

ԵՐԵՎԱՆԻ ՊԵՏԱԿԱՆ ՀԱՄԱԼՍԱՐԱՆ  
YEREVAN STATE UNIVERSITY



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**Հրատարակության և երաշխավորել  
ԵՊՀ ռոմանագերմանական բանասիրության ֆակուլտետի  
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## **SOME ASPECTS OF MEDICAL ENGLISH TERMINOLOGY**

### **ABSTRACT**

Terminology is a linguistic discipline which studies, analyses and describes a specialised area of the lexicon. Medical terminology is one of the oldest specialized terminologies in the world. As it is closely connected with the global spread of science and technology, it is very wide. The language of medicine thus offers remarkable challenges to medical historians, linguists, translators, and interpreters.

In medical terminology generally, two completely different phenomena can be observed: (1) a precisely worked-out and internationally standardised anatomical nomenclature and (2) a quickly developing non-standardised terminology of individual clinical branches, characterized by a certain terminological chaos. The internationally standardized medical terminology is transformed into a vast number of national terminologies. Each national terminology is fully dependent on Greek-Latin terminology.

In our paper we will briefly analyse English medical terms and consider their historical, etymological, semantic, and didactic aspects.

**Key words:** *English medical terminology, sources of medical terminology, synonymy, polysemy*

### **INTRODUCTION**

“There is no recognized discipline called medical linguistics, but perhaps there ought to be one. The language of medicine offers intriguing challenges both to medical historians and to linguists” (Wulff 2004: 187).

The roots of written medical language can be traced back to the 5<sup>th</sup> century BC (Dirckx 2005); the spoken language of medicine has naturally existed ever since the establishment of the medical profession itself. Medical English or English for Medical Purposes (EMP) as a university teaching and an academic field of research can only be traced back to very recent times, however (Grego

2014: 18). The first attempts to codify English for Specific Purposes (ESP) started in the 1970s

... when lexicon, as the specialized languages' most evident distinguishing feature, had been the main focus of research, and it remained so until the advent of genre and discourse analysis widened linguistic perspective to include syntactical, textually and eventually discursive patterns as objective descriptors of specialized languages (Grego 2014: 18).

English for Medical Purposes is one of the main branches of ESP, i.e. to English for Academic Purposes (EAP) as well as of English for Occupational Purposes (EOP) or English for Professional Purposes because it refers mainly to the academic needs of students and future professionals who will seek a career in the academic environment and to the actual needs of professionals at work (Ypsilandis and Kantaridou (2007:69 in: Mičić 2013: 218). EAP and ESP are now referred to as International Scientific English (ISE).

The common feature of members of this discourse community is the effective use of English in writing science, their primary goal being research, not language. Medical English belongs to ISE and involves many different areas and fields of scientific interest and research. It is designed to serve a large range of users starting with physicians of all professions, postgraduate and undergraduate students of medicine, linguists, translators, interpreters specializing in medical issues, etc.

Although EMP shares many common traits with other ESP varieties, it has its own specific features created by the given professional community for communicative purposes within its specific field of work (Grego 2014: 18). Due to its specific features, it is usually determined for adult learners at the upper-intermediate or advanced level. Further division or sub-categorization of EMP, with overlapping in certain areas, is also possible and often occurs, e.g. English for Nurses, English for Paramedics, English for Medical Practitioners, English for Dentists, English for Healthcare Purposes, etc.

Thanks to the fact that all the greatest medical discoveries have been published in English (95% of medical papers come from English-speaking countries (Pilegaard 2000: 7)), English has become the *lingua franca* of medicine and science and is expected to remain so in the future. Native Anglophone professionals who have received training in English-speaking countries

frequently practice, run research and communicate internationally. There is no surprise then that the didactic purpose has the leading role in EMP studies<sup>1</sup> (Grego 2014: 19).

On the other hand two seemingly opposed trends may be observed in English today – it is no longer the exclusive preserve of the original English-speaking countries, but has become a global possession. In other words, there are only a few English-speaking countries within an increasingly English-speaking world (Canziani; Grego; Iamartino 2014: 11).

Today, all the most influential medical journals are written in English, and English has become the language of international conferences and congresses. We have entered the era of medical English, which resembles the era of medical Latin when physicians used a single language for international communication. Whereas in former times new medical terms were derived from classical Greek or Latin roots, now they are often, partly or wholly, composed of words borrowed from ordinary English – e. g. *bypass operation*, *clearance*, *screening*, *scanning* – and doctors from non-English-speaking countries now have the choice between borrowing these English terms directly and translating them into their own language (Wulff 2004: 188). Hence the huge impact of medical English on national medical terminologies.

In our paper we will try to analyse English medical terms with regard to their historical, etymological, semantic, and didactic aspects.

## **1. Progress of medicine requires new terms**

In the past century, epochal discoveries were made in natural sciences, particularly in medicine. Discovery of blood groups made transfusions possible. Thanks to new drugs (such as penicillin, tetracycline) and vaccination, many diseases could be successfully treated or even eradicated. *Clinical medicine* developed into many new branches. *Internal medicine* for example split up into *endocrinology*, *gastroenterology*, *haematology*, *nephrology*, *oncology*, *pulmonology*, *rheumatology*, etc. All this could happen thanks to the great development of science and technology. New diagnostic devices and methods were invented, e.g. *computer tomography*, *sonograph*, *mammograph*,

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<sup>1</sup> According to The QS University Ranking (2017) among the world's top "Life Sciences and Medicine Faculties" the first 19 positions (except position No 7 taken by the Swedish Karolinska Institutet) are firmly held by educational institutions of English-speaking countries.

*laparoscope, endoscope, colonoscope, magnetic resonance image (MRI), etc.* New diseases appeared such as *BSE (Bovine spongiform encephalopathy* or so-called *mad cow disease*), *avian flu (virus H5N1), swine flu (virus H1N1), ebola,* etc. All these new things and phenomena had to be named, documented and propagated among scientists as well as common people. New words – medical terms – had to be formed.

According to Goumovskaya (2007), 98% of all English medical terms have Latin or Greek roots. New medical words, which arise every month, are coined using these same roots. Although it seems that the number of new terms is enormous, Jammal (1988) comments on Julien Green's observation on pace disproportion between thought and words with the statement "while science flies, its terminology walks – typically at a pace that lags far behind scientific advances" (Jammal 1988 in: Fleischman 2008: 473).

## **2. Medical terminology**

The most conspicuous differences between ESP and General English are related to vocabulary. Medical English vocabulary for Academic Purposes is usually considered to be more difficult to learn and use in practice (Sinadinović 2013: 275). In order to be able to function in any of the areas EMP covers, students need to gain knowledge of specific *technical* and *non-technical* words (Harding 2007 in: Sinadinović 2013: 275), to store them in their long-term memory and use them productively.

Terminology, as a specific feature of ESP, is a linguistic discipline which studies, analyses and describes a specialised area of the lexicon, i.e. *terms*. The aim of terminological studies is standardisation of terms so that they are used uniformly.

The unique position of terminology among other linguistic studies is connected with the fact that it is based on the knowledge of linguistics as well as knowledge of different non-linguistic disciplines, mainly lexicology, lexicography and morphology. The linguist who deals with a concrete area of terminology needs to understand its structure and meaning from the linguistic point of view and to have at least basic background knowledge of the studied discipline (Dávidová 2011: 9).

In medical terminology, two completely different phenomena can be observed: (1) a very precisely worked-out, internationally standardized

anatomical terminology and (2) a quickly developing clinical terminology of all medical branches, characterized by a certain terminological chaos. Attempts to unify clinical medical terminology on an international level have mostly been unsuccessful till now. According to Šimon (1989) the first attempt to create a unified international classification of diseases was done in the 19<sup>th</sup> century. This classification had no united rules and similarly as today's *International Statistical Classification of Diseases and Related Health Problems (2010)* it is only a technical tool used for statistical purposes (Šimon 1989: 52).

English medical terms (anatomical and clinical ones) have a restricted, specific meaning, are mostly of Greek or Latin origin and can be studied from various aspects e.g. etymological, semantic, and lexical (in both diachronic and synchronic ways).

## 2.1. Main features of medical terms

The term as a basic unit of terminology names a concept which exists in the system of concepts of a scientific or technical discipline. There are some typical features of the *term* which distinguish it from the *non-term*. They include unambiguousness, exactness, stability, word-formation potential and lack of emotionality (Hauser 1980; Peprník 2006). As Hauser (1980: 34) mentions, these features of the term are perceived as ideal since not all of them are always present in all terms. Overlapping in features and meanings between terms leads to various relationships among them, e.g. synonymy, polysemy, hypernyms, hyponymy, etc., the former two of which will be discussed later.

As the main function of the term is to name the concept objectively, the presence of emotionality would be redundant and undesirable. Therefore, the term should be deprived of any emotional expressivity, and subjective evaluation. This is why diminutives are not suitable for formation of terms. Regardless of this fact, there exist some diminutives in English and Latin medical terminology, i.e. L/E. *cerebellum* (small brain), L. *bronchiolus*, E. *bronchiole* (small bronchus), L. *clavicula*, E. *clavicle* (small key), etc. These words are still used in medical terminology as they have a long tradition, and because their original expressive feature is no longer perceived (Hauser 1980: 35).

## 2.2. The main sources of medical terminology

The fall of the Roman Empire did not mean the end of Roman-Greek culture. In the 7<sup>th</sup> century A.D. the expansion of Arabs to Europe and Asia started, resulting in the formation of a large Arabic empire extending from Spain to Asia Minor. The Arabic language was used in this region, competing with Latin in the west. Arab physicians studied Greek medicine and enriched it. The greatest Arab physician was Ibn Sina, or Avicenna (10<sup>th</sup> – 11<sup>th</sup> century) as he was called in Latin. His most famous work is *The Canon of Medicine*, a medical encyclopaedia which became a standard medical text at many medieval universities and remained in use as late as 1650 (Encyclopaedia Britannica; Bujalková, Jurečková 2013: 6). The Arabic influence on English medical terminology (EMT) can be traced in expressions such as *alcohol*, *alchemy*, *alkali*, *nitrate*, which got into English through Latin and French. Similarly the terms *dura mater* and *pia mater* are calques (translations) from Arabic into Latin (Andrews 1947).

In EMT there are, however, also terms of other different origins, e.g. taken from French, such as *jaundice*, *ague*, *cannula*, *poison*, *faint*, *grand mal*, *petit mal*, *massage*, *passage*, *plaque*, *pipette*, or from Italian, e.g. *belladonna*, *influenza*, and *varicella*. French played a far more important role as a medium for penetration of Latin words into English. These are, for example, words such as *superior*, *inferior*, *male*, *female*, *face*, *gout*, *migraine*, *odour*, *ointment*, *pain*, *venom* (Andrews 1947).

Current medical terminology may be divided into two main parts: anatomical (based on Latin) and clinical (based on Greek). EMT is so dependent on the Greek-Latin that a good acquisition of EMT requires at least a basic knowledge of Greek-Latin terminology.

### 2.2.1. Greek in medical terminology

It is estimated that about three-quarters of medical terminology is of Greek origin. The main reason for this is that the Greeks were the founders of rational medicine in the golden age of Greek civilization in the 5<sup>th</sup> century B.C. The Hippocratic School and, later on, Galen of Pergamum (a Greek from Asia Minor who lived in Rome in the 2<sup>nd</sup> century A.D.) formulated the theories which dominated medicine up to the beginning of the 18<sup>th</sup> century. Hippocrates and his

disciples were the first to describe diseases based on observation, and the names given by them to many conditions are still used today, for example, *arthritis*, *catarrh*, *diarrhoea*, *dyspnoea*, *nephritis*, *pleuritis* (*pleurisy*) (Répás 2013: 5; Wulff 2004: 187).

At the beginning of the first century AD, when Greek was still the language of medicine in the Roman world, an important development took place. At that time Aulus Cornelius Celsus wrote *De Medicina*, which was an encyclopaedic overview of medical knowledge based on Greek sources. Celsus faced the problem that most Greek terms had no Latin equivalents. He therefore either imported Greek terms directly into Latin, e.g. *pyloros* (now *pylorus*), even preserving their Greek grammatical endings or he Latinized Greek words, writing them with Latin letters and replacing Greek endings by Latin ones, e.g. *stomachus* and *brachium* (Wulff 2004: 187).

A third reason for the large number of Greek medical terms is that the Greek language is suitable for the building of compound words. When new terms have been needed with the rapid expansion of medical science during the last few centuries, Greek words or Greek words with Latin endings have been used to name new conditions, diseases, instruments, or devices. The new words follow the older models so closely that it is impossible to distinguish the two by their forms. Such recent words as *appendicitis*, *cystoscope*, *streptococcus*, and many others do not appear different from the classical terms. A lot of simple Greek root words are used in everyday English without our realizing their origin. To quote just a few: *acne*, *basis*, *chaos*, *character*, *criterion*, *dogma*, *horizon*, *stigma*, *thema*, etc. (Répás 2013: 5).

The fact is that about one-half of our medical terminology is less than a century old. A fourth reason for using the classical roots is that they form an international language (Répás, 2013: 5).

Although there are few Greek terms that have preserved their 'pure' Greek form, e.g. *asthma*, *trauma*, most Greek medical terms came into English in a Latinized form, i.e. with a Latin ending or spelling, e.g.

<i>bacterium</i> from Gr. <i>bakterion</i>	<i>bronchus</i> from Gr. <i>bronchos</i>
<i>carcinoma</i> from Gr. <i>karkinōma</i>	<i>coma</i> from Gr. <i>koma</i>
<i>embolus</i> from Gr. <i>embolus</i>	<i>pericardium</i> from Gr. <i>pericardion</i>
<i>spasmus</i> from Gr. <i>spasmos</i>	<i>thrombus</i> from Gr. <i>thrombos</i> .

Many Greek terms resisted assimilation for a very long time and were anglicised only partially, either as adjectives or names of diseases (never as a denomination of a part of the human body). At the beginning the process of Anglicisation was very slow or in a very changed form, e.g.:

Gr. *diafragma* → Engl. *diaphragm* Gr. *ophthalmos* → Engl. *ophthalmia*

Gr. *paralysis* → Engl. *palsy* Gr. *pleuritis* → Engl. *pleurisy*

Gr. *rhachitis* → Engl. *ricketts* Gr. *therapia* → Engl. *therapy*.

Here are several examples of Greek adjective and names of diseases referring to organs or parts of the body commonly used in colloquial language such as *arm, skin, liver, heart, kidney, bone, head, hip, mouth, wrist*, thus body parts which have kept their original English denominations:

Organ in Greek	Organ in English	Adjective / Disease
<i>brachion</i>	arm	<i>brachial</i> / -
<i>derma</i>	skin	<i>dermal</i> / <i>dermatitis</i>
<i>hepar</i>	liver	<i>hepatic</i> / <i>hepatitis</i>
<i>kardia</i>	heart	<i>cardiac</i> / <i>carditis</i>
<i>nephros</i>	kidney	<i>nephric</i> / <i>nephrosis</i>
<i>osteon</i>	bone	<i>osteal</i> / <i>osteoma</i>

After the decline of the Roman Empire, Greek as a scientific language disappeared completely. The rebirth of Greek as a tool suitable for scientific purpose did not occur until the period of Humanism.

### 2.2.2 Latin in medical terminology

Romans took over the medical knowledge of the Greeks, translating and re-writing the Greek medical books. The greatest Roman medical writer, Celsus, was considered to be the founder of Latin medical terminology. The Latin language lacked names for many medical concepts, especially terms for pathological conditions, and that is why Celsus and others had to borrow the Greek terms into Latin. This was the way Latin medical terminology based on two languages - Latin and Greek - was founded.

There is a historical paradox that Latin, as the second major source of medical vocabulary, had to vanish first as a living language before it became a means of doctor's communication for long centuries during the Middle Ages. Latin terms penetrated into English terminology in various forms:

(a) *Terms preserved in original Latin form*

From a number of preserved English medical terms of Latin origin, we have chosen the following ones: *abdomen, appendix, aorta, nucleus, tonsillitis, virus*, etc. These terms have preserved their original Latin form up to now with some modification of their pronunciation according to the phonetic rules of English.

(b) *Latin terms assimilated into English*

Another similarly numerous group is of anglicized Latin terms. Terms such as *mandible, muscle, oil, pulp, pulse, vein, nerve, pulse, puncture, ventricle*, and *crown* are obvious to everybody and do not need any definition.

Similarly, as is the case with Greek terms, some Latin terms assimilated only as specialized denominations of organs or diseases, the organs being commonly named by English words, e.g.

Organ in Latin	Organ in English	Adjective
<i>pulmo</i>	lungs	<i>pulmonary</i>
<i>os (oris)</i>	mouth	<i>oral</i>
<i>cutis</i>	skin	<i>cutaneous</i>
<i>ren</i>	kidney	<i>renal</i>
<i>umbilicus</i>	navel	<i>umbilical</i>
<i>cor</i>	heart	<i>cordial</i>
<i>dens (dentis)</i>	tooth	<i>dental</i>

(c) *Terms that experienced a multiple assimilation*

A few medical terms experienced a multiple assimilation – from Greek into Latin, from Latin into Old French, from Old French into English. Compare:

Greek	Latin	French	English
<i>diaita</i>	<i>diaeta</i>	<i>diète</i>	<i>diet</i>
<i>rheumatikos</i>	<i>rheumaticus</i>	<i>reumatique</i>	<i>rheumatic</i>
<i>spasmos</i>	<i>spasmus</i>	<i>spasme</i>	<i>spasm</i>
<i>chirurgos</i>	<i>chirurgus</i>	<i>chirurgien</i>	<i>surgeon</i>

*(d) Neologisms formed from Latin elements*

In the 16th century many neologisms from Latin elements entered the language for a scientific purpose, e. g. *delirium, cadaver, cornea, vertigo, albumen, sinus, appendix, abdomen, digit, ligament, saliva*.

Humanism created not only humanistic Latin but also conditions for its successive replacement by living languages. Since the time of Humanism and the Renaissance, the history of international medical terminology has overlapped with the history of national terminologies. They influence each other and cannot be separated (Šimon 1989).

Latin had a tendency to replace Greek nouns describing the parts of the human body and their relative adjectives with its own terms and used Greek stems for the formation of compound words suitable for denomination of pathological changes. A similar process can be observed in English, which also prefers its own terms for the denomination of organs while all other terms are taken from Latin together with the tendency mentioned above. See:

Organ (Engl.)	Organ (Lat.)	Disease (Gr.)	Adjective (L. / Gr.)
<i>breast</i>	<i>mamma</i>	<i>mastitis</i>	<i>mammary</i>
<i>kidney</i>	<i>ren</i>	<i>nephritis</i>	<i>renal</i>
<i>marrow</i>	<i>medulla</i>	<i>myelitis</i>	<i>medullary</i>
<i>skin</i>	<i>cutis</i>	<i>dermatitis</i>	<i>cutaneous</i>
<i>eye</i>	<i>oculus</i>	<i>ophthalmia</i>	<i>ocular / optic</i>

“Latin and Greek remained languages of medicine up to the 19<sup>th</sup> century when national medical languages started to gain in importance” (Dobrić 2013: 496).

### **2.2.3 Remnants of Classical Grammar**

Certain grammatical patterns and rules characteristic of the classical languages are retained and observed with classical words and phrases that have been adopted into medical English. Greek and Latin are more highly inflected languages than English. That is, they make more extensive and more varied use of changes in the endings of words to signal shifts of meaning and to show syntactic relations among the words of a phrase or sentence (Dirckx 2005: APP 9).

The most preserved remnants of classical grammar can be observed in cases of irregular plural and grammatical concord. Terms that retain their Latin form are usually, but not always, pluralized as in their original language. Whereas English forms the plural of a noun by adding *-s* or *-es* (with a few exceptions such as *foot x feet; woman x women* and *sheep*), the plural of a Latin noun may be formed in various ways depending on the class or declension to which the noun belongs; thus, *arteria x arteriae; bacillus x bacilli; diverticulum x diverticula; ductus x ductus; femur x femora; nucleus x nuclei; species x species*. Greek words that have not been fully Latinized form their plurals according to Greek patterns: *ankylosis x ankyloses; arthritis x arthritides; condyloma x condylomata, sarcoma x sarcomata; criterion x criteria* (Dorland's Illustrated Medical Dictionary 1996; Dirckx 2005: APP 9).

There is a natural tendency to make all nouns conform to the regular rules for the pronunciation and spelling of English plurals. The more commonly a noun is used, the more likely this is to happen. Some native English speakers avoid foreign plurals in everyday speech and use them only in scientific and technical contexts (Longman English Grammar 1988: 48).

Commonly we can find foreign as well as assimilated plurals of these foreign words: *apex -apices/apexes; apparatus - apparatus / apparatuses; enema - enemata / enemas; focus - foci / focuses; fungus - fungi / funguses; hernia - hernia / hernias; larva - larvae / larvae; sarcoma - sarcomata / sarcomas; vertebra - vertebrae / vertebrae*.

Grammatical Concord. In Latin any adjectives modifying a noun must 'agree' with it in number, gender and case. For example, in the compound nouns *linea alba* 'white line'; *aqua destillata* 'distilled water', *vertebra thoracica* 'thoracic vertebra' both noun and adjective are feminine singular, whereas in *spiritus dilutus* 'diluted alcohol' and *dens caninus* 'canine tooth', both noun and adjective are masculine singular. In *nervi thoracici* 'thoracic nerves', both words are masculine plural. Sometimes, as in these examples, grammatical concord results in a phonetic match or rhyme but this is mere coincidence. In many Latin noun-adjective phrases, no such rhyming occurs: *asthma bronchiale, foramen magnum, labium majus, lichen planus, lobus renalis, processus muscularis, etc.* (Dirckx 2005: APP 9; Bujalková, Jurečková 2013).

### 3. Polysemy and synonymy of medical terms

Despite the fact that lexical variability manifested by numerous synonymous words and expressions is an important character of cultivated, refined language, synonymy is often disadvantageous for terminology because it makes exact communication more complicated (Horecký 1968 in: Polackova 2001: 174). Too many synonymic terms for one concept are an unwanted phenomenon in scientific language that contributes to misunderstanding and complicates efforts to systemize medical terminology.

Although polysemy, homonymy and synonymy are unwanted phenomena in medical terminology, however, their occurrence is relatively abundant and no branch of medicine can avoid them. While synonyms quantitatively enlarge the vocabulary, homonyms are rather rare within one branch of medicine.

#### 3.1. Polysemy

Polysemy is the process in linguistics according to which one word can have two or more meanings. In fact, the application of already existing terms in order to express another meaning is much more popular practice than creating complex and sophisticated names for each separate meaning, which is necessary to express. This phenomenon is in practice in specialized terminologies as well, and the sphere of medical care is not an exception.

Since medical terminology requires being specific in order to avoid serious mistakes, there is a grave necessity to make sure that medical terms are used in their appropriate meaning, e.g. *suture* can mean: 1. a type of fibrous joint in which the opposed surfaces are closely united, as in the skull; see *sutura*. 2. material used in closing a surgical or traumatic wound with stitches. 3. a stitch or series of stitches made to secure apposition of the edges of a surgical or accidental wound; used also as a verb to indicate the application of such stitches. 4. the act or process of uniting a wound by stitches. The medical term *surgery* can mean: 1. that branch of medicine which treats diseases, injuries, and deformities by manual or operative methods. 2. the place in a hospital or doctor's or dentist's office where surgery is performed. 3. in Great Britain, a room or office where a doctor sees and treats patients. 4. the work performed by a surgeon (Dorland's Illustrated Medical Dictionary: 1612 and 1614).

### 3.2. Synonymy

Synonyms are defined as words with similar or very close meanings. Synonymy is very closely connected with calques and borrowings (loanwords).

The emergence of synonyms in medical lexicon can also be stimulated by ethical reasons. The blunt words *cancer* and *tumour* have often been considered by physicians to be too unbearable to be pronounced in front of their patients. There are compassionate reasons for employing euphemisms in the practice of medicine. Years ago, a doctor could have used the word *carcinoma* and been reasonably sure most patients would not have known this synonym for cancer. That is not true today, when public awareness of the major disease and the vocabulary used to describe it has grown. And medical language provides a long list of euphemistic alternatives. Doctors can and do refer to cancer as ‘*a neoplasm*’, ‘*a growth*’, or ‘*a neoplastic figure*’. Such obscure technical jargon is sometimes necessary during doctor-patient interchanges (Goumovskaya 2007).

Synonymy can appear in several levels:

(1) Along with an international Greek/Latin term, another synonym formed from foreign Greek/ Latin) elements has developed at the same time, e.g. *erythrocyte* x *normocyte*; *haematopoiesis* x *sanguinification*, etc. Such synonyms arise due to the different motivation of word-formation of individual terms. For example in the term *erythrocyte*, the red colour is emphasized. In its synonymic term *normocyte* the normal development of the cell is emphasized.

(2) An international Greek/Latin term has been translated into English, e.g. *cranium* x skull; *femur* x thighbone; *cerebrum* x brain; *sternum* x breastbone; *erythrocyte* x red blood cell (RBC); *leukocyte* x white blood cell (WBC); *thrombocyte* x blood platelet; *coagulation* x blood clotting. Calques of Greek/Latin terms into English have different stylistic value and validity. While the international terms *erythrocytes*, *leukocytes*, *thrombocytes* and *coagulation* serve for specialists, their English equivalents *red blood cells*, *white blood cells*, *blood platelets* and *blood clotting* are used in articles or speech determined for the common reader or listener.

(3) Sometimes along with a borrowed term, several variants of a translation occur and enter mutually into synonymic relations, e.g. *erythrocyte* – *red (blood) cell* x *red (blood) corpuscle*; *phagocyte* – *phagocytic cell* x *defensive cell*, or the colloquial expression *scavenger cell*.

Since the 18<sup>th</sup> century, there has been a call for systematic order and a certain regularity in the English language that has still not been completely fulfilled. For instance, besides terms with Greek-Latin spelling there are:

a) terms with English spelling: *haemostasia x haemostasis; polyglobulia x polyglobulism; thrombopathia x thrombopathy; thrombopenia x thrombopeny;*

b) different affixes are used in words with the same meaning, e.g. we have found in English texts the following terms used as synonyms: *embolia x embolus x embolism; coagulum x coagulate x coagulant.*

#### 4. Didactic aspects

An important goal of teaching medical vocabulary is to teach the tools of word analysis that will enable understanding of complex terminology. "Medical terms are very much like individual jigsaw puzzles. They are constructed of small pieces that make each word unique, but the pieces can be used in different combinations in other words as well" (Chabner 1996: 1).

Mastering basic medical terminology in English is one of the first steps towards achieving access to the very latest information. To make the study of English medical terminology easier and more effective, it is important to become familiar with some basic rules of word analysis and to master the meaning of individual prefixes and suffixes instead of memorising individual items from the whole medical dictionary. The teaching and learning of new terms can be accelerated by arranging them into logical groups, e.g. terms describing body substances, or body fluids or denoting some colours.

Body substances	Body fluids	Colours
adip(o)/lip(o) - <i>fat</i>	chol(e) - <i>bile</i>	erythr(o) - <i>red</i>
calc(i) - <i>calcium</i>	haem(a/o) - <i>blood</i>	leuk(o) - <i>white</i>
glyc(o) - <i>sugar</i>	hydr(o) - <i>water</i>	alb(o)/albin(o) - <i>white</i>
lith(o) - <i>stone</i>	hidr(o) - <i>sweat</i>	chlor(o) - <i>green</i>
thromb(o) - <i>clot</i>	py(o) - <i>pus</i>	cyan(o) - <i>blue</i>

Another useful method is applying various visual stimuli such as flashcards during the teaching and learning process (Barnau 2014/2015; Barnau 2015).

## 5. Advantages of Latin and Greek

It is important to remember that Latin and Classical Greek are used in medical English not merely because of tradition. Those so-called ‘dead’ languages form the basis for scientific and technical terms for the following reasons:

(1) There is no ambiguity in them because Latin and classical Greek as ‘dead’ languages do not undergo any changes. The meaning of a word does not change but is consistent. In a living language, words acquire new meanings. For example, ‘acid’ originated from Latin *acidus* – meant a chemical such as the *acetic acid* in vinegar. In modern English, there are thousands of named acids, among the more familiar being *amino acids*, *binary*, *carboxylic*, *fatty*, *folic*, *nitric*, *organic*, *sulfuric*, *ternary*, *tannic* and *ribonucleic acids* (Dorland’s Illustrated Medical Dictionary 1996: 15). Nowadays it has acquired another meaning and is used in English slang for *LSD* (*lysergic acid diethylamide*) a dangerous hallucinogenic drug (Goumovskaya 2007).

(2) The precise meaning and precise use of words is of crucial importance in all forms of medical communication. The essential property of precision in the words of ‘dead’ languages helps to make new medical terms from Latin and Greek roots whose meanings do not alter over time (Goumovskaya 2007).

(3) Another reason Latin and Greek roots are used to form medical words is that they result in terms that are shorter and more convenient than long descriptions in English. Consider the English definition of *mononucleosis* (*monos* one + *nucleus* centre of a cell + *osis* diseased condition): an acute infectious disease triggered by the Epstein-Barr virus. Hematic symptoms include excess of monocytes with one nucleus (Goumovskaya 2007).

(4) Greek-Latin terminology is primarily used by a relatively small circle of people – specialists – and is used as a peripheral part of the lexical system of Modern English even today (Vachek 1974).

(5) It provides continuity between the past and the present as well as the continuity in space – Latin terminology is used predominantly in Western (so called scientific) medicine (Bujalková; Džuganová 2015).

(6) It serves as a secret language among doctors. Their patients do not usually understand it and are thus not forced to immediately confront the full nature of their diagnosis.

## Conclusion

Anatomical terminology contains, according to the latest edition of *Terminologia Anatomica*, International Anatomical Terminology (1998), about 5,800 Latin terms (4/5 of them are Latin, 1/5 are Greek). Clinical terminology elaborates statistical classifications of diseases. The names of diseases have been formed empirically in various times and places, that is why clinical terminology is not so uniform. Besides, clinical subjects are developing continuously and knowledge of them must be constantly revised and updated

English is a language historically and culturally linked with Latin. Emphasis of differences can serve to evoke interest in medical students and enable them to remember things better. Medical terms derived from classical languages present another 'foreign' language (specifically its vocabulary and grammar rules because syntax is not addressed in terminology studies). In medical language, a high number of English medical terms are equivalents of Latin ones in terms of their semantic, historical and morphological aspects.

In our paper, we have briefly discussed the position of EMP within ESP and ISE, paying attention to the huge progress in medical research and the need to coin new terms for new concepts. We have mentioned the disproportion between anatomical and clinical terminology, and analysed the main sources of English terminology, structure of medical terms, and relationships between terms from the viewpoint of polysemy, homonymy, and synonymy. We have also emphasized several advantages of the medical terms originating from Greek and Latin terminologies.

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