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Medical Terminology from the History Perspective

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Abstract The origins of medical terminology can be traced back to ancient Egyptian medical treatises and the works of early Greek and Roman scientists (McMorrow, 1998). The Hippocratic school was the first to describe diseases based on observation and the development of medical terminology continued through the Hellenistic era and the Roman period, with Greek terms being borrowed and latinized. Medical English has its origins in medieval Latin terminology, which itself was influenced by Greek terminology(Montalt, 2018). During the Middle Ages, French played a significant role in introducing new medical terms. In modern times, English increasingly uses its own language material to create new medical terms.

Keywords: medical translation, language history, medical terminology

1. Introduction

Medical language, as a branch of specialised languages, with a distinct identity, has received special attention from scholars and language educators – we list the contributions of Bloom (1987); Crawford et al., (1998); McMorrow (1998); Davies (2002, 2007); Džuganova (2002);

Medical translation has a long and important history, closely tied to the development of medicine and the spread of knowledge across different cultures and languages. Modern medical terminology includes words of great antiquity and others of very recent coinage.

Some ancient terms boast of continuous existence with meaning and form unchanged from some prehistoric period to the present, and some have retained their significance but have suffered changes in spelling. In the same time some of these so-called new words have been resuscitated from the ancient classics, others have been coined from Greek or Latin roots with a result that would be meaningless to a Greek or Roman. Much of the medical terminology we use today is attributed to

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Hippocrates, who is considered the "*father of medicine*," and Claudius Galen, one of the most legendary doctors in the Roman Empire. A small number of the words that are kept now from Hipocrate until today if we compare with Greek origin of the words that are component of medical vocabulary or are since XVIII century.

In the field of medical, biological and pharmaceutical sciences tool of communication was Latin and Greek. Development of medical terminology has been based on the process of creating parallel national and international terms, known all over the world and well-defined. In present medical terminology renunciation to latin language for specific terminology is a mistake and a wrong approach even if the English terminology seems to be equivalent with original term.

90% of the medical vocabulary in English is of Greek or Latin origin. Medical terminology uses Greek and Latin adjectives or compounds to connect nouns, verbs or combining forms. The combining form "o" is mostly found after the prefix: take Greek prefix my/mys (muscle) and add the combining "o" form; leaving us with "myo.“ If we add the Greek root word "cardio" (heart), and the suffix "itis" (inflammation), we have formed "myocarditis," a muscle layer of the heart that is inflamed.

Medical translation has been considered to belong to the scientific field since the Greek civilization (500-30B.C.), continuing to be acknowledged as such during the Roman Empire (100B.C.-400A.D.) and then in Medieval Europe (1200–1500 A.D.). The development of medical technology and computer science in the last 20-30 years of the 20th century as well as the unprecedented volume and scale of research in the 21st century account for the spread of the English language in the field of scientific - medical translation.

Van Hoof (1998: 49) also describes and exemplifies the language of medicine as including a fundamental part of terminology from Greek and Latin, and he believes that the translator has to learn and understand the medical terms based on an etymological look, while drawing attention to “the little regard shown by the language of medicine for the rules of etymology and the laws of word-building” which “will rather be misleading; the examples include:

brachy < Greek *brakhys,* meaning *short*
ectomy < Greek *ektome,* meaning *excision*
phobia < Greek *phobos,* meaning *aversion*
rrhea < Greek *rhein,* meaning *flow*

Early efforts focused on translating Greek and Roman medical texts into Arabic during the Islamic Golden Age (8th–10th centuries). This preserved classical knowledge and expanded it with new discoveries.

From the 12th century onward, Arabic medical texts were translated into Latin, making them accessible to European scholars. This direction was pivotal for the development of medieval European medicine.

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2. The development of medical vocabulary

The development of medical terminology has been based on the process of creating parallel national and international terms, known all over the world and well-defined. In the field of medical translation sciences, such a reliable tool of communication was Latin and Greek.

Bujalkova and Duganova (2015, 86) suggest that the medical terms denoting organs are of Latin origin and that they have an English counterpart in the informal register (as doublets, see the mentions above) – e.g., *oculus – eye, ren – kidney, skin - cutis*, whereas the terms, designating diseases are of Greek origin and they are doubled less frequently – e.g., *dermatitis, nephritis, ophthalmia*, etc. Lysanets and Bieliaieva (2019) state that, as a rule, single unit medical terms originating in Latin are semi-assimilated although "deeply entrenched in the modern English language" and included in all English dictionaries (*abdomen, varicella, appendix*, etc.), whereas multiple unit terms are less anglicised. As seen above(Figure 1), from a historical perspective, the development of the medical terminology cannot be envisaged as a linear process:

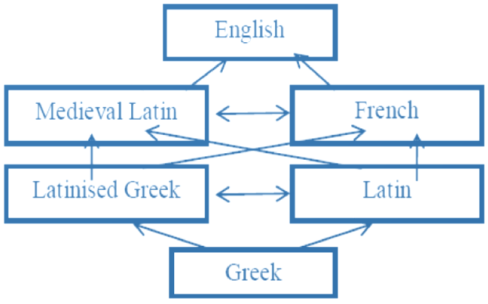


Figure 1-The development of medical vocabulary
(Source: Bujalkova and Dzuganova, 2015, 88-89)

According to Jóskowska (Jóskowska, 2013, 42) in their paper try to familiarise the reader with medical vocabulary. Terminology, (Tab.1), is intended to unveil the structure of the Latin terms as well as to trace shades of the contents suggested by prefixes and suffixes. Jóskowska and Grabarczyk (2013: 46ff.) provide a full inventory of the most frequent word roots stemming from Greek and Latin, focusing on the grammatical category of noun, claiming that "the modern language of medicine basically represents the ancient Greek language transcribed into Latin" and that "Even poor knowledge of a foreign language (English or a Romance language, and even a Germanic language) is enough to read a diagnosis written abroad, on the understanding that the reader has at least a basic knowledge of Latin". In other words, internationalisms are a part and parcel of the medical language, and the translator should be not only aware of such universals, but also knowledgeable about the classical heritage. To support their claim, we provide the list of the most common and

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productive Greek and Latin roots, while also investigating other relevant sources from mainstream literature to fully round the list and validate it.

Table 1- Exemple of Latin and English terms formed by prefixes and sufixes

Latin	**English**
an-aemia	an-aemia = Gr. (Greek) *an* + *haima* (blood)
ana-mnesis	ana-mnesis =the ability to recall past events; recollection Gr. *ana* + *mimnesko* (call to mind)
apo-plexia	apo-plexy =loss of consciousness Gr. *apo* + *plesso* (to strike)
dys-pnoe	dys-pnoea =difficult respiration Gr. *dys* + *pnoe* (breeze)

The new realities have triggered changes in the medical terminology, not necessarily deleting the classical heritage but, under the influence of the scientific evolution, leading a more heterogenous make-up. In medical translation, the specific medical language can be analysed along three dimensions: the user, the domain of use and special application of language (Karwacka, 2015: 272). Going in-depth, medical language means new terms which become part of the general language – medical language is part of the language of science, which is present in more "than three quarters of all written and printed materials of the general language in each nation" (Karwacka,2015:273). In the medical world, it is no rare occasion that many experts, having an academic background in medical sciences or in in other sciences such as engineering, biology, chemistry, physics, mathematics, etc., join their efforts to conduct interdisciplinary and multidisciplinary research. This has an impact on the evolution of medical sciences, reverberating at the linguistic level – medical terminology heavily relies on derivatives of old Greek and Latin words, among which the highest productivity is related to prefixes such as *stereo-, mono-, poly-, multi-*, in combination with roots originating in other languages (there is no concern for etymological purity) as recorded "eventually in a growing stream in medical dictionaries" (Fischbach, 1998: 22).

Metaphorically, McMorrow (1998) draws the conclusion that the medical translator:

> must enter that stream at the same point as others in the field today, whether practitioners or researchers. Knowing what is coming down the river from the past, no matter how impressive is the sight, is just one tool in the translator's kit; knowing the current mix of standard English from all scientific and technological sources, including new eponyms, acronyms, abbreviations and trade names is just as important, because that is what others are already observing in addition to the Greco-Latin heritage. (McMorrow, quoted in Fischbach, 1998: 24)

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Accordingly, the problems that could arise in the translation of Greek and Latin roots lie in spelling, parallel forms, switches from Greek to Latin or vice versa. Therefore, we can rightly conclude that medical language and translation are on the border between specific language and scientific field. At the purely linguistic level, medicine language is featured by synonyms, eponyms, acronyms, abbreviations, based on which new terms are coined. Linguists (notably, Poštolkova, Roudny and Tejnor, 1983; Jóskowska and Grabarczyk, 2013; Fremgen and Frucht, 2016; Cross and McWay, 2020) explain the mechanisms of word formation in medical language: at the morphological level, at the syntactic level, at the semantic level –(borrowings: Greek: *anamnesis, bronchitis*, etc., Latin: *acne vulgaris; tetanus; opisthotonos*; *diarrhoea*; French: *diet, rheumatic, jaundice, migraine, manchette, nurse, tampon, ointment, pain, pipette, venom*; < Italian: *belladonna, influenza, malaria, pellagra, scarlatina;* Arabic: *alcohol, alchemy, alkali, elixir*. (Poštolkova, Roudny and Tejnor, 1983; Salager Meyer, 1983; Alcaraz Ariza, 2012; Karwacka, 2015; Džuganová, 2019).

3. History of Medical Translation

The transformative impact of digital advancements on language and communication, as explored by Dejica, Hansen, Sandrini, and Para (2016) and Dejica Eugeni, and Dejica-Cartis (2020), is clearly reflected in the modern landscape of medical translation, where technological tools and resources play an increasingly significant role in the global dissemination of medical knowledge.

It is noteworthy that terms, medical ones included, display the following features: unambiguousness, exactness, stability, word-formation potential and lack of emotionality (Hauser, 1980: 34–35, Peprnik, 2006: 73). Their origin, evolution and multiplication in the field of medicine due to the fact that research in medical sciences increases permanently (new terms for new concepts) deserve more attention. The basis for medical language is represented by Greek and Latin terminology, which also give most of the scientific terminology.

Latin has an important influence on medical terminology and is present in 800 years of academic medicine. Regarding the contribution of the Arabic language, this is rather small and was integrated to the Latin language. This section speaks about how the evolution of medical terms from Greek language were lost with the fall of the Western Roman Empire, but was recovered in the period of translation movements.

3.1. Evolution of medical translation history

Ancient Beginnings: Medical translation began with the Greeks and Romans, where foundational texts like those of Hippocrates and Galen were created. These works were later translated into Arabic during the Islamic Golden Age (8th–10th centuries), preserving and expanding classical medical knowledge.

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Islamic Golden Age: Scholars in Baghdad translated Greek medical texts into Arabic, enriching them with their own discoveries. This period was crucial for the survival and enhancement of ancient medical knowledge.

Transmission to Europe: During the 12th and 13th centuries, Arabic medical texts were translated into Latin in centers like Toledo, Spain. This brought advanced medical knowledge to medieval Europe and laid the groundwork for the Renaissance.
Modern Era: The 20th and 21st centuries saw the rise of professional medical translation services, driven by globalization and technological advancements. Machine translation and AI now play a significant role, though human expertise remains essential for accuracy and cultural sensitivity.

Specialization and Ethics: Contemporary medical translation has become highly specialized, addressing areas like pharmaceuticals, medical devices, and clinical research. Ethical considerations, such as patient confidentiality and accuracy, are now central to the field.

Below is an overview of its evolution:

Ancient Beginnings- Ancient medicine

The earliest records of ancient medicine that we have are the Edwin Smith papyrus from the 17 th century. The Ebers papyrus is complete (Pusey,2000, 86-88) and of particular interest to dermatology since it contains references to skin disorders and cosmetic issues. Celsus was a Roman gentleman and the author of *De Re Medicina.* He took a practical approach to treatment and described ulcers, as well as skin disorders. Galen (AD 129 to ca. 216) was born in Turkey)(Rosenthal,1961, 129-134). His approach to cutaneous lesions was theoretical rather than practical, probably because he interpreted them as expressions of an imbalance of the four humors.

The roots of medical translation date back to ancient civilizations, where the exchange of medical knowledge between cultures was critical. For example:

- Ancient Egypt and Greece: Texts from ancient Egypt, such as the Ebers Papyrus, a medical manuscript dating back to around 1550 BCE, contained treatments and remedies for various ailments. Greek physicians like Hippocrates and Galen played a central role in shaping medical practices, and their works were translated into multiple languages over time.
- Arabic Translations: During the Islamic Golden Age (8th to 13th century), scholars translated important Greek medical texts, including works by Hippocrates and Galen, into Arabic. Figures like Avicenna (Ibn Sina) in the 11th century wrote The Canon of Medicine, which became a key reference for both Islamic and European medical practitioners.

Early Middle Ages

During the Early Middle Ages (5th to 10th centuries), medical translation played a pivotal role in preserving and advancing medical knowledge. However, translation efforts helped bridge the gap between ancient and medieval medicine.

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Some of the Hippocratic and Galenic texts were translated into Latin in Italy: at a medical school in Ravenna between the 6 th and 7 th centuries (Musitelli, 1994, 317-319).

Graeco-Arabic translation - includes translation of Greek medical texts in Syriac and Arabic languages. In the same period some physicians as Al-Razi and Avicenna had contribution to medical translation. Iskandar,2008).

The Renaissance and Early Modern Era

The Renaissance period (14th to 17th century) saw a resurgence in the study of classical texts, and medical translation became even more vital:

- Latin and Vernacular Translations: The printing press revolutionized the spread of medical knowledge, making translated works more widely available. Translations of important works, like Avicenna's Canon and Hippocrates' writings, began to appear in Latin and vernacular languages.
- Paracelsus and the Shift in Medical Paradigms: In the 16th century, the Swiss physician Paracelsus challenged traditional medical practices and emphasized the importance of experimentation. His works, which blended alchemy and early pharmacology, were translated and disseminated in various European languages.

The Scientific Revolution and Enlightenment

The 18th and 19th centuries brought dramatic advancements in medical science, with new discoveries in anatomy, physiology, and surgery. Translation played a crucial role in the spread of these ideas:

- Medical Journals: As more scientific journals and medical treatises were published in various European languages (especially French, German, and English), translations of these journals became increasingly important for medical practitioners around the world to keep up with new developments.
- Medical Terminology: The rise of standardized medical terminology was essential in fostering communication across different linguistic groups. As medical practices advanced, the need for precise translation became vital for accurate understanding.

The 20th Century

The 20th century saw an explosion of medical knowledge and the growth of global interconnectedness, making translation a central component in the dissemination of medical information:

- Globalization and Collaboration: As the medical community became increasingly global, the demand for medical translation expanded, especially with the rise of medical conferences, international collaborations, and the global exchange of research.
- Technological Advances: The development of computers and electronic databases in the late 20th century changed the landscape of medical

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translation. Technologies like machine translation began to emerge, though they were initially less reliable than human translation. However, as AI improved, so did the quality of medical translations.

Contemporary Medical Translation

Today, medical translation is a highly specialized field that covers a wide range of documents:

Medical Research and Clinical Trials: Translations of clinical trial protocols, research papers, and medical device instructions are crucial for ensuring the accuracy and safety of treatments and products in different countries.

Patient Care: Accurate translation of patient consent forms, medical records, and diagnostic reports is vital in clinical settings to ensure that patients understand their diagnosis and treatment plans, especially in countries with diverse populations.

Regulatory and Pharmaceutical Translation: The global nature of the pharmaceutical industry means that translations of drug labels, regulatory submissions, and safety reports are essential for compliance with international regulations.

3.2. Types of texts in medical translation in history

Medical translation history encompasses a variety of text types, reflecting the diverse needs of healthcare and medicine across different eras. Here are some key types:

- *Ancient Medical Manuscripts*: Texts like those of Hippocrates and Galen, which were translated from Greek to Arabic and later to Latin, preserving foundational medical knowledge.
- *Pharmaceutical Texts*: Documents detailing drug formulations, usage, and safety, crucial for the development and dissemination of medicines.
- *Clinical Research Papers*: Studies and findings that are translated to share advancements in medical science globally.
- *Patient Information Leaflets*: Materials designed to explain medical treatments and procedures to patients in an accessible language.
- *Medical Device Manuals*: Instructions for the use of medical equipment, ensuring proper application across different linguistic regions.
- *Legal and Ethical Documents*: Texts related to medical laws, ethics, and regulations, vital for compliance in international healthcare.
- *Educational Materials*: Textbooks and training guides for medical professionals, aiding in the global standardization of medical education.

3.3. Evolution of medical translation texts

The evolution of medical translation texts reflects the changing needs and advancements in healthcare, language, and technology. Here's an overview of how these texts have developed over time:

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- *Ancient Texts*: Early medical translations focused on preserving foundational knowledge. Greek texts by Hippocrates and Galen were translated into Arabic during the Islamic Golden Age, ensuring their survival and expansion.
- *Medieval Manuscripts*: During the 12th and 13th centuries, Arabic medical texts were translated into Latin, introducing advanced medical knowledge to Europe. These manuscripts often included annotations and commentaries by translators.
- *Printed Medical Books*: The invention of the printing press in the 15th century revolutionized medical translation. Texts became more widely available, and translations were standardized, aiding the dissemination of medical knowledge.
- *Modern Medical Literature*: The 20th century saw the rise of specialized medical texts, including journals, textbooks, and research papers. These required precise translation to maintain accuracy in an increasingly globalized medical community.
- *Digital and Multilingual Resources*: In the 21st century, medical translation has embraced digital tools, such as translation memory software and AI. Texts now include patient information leaflets, clinical trial documents, and medical device manuals, catering to diverse audiences.
- *Cultural Sensitivity and Accessibility*: Contemporary medical texts emphasize cultural adaptation and plain language to ensure they are accessible to patients and professionals worldwide.

4. Conclusion

The history of medical translation reflects the growth of medicine as a global discipline. From ancient translations in Egypt, Greece, and the Islamic world to the modern-day translation of clinical research, the role of translation in ensuring access to accurate medical knowledge has never been more important. The field continues to evolve alongside technological advancements, globalization, and the increasing demand for multilingual medical communication.

Medical translation served as a bridge between civilizations, particularly between the Greek, Roman, Islamic, and European worlds. Knowledge was shared, adapted, and enriched across linguistic and cultural boundaries. By translating and integrating classical medical works, scholars created a foundation for advancements during the Renaissance and beyond. These efforts laid the groundwork for modern medical science.

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