective medical translation requires an interdisciplinary framework. Translators must navigate:

- complex morphological formations,

Vol. 05, No. 04; 2026
ISSN: 2583-6560

- domain-specific conceptual systems,
- biomedical discourse conventions,
- clinical pragmatics and use-cases.

As Chesterman (2016) and Hurtado Albir (2017) argue, translation competence extends beyond linguistic knowledge and includes cognitive, instrumental, and subject-matter expertise. In the medical domain, this entails familiarity with diagnostic categories, therapeutic procedures, and standardized medical classifications (MeSH, ICD-11, IHTSDO).

Greek translators often need to reconcile international medical frameworks with national clinical practice, requiring collaboration with healthcare professionals, linguists, and terminologists (Galstyan & Abrahamyan, 2017; Montalt & Davies, 2007).

7.3 Ethical and Communicative Responsibility

Medical translation carries ethical implications, as terminological inaccuracy may affect patient comprehension, clinical decision-making, or the quality of healthcare communication. Concepts such as *palliative care*, *informed consent*, and *advance directives* require culturally and legally appropriate rendering (Beauchamp & Childress, 2019; European Council on Bioethics, 2018).

Translators therefore act as ethical agents, ensuring that medical terminology:

- reflects clinical precision,
- supports patient safety,
- respects cultural norms,
- aligns with legal and institutional frameworks.

The challenge lies in adapting terminology for multiple audiences: clinicians, policymakers, and patients. As Nord (2005) underscores, the purpose of translation determines clarity, and terminological density.

7.4 Integrating Technology with Human Expertise

While technology enhances productivity and consistency, it cannot replace expert judgment. The integration of CAT tools, termbases, NMT, and AI-driven semantic technologies requires translators to exercise critical digital literacy (Bowker, 2020; O'Hagan, 2020).

Greek's underrepresentation in multilingual biomedical datasets limits the accuracy of automated systems. Translators must therefore:

- validate terminology through authoritative databases,
- perform concept-based cross-checking,
- detect and correct NMT errors,
- contribute to building high-quality Greek termbanks and corpora.

The most effective workflow is hybrid: humans rely on technology for efficiency but retain responsibility for conceptual accuracy (Pym, 2010; Koehn, 2020).

7.5 A Context-Sensitive Translation Model

Drawing on insights from linguistics, translation theory, and medical terminology studies, a comprehensive model for translating English medical terminology into Greek should integrate four main axes:

1. Linguistic axis

Mastery of morphological, syntactic, and semantic structures of both languages, including compounding patterns, derivational processes, and polysemy (Crystal, 2010; Ralli, 2019).

2. Conceptual axis

Vol. 05, No. 04; 2026
ISSN: 2583-6560

Deep understanding of biomedical concepts, diagnostic categories, and terminological hierarchies (ISO 1087:2019; Kageura, 2002).

3. Cultural-ethical axis

Adaptation of terminology to fit Greek clinical, ethical, and institutional norms, ensuring comprehensibility and cultural resonance (Γαβριηλίδου, 2014; Beauchamp & Childress, 2019).

4. Technological axis

Critical integration of CAT, NMT, and terminology databases, with human oversight ensuring accuracy and naturalness (Bowker & Pearson, 2002; Jiménez-Crespo, 2022).

This multimodal model aligns with contemporary theories of translation competence (Hurtado Albir, 2017) and reflects the realities of modern medical communication.

8. CONCLUSION

The translatability of medical terminology from English into Greek reveals the intricate interplay between linguistic heritage, conceptual innovation, and technological transformation. Greek stands in a unique position: it is not only the historical origin of international medical vocabulary but also a dynamic contemporary language that must integrate rapidly evolving English-mediated scientific knowledge. This dual identity creates both opportunities and challenges for translators, who must balance etymological continuity with modern communicative relevance.

Effective medical translation requires more than morphological recognition or lexical substitution. It demands a nuanced understanding of biomedical concepts, ethical frameworks, and culturally embedded communicative practices. As demonstrated across the analysis, terms that appear formally similar may carry different semantic loads in English and Greek, and culturally sensitive concepts—such as *informed consent* or *palliative care*—must be interpreted within the specific socio-legal context of the Greek healthcare system.

Technological tools, including terminology databases, CAT systems, NMT engines, and AI-based semantic models, have significantly expanded the resources available to translators. Yet their limitations—particularly regarding low-resource languages such as Greek—underscore the continuing necessity of expert human asessment. Technology enhances efficiency, but conceptual validation, ethical responsibility, and linguistic naturalness remain inherently human tasks.

Finally, the translation of medical terminology is a form of knowledge mediation. It bridges not only languages but also disciplinary traditions, professional practices, and cultural worldviews. This paper proposes a context-sensitive model integrating linguistic, conceptual, cultural, and technological dimensions as the prerequisite for high-quality medical translation. In this model, translators function not solely as linguistic intermediaries, but as specialized curators of terminology and mediators of intercultural knowledge.

As biomedical science continues to evolve rapidly, the need for accurate, standardized, and culturally meaningful Greek medical terminology will only intensify. Ensuring that Greek remains a robust participant in global medical communication depends on interdisciplinary collaboration, investment in terminological infrastructure, and the ongoing refinement of translation practices. Translators, equipped with linguistic expertise, conceptual awareness, and technological literacy, are essential agents in sustaining both the precision and the legacy of Greek within the international medical terminology.

Vol. 05, No. 04; 2026
ISSN: 2583-6560

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Vol. 05, No. 04; 2026
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