

Zdenka Uherová*, Anna Hornáková**

Medical terminology and its particularities

ABSTRACT

Nowadays a lot of job offers in the foreign countries more often need the requirements of adequate foreign language professional communication. Highly specialized job positions require the mastery of professional language and the associated professional terminology as well, which is necessary for professional communication in the specific field of work. This is also true in the medical field, where the mastery of professional medical terminology should be the most preciseness. Medical terminology is constantly developing, completing and enhancing as the result of scientific research advance and use of new approaches, methods and the appearance of new diseases and syndromes. There are currently about 170, 000 medical terms. These include drug names, names or identifications of body parts, organs and parts of the organs, the names of body functions, the names of diseases, examinations, operational methods and interventions. The active medical vocabulary should contain at least 6,000 to 8,000 terms. Furthermore, each medical subdiscipline forms its own terminology all the time, but the experts from related fields do not often understand it.

In our paper we focus on a brief history of medical terminology, its development, current medical terminology and some particularities of the German medical terminology.

Keywords: terminology, language, vocabulary, professional communication

The origin of medical professional language can be found in ancient Greece. In the writings of Greek philosophers and physicians such as Hippocrates and Aristoteles, there are many names of diseases which have been preserved till today. Therefore, a clinical professional terminology includes the Greek root words. Even during the

* Correspondence address: PaedDr. Zdenka Uherová, PhD., University of Prešov, Center of Competencies and Long - live Learning, Institute of Language Competencies, Prešov, Slovakia, mail: zdenka.uherova@unipo.sk

** Correspondence address: RNDr. Anna Hornáková, PhD., University of Prešov, Center of Competencies and Long - live Learning, Institute of Language Competencies, Prešov, Slovakia, mail: anna.hornakova@unipo.sk

Roman Empire doctors have used their own mother tongue - Greek, for example as a physician- Galen. At the same time some doctors as Celsius and Plinius have begun to publish their work in Latin. After the fall of the Roman Empire there were well-known doctors of other nationalities, for example Persian physician Avicenna. In the 11th century first translation schools in Italy and Spain began to develop, for example in Salern and in Toledo, but also in the monasteries in the German-speaking territories (St. Galen, Fulda), where there were some translated Arabic texts into Latin.

Therefore a lot of Arabic and Persian words have been taken together with the Greek words, which used Latin later (e. g alcohol, Elixier). In the following centuries, the Latin consolidates its position. In the 16th century Belgian physician Andreas Vesalius (1514 - 1564) published his work dealing with human anatomy entitled "De humani corporis Fabrica".

He tried to ensure that derived professional terms were replaced by Latin in other languages, which led to the emergence of many new anatomical terms.

The current medical terminology is influenced by Greek and Latin languages where until the 19th century Latin was called "the language of science."

Even in 1880 in the German Empire a medical book in Latin was published, but Latin language competition started to develop in English, German or French (Drainage, Pinzette). Many medical discoveries in the 19 century have contributed to the fact that they started using other new terms (e.g. Bazillus, Enzyme, Allergie).

Current medical terminology

There are approximately 170,000 medical terms together including: 80 000 medicine names, 10,000 names or labels for body parts, organs and parts of organs, 20,000 names to denote functions of the bodies, 60 000 names of diseases, tests, examinations and surgical procedures. Active vocabulary contains at least 6000 to 8000 terms. In addition each medical subdiscipline is able to create its own terminology, which experts from related fields do not often understand.

Medical terminology has its origin in Latin and Greek. The terms are either one-word names (e.g., heart, femur, gastritis) or terms composed of several words (e.g., fossa cranii anterior). Medical terminology contains 80% Latin anatomical nomenclature - Nomina Anatomica and 20% Greek names of diseases.¹

¹ Heller, B. (2000): Medizinische Begriffs- und Dokumentationssysteme WS 2000/2001 (online), www.people.imise.uni-leipzig.de/barbara.heller/Folien-Vorlesung-terminologie.pdf

There is the only one terminological system which is internationally accepted an its Systematized Nomenclature of Medicine (Systematized Nomenclature of Medicine, Clinical Terms, SNOMED CT²).

Clinical vocabulary can be characterised by

- names of primarily Greek origin,
- not having the form of nomenclature,
- being influenced by modern languages, especially English,
- having more than 30 000 eponyms,
- implementing new terminology concerning new diseases.

Anatomical vocabulary can be characterised by

- names of primarily Latin origin,
- having the form of nomenclature,
- small influence of modern languages,
- being relatively constant³

Heller⁴ provides an overview of previous congresses IANC (International Anatomical Nomenclature Committee) focused on the anatomical nomenclature:

- BNA (Basler Nomina Anatomica) - 1895
- JNA (Nomina Anatomica Jenenser) - 1935
- PNA (Pariser Nomina Anatomica) - 1955 (basis for the current terminology)
- Congress in Wiesbaden - 1965

Basic principles of PNA:

- Each organ should be marked only by a single term,
- Terms should preferably come from Latin,
- Short phrases should be used,
- Eponymes should be avoided,
- Organs topographically close to relationship should have similar names (e.g., vena femoralis and arteria femoralis),
- A variety of attributes should be expressed contradictory (e.g., major and minor),
- Terms should be easily to remember, concise and descriptive.

A professional language uses the general language basis of mother tongue and it means vocabulary and grammar as well as professional terms, which comprise a set of terms.

² Kňazovická, K. (2011): Current Problems of Translation of Medical Terms in Surgery and their Influence on Everyday Practice. Klúčové kompetencie pre celoživotné vzdelávanie II. Ročenka CCKV PU v Prešove, Vydavateľstvo PU v Prešove, Prešov, 399p., ISSN 1338-3388.

³ Bujalková, M. (2008): Quo vadis, terminology medica? Kultúra slova.42(6), 321-326

⁴ Heller, B. (2000): Medizinische Begriffs- and Dokumentationssysteme WS 2000/2001 (online), www.people.imise.uni-leipzig.de/barbara.heller/Folien-Vorlesung-terminologie.pdf

The term requires that we name it precisely and clearly, without the possibility of different interpretations⁵. Poštolková, Roudný, Tejnora, 1983 (In Dzukanova⁶) point out that terms unlike nonterms are often ambiguous and their meaning depends on context and they are independent of context and can also be used in isolation.

According to Pacovský, Sucharda⁷ medically correct term should be:

1. clear - it must have only one definition, and it must be correct whenever the term is used. It is often difficult, even for this reason that medicine is more specialized and individual departments have their own nomenclature,
2. concise - it should be chosen such an expression that describes the concept the best. In medicine, currently there have been some terms of the mandatory nomenclature, not only in certain fields. All fields of medicine have to use such terms at all. The following examples have been presented by the official anatomical nomenclature (Nomina Anatomica - NA), chemical nomenclature, the nomenclature of pathology (SONP-Systematic Nomenclature of Pathology), nomenclature of bacteria and other microorganisms etc.,
3. brief - it should meet the requirements of appropriate documentation and archival using the modern technical means (databases).

German medical terminology

According to Bujalkova⁸ professional language used in medicine does not involve only the so called involves not only so called "termini technici", but there are also special and essential professional terms whose conceptual content and design are an internationally binding set and are used mainly in written communication among professionals. Bujalkova⁹ continues that there are also professional names in national languages (German terms) which form the counterpart referred terms and are a kind of communication bridge between experts and laymen. Trivial names (Trivialbezeichnungen) are mostly Germanized foreign words which are not made according to the standards of terms, but stand about midway between these two categories of professional titles.

They differ from "termini technici" using mostly Germanized endings, e.g.:

⁵ Džukanová, B. (2002): Terminology as a discipline (online), www.juls.savba.sk/ks/2002/3/ks2002-3.pdf

⁶ Džukanová, B. (2002): Terminology as a discipline, p. 19

⁷ Pacovský, V., Sucharda, P. (2008): *Jazykozpyt medicíny*. Galen, Prague. 130 s. ISBN 978-80-7262-514-7

⁸ Bujalková, M. (2004): German Language specific medical terminology (online), [www.2.fhv.umb.sk/Publikacie/2004/Odborna 20komunikacia%202.pdf](http://www.2.fhv.umb.sk/Publikacie/2004/Odborna%20komunikacia%202.pdf).

⁹ Bujalková, M. (2004): German Language specific medical terminology, p.112

Latin name	Term	Trivial name
cancer	Carcinoma	Karzinom
apparatūs	Apparatus	Apparat
capsula	Capsule	Kapsel

In medical terminology we can also meet the terms established according to the name of their discoverer. These are called eponyms - Personennamen ("eponym - Begriffe"), for example Cramer - Schiene, Credit - Handgriff, Crohn - Krankheit, Alzheimer - Krankheit, Röntgen - Tomography, Parkinson - Syndrome, but also Röntgendarstellung, Parkinsonism¹⁰.

Currently the German medical terminology has been constantly enriched by new terms from other languages, especially from English, e.g. Bypass, Transmitter, Shunt, which have become an integral part of the German medical terminology¹¹.

Selected prefixes used in medical terminology and their meaning in German:

Prefix	Meaning	Example
<i>a-, an-</i>	un (Verneinung)	<i>Analgesie</i> - analgesia
<i>a-, ab-</i>	ab, entfernt von	<i>Abnabelung</i> - cutting the umbilical cord
<i>ad-</i>	an, heran, hinzu	<i>adduzieren</i> - attract
<i>anti-</i>	gegen	<i>Antikörper</i> - antibody
<i>auto-</i>	selbst, eigen	<i>Autoantigen</i> - own antigen
<i>con-, com-, kon-</i>	zusammen	<i>Konvergenz</i> - convergence
<i>contra-, kontra-</i>	gegen	<i>kontralateral</i> - lying on the opposite side
<i>de-</i>	ent-, von...weg	<i>Dekontamination</i> - decontamination
<i>dys-</i>	Fehl-, Miss-,	<i>Dysfunktion</i> - dysfunction
<i>ex-</i>	aus, heraus	<i>Extension</i> - stretch
<i>en-, endo-</i>	in, innerhalb	<i>Endoprothese</i> - endoprosthesis
<i>epi-</i>	auf, darauf	<i>Epidermis</i> - the skin
<i>hetero-</i>	verschieden	<i>heterogen</i> - heterogeneous
<i>homo-</i>	gleich	<i>homosexuell</i> - homosexual
<i>hyper-</i>	über, übermässig	<i>hypertonisch</i> - hypertonic
<i>hypo-</i>	unter, unterhalb	<i>Hypofunktion</i> - reduced function

¹⁰ Neuhaus, H. (1997): *Sprache, Praxis und Patient*, H. Stam GmbH - Köln.

¹¹ Grundmann, K. (2008): Materialien zur medizinischen Terminology (online), www.uni-marburg.de/fb20/evbb/lehre/ws2008/einleitung-pdf.

Prefix	Meaning	Example
<i>im-, in-</i>	1. in, hinein, 2. Verneinung	<i>Inoperabilität</i> - inoperability
<i>inter-</i>	zwischen	<i>Interkostalmuskel</i> - intercostal muscle
<i>intra-</i>	in...hinein, innerhalb	<i>intravenös</i> - intravenous
<i>Os-, Osteo-</i>	Knochen	<i>Osteoarthritis</i> - osteoarthritis
<i>para-</i>	neben, bei	<i>paravenös</i> - paravenous
<i>post-</i>	nach	<i>postoperativ</i> - postoperative
<i>pro-</i>	für, vor	<i>Proenzym</i> - proenzyme
<i>sub-</i>	unter, unterhalb	<i>sublingual</i> - sublingual
<i>super-, supra-</i>	über, oberhalb	<i>Supersekretion</i> - excessive secretion
<i>Ultra-</i>	jenseits, mehr als	<i>Ultraschalluntersuchung</i> - ultrasound

Selected suffixes used in medical terminology and their meaning in German:

Suffix	Meaning	Example
<i>-algie, -algesie</i>	Schmerz	<i>Neuralgia</i>
<i>-ektasie</i>	Erweiterung	<i>Venektasie</i> - extension vein
<i>-gen</i>	bewirken	<i>pathogen</i> - pathogenic
<i>-gramm</i>	Geschriebenes	<i>Elektrokardiogramm</i> - electrocardiogram
<i>-graphie</i>	Aufzeichnung	<i>Elektrokardiographie</i> - electrocardiography
<i>-itis</i>	Entzündung	<i>Nephritis</i> - inflammation of the kidneys
<i>-logie</i>	Lehre	<i>Histologie</i> - histology
<i>-lyse</i>	Auflösung	<i>Dialyse</i> - dialysis
<i>-phil</i>	Neigung zu	<i>hydrophil</i> - hydrophilic
<i>-phob</i>	Abneigung gegen	<i>Hydrophob</i> - hydrophobic
<i>-skopie</i>	Betrachtung	<i>Endoskopie</i> - endoscopy
<i>-tomie</i>	Schnitt, Eröffnung	<i>Appendektomie</i> - removal of the appendix
<i>-zid</i>	tötend, vernichtend	<i>bakterizid</i> - bactericidal, destroying bacteria
<i>-zyten</i>	Zellen	<i>Leukozyten</i> - leukocytes, white blood cells

(Neuhaus¹², Mokrošová¹³, Roche Lexikon Medizin¹⁴)

¹² Neuhaus, H. (1997): *Sprache, Praxis und Patient*, H. Stam GmbH - Köln

¹³ Mokrošová I. (2002): *Germany - Czech, Czech - German dictionary*. Grada Publishing, Praha, p. 910.

¹⁴ 14 Roche Lexikon Medizin. (2003): München, Jena: Urban & Fischer Verlag, 5 Auflage

In the case of writing the taken over and Germanized simple terms the following can be applied:

- Instead of c is written k/z, for example. Appendizitis, Ulcer, Zervix,
- Instead of ae, oe is written ä, ö, for example. Hematology, Anämie,
- In chemical terms, C is written examples Cumarin, Codein, Cobalt, Cannabinoid, Carbonylverbindung, exceptions are Potassium, Krypton,
- Nouns in conjunction with proper name (eponyms) are written with a hyphen, e.g. Basedow - Krankheit, Down - Syndrome, Douglas - Abszess,
- Only exception creates often used terms that are written together, such as e.g. Röntgenstrahlen.

Proper "terminus technicus" - mostly a combination of multi-word in German medical text retains its Latin form. However, the first noun in the German version is spelled with a capital letter, e.g. *Musculus flexor carpi radialis*¹⁵.

Conclusion

However, mastering of professional terminology for health care professionals is obviously a necessity. Professional language with its specific vocabulary and terms has been used for better understanding, naming of the findings and results of examinations, keeping the documentation for the preparation of lectures and publications. The usage of new therapies and techniques and the appearance of new diseases and syndromes have contributed to enriching the medical terminology. Medical terminology has been constantly evolving, updating and improving as a result of the scientific progress in research.

REFERENCES

1. Bujalková, M. (2004): German Language specific medical terminology (online), [www.2.fhv.umb.sk/Publikacie/2004/Odborna 20komunikacia%% 202.pdf](http://www.2.fhv.umb.sk/Publikacie/2004/Odborna%20komunikacia%%202.pdf).
2. Bujalková, M. (2008): Quo vadis, terminologia medica? *Kultúra slova*.42(6), 321-326
3. Džuganová, B. (2002): Terminology as a discipline (online), www.juls.savba.sk/ks/2002/3/ks2002-3.pdf.
4. Grundmann, K. (2008): Materialien zur medizinischen Terminology (online), www.uni-marburg.de/fb20/evbb/lehre/ws2008/einleitung-pdf.

¹⁵ Mokrošová I. (2002): *Germany - Czech, Czech - German dictionary*. Grada Publishing, Praha, p. 720.

6. Heller, B. (2000): Medizinische Begriffs - and Dokumentationssysteme WS 2000/2001 (online), www.people.imise.uni-leipzig.de/barbara.heller/Folien-Vorlesung-terminologie.pdf
7. Kňazovická, K. (2011): Current Problems of Translation of Medical Terms in Surgery and their Influence on Everyday Practice. Klúčové kompetencie pre celoživotné vzdelávanie II. Ročenka CCKV PU v Prešove, Vydavateľstvo PU v Prešove, Prešov, 399p., ISSN 1338-3388.
8. Mokošová I. (2002): *Germany - Czech, Czech - German dictionary*. Grada Publishing, Praha, p. 910.
9. Neuhaus, H. (1997): *Sprache, Praxis und Patient*, H. Stam GmbH – Köln.
10. Pacovský, V., Sucharda, P. (2008): *Jazykozpyt medicine*. Galen, Prague, 130 s. ISBN 978-80-7262-514-7
11. Roche Lexikon Medizin. (2003): München, Jena. Urban & Fischer Verlag, 5 Auflage.