



TOWARDS UNDERSTANDING  
MEDICAL TRANSLATION  
AND INTERPRETING

# PRZEKŁADAJĄC NIEPRZEKŁADALNE VIII

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TOWARDS UNDERSTANDING  
MEDICAL TRANSLATION  
AND INTERPRETING

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## INTRODUCTION

Medical translation is receiving increasingly more attention from linguists, healthcare providers and translation researchers, who uncover the complexity and significance of this field. It is inseparably connected with considerable responsibility and ethical gravity. In translation research, attention is paid to medical language with its terminology, characteristics of particular genres in medical writing, medical translator's role and status, medical translation errors and quality assurance. This volume addresses three major issues within the area of medical translation: problems specific to discourse and genres within the medical translation field, characteristics of medical language, including medical terminology, and medical translator training.

One of the distinctive features of medical discourse is the use of specialised terminology, which can prove problematic in translation and interpreting. The first part of the volume is devoted to terminology and LSP-specific problems in medical translation. The chapter by Božena Džuganová focuses on English medical terminology. She provides an overview of English medical terminology with particular attention to historical, etymological, semantic, morphological and didactic aspects. Arkadiusz Badziński presents problems and practical remarks related to the use of collocations, terms and jargon in medical communication. Another aspect mentioned by the author is the inconsistency of terms despite relative consistency of concepts in various countries and cultures, which can be observed, for instance, in medicolegal nomenclature. Barbara Librowska, Paulina Szydłowska-Pawlak, Małgorzata Greber and Dorota Kilańska analyse yet another dimension of medical terminology. Their

chapter focuses on controlled terminology used in nursing practice and the results of mapping between terminology systems.

The focus of the second part of the volume is the discursive specificity and generic diversity of communication in the healthcare community. Barbara Walkiewicz examines key discourse aspects of discharge summary translation, which can, in fact, be observed in other medical genres as well. Her study shows the importance of discourse competence and the awareness of discourse features among translators who work for the medical community. Goretti Faya-Ornia discusses the relevance of culture in medical text genres. She analyses culture-specific problems, including cultural conventions and economic restrictions relevant to the translation of medical brochures, web pages, PILs (Patient Information Leaflets) and informed consent forms in Spanish, English and German. The recipients of these texts are laypersons, who are more likely to respond well to a document which is adapted to target conventions. This theme is continued by Ewa Kościałkowska-Okońska, who focuses on PILs in Polish and English, especially their readability, simplicity of expressions, accuracy and precision. The results of her analysis indicate that there is still room for improvement as far as the readability or lay-friendliness of Polish PILs is concerned, as they tend to be too formal, impersonal and lexically inaccessible.

The last two chapters offer insights into medical translator and interpreting training process. Arkadiusz Badziński proposes a course dedicated to training medical interpreters, which includes both interpreting-specific modules and medical language tasks. The author also stresses the importance of background knowledge in medical interpreting, which is also true in the case of medical translation training. Finally, Wioleta Karwacka presents a revised genre-based and skill-based medical translation training course.

This volume is addressed to translators, translation researchers and students who wish to learn medical translation fundamentals and explore research directions in the field. Medical translation is an important and diverse area, which will hopefully be explored more as new translation studies trends emerge.

Wioleta Karwacka



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## VARIOUS ASPECTS OF MEDICAL ENGLISH TERMINOLOGY

### INTRODUCTION

‘There is no recognised 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), as well as to medical translators (Karwacka 2015).

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. However, medical English or English for Medical Purposes (EMP) as a university course and an academic field of research can only be traced back to very recent times (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. In 1980s ESP began to be consciously researched as a linguistic area *per se* and a consistent bibliography on the subject began to appear, the establishment of dedicated and regular academic teaching, training courses for professionals, journals and conferences worldwide followed shortly afterwards. (Grego 2014: 18)

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\* Grego (2014) claims that the 1970s and 1980s saw the beginning of ESP codification, whereas Mičić (2013) dates it back to the 1960s.

English for Medical Purposes is one of the main branches of ESP, i.e., of English for Academic Purposes (EAP) as well as of English for Occupational Purposes (EOP) (Sinadinović 2013: 273) or English for Professional Purposes (Mičić 2013: 218)\*, 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 qtd. in: Mičić 2013: 218). EAP and ESP are now referred to as International Scientific English (ISE) (Mičić 2013: 218). 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 specialties, postgraduate and undergraduate students of medicine, linguists, translators, interpreters specialising 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). And due to these specific features, it is usually recommended for adult learners at the upper-intermediate or advanced levels. Further division or sub-categorisation of EMP, with overlapping in certain areas, is also possible and often occurs: English for Nurses, English for Paramedics, English for Dentists, etc.

Every profession uses its own terminology, i.e., a technical or specialised language that allows its members to communicate efficiently. EMP is applied by its learners or users mainly in:

- communication between patients and physicians or among physicians;
- everyday discourse about illnesses and diseases which has developed into an extensive body of literature that penetrates slowly into medical education and medical practice (Fleischman 2008: 470);

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\* Hutchinson and Waters (1987: 16) do note that there is no clear-cut distinction between EAP and EOP: 'People can work and study simultaneously; it is also likely that in many cases the language learnt for immediate use in a study environment will be used later when the student takes up, or returns to, a job'.

- reading professional literature;
- running medical research and sharing the results with other scientists, i.e., writing articles in English (scientific research is conveyed mainly through on- and off-line medical journals);
- taking part in conferences and congresses and presenting and understanding papers presented there;
- surfing the web to find suitable information or exchanging opinions, posing questions and giving answers in medicine-dedicated fora (Mičić 2009: 88 qtd. in: Sinadinović 2013: 275; Vicentini and Radicchi 2014: 220).

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. It is not surprising then that the didactic purpose has the leading role in EMP studies\* (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 and 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,

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\* 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.

composed of words borrowed from ordinary English – e.g. *bypass*, *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, morphological, and didactic aspects.

## 1. THE IMMENSE 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 or 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. *computed tomography*, *sonography*, *mammography*, *laparoscope*, *endoscope*, *colonoscopy* or *magnetic resonance imaging (MRI)*. New diseases appeared, such as *AIDS*, *BSE (Bovine spongiform encephalopathy)* or so-called *mad cow disease*, *avian flu (H5N1 virus)*, *swine flu (H1N1 virus)* or *ebola* (Džuganová 2013). 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. For instance, in 1951, the terms *sonograph* and *sonography* were formed from the Latin *sonus* ('sound') and the Greek *graphō* ('to write'). Adequately to these terms, other related terms were coined. In 1956, it was the term *sonogram* (*sono* + G./L. *gramma*), in 1960

*ultrasonograph* (ultra + sonograph) and *ultrasonography* (ultrasonic + graphy), etc. (OED). Although it seems that the number of new terms is enormous, Jammal (1988 qtd. in: Fleischman 2008: 473) 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'.

## 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 which are covered by EMP, students need to gain knowledge of specific *technical* and *non-technical* words (Harding 2007 qtd. 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, 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).

Formation of new terms in each field of medicine deserves appropriate attention as these terms subsequently become part of general language. There is a very close relationship between general (codified) language and the language of science. The language of science forms about three quarters of all written and printed materials of the general language in each nation. While general language serves all of its users, the language of

science requires a certain level of scientific education, because the terms as names of certain concepts merely indicate their meaning. Only experts know their exact meaning (Poštolčková, Roudný and Tejnor 1983: 11).

In medical terminology, two completely different phenomena can be observed: (1) a very precisely worked-out, internationally standardised anatomical terminology and (2) a quickly developing clinical terminology of all medical branches, characterised by a certain terminological chaos. The main cause of this phenomenon is rapid development of scientific knowledge and a need to quickly name new devices, diseases, symptoms, etc. (Džuganová 2002: 56).

Attempts to unify clinical medical terminology on an international level have mostly been unsuccessful. According to Šimon (1989), the first attempt to create a unified international classification of diseases was made in the 19<sup>th</sup> century. This classification had no united rules and similarly as the modern *International Statistical Classification of Diseases and Related Health Problems* (WHO 2010) it is only a technical tool used for statistical purposes. Lack of unified medical terminology is especially visible today, as computers have entered into medicine and faultless international communication is required (Šimon 1989: 52).

English medical terms (anatomical and clinical) have a restricted, specific meaning, are mostly of Greek or Latin origin and can be studied from various perspectives, e.g. etymological, morphological, semantic or 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 (Poštolčková, Roudný and Tejnor 1983: 26). 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: 34–35; Peprník 2006: 73). As Hauser (1980: 34) observes, 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 or hyponymy, 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 the formation of terms. Regardless of this fact, there exist some diminutives in English and Latin medical terminology, i.a., L./E. *cerebellum* (small brain), L. *bronchiolus*, E. *bronchiole* (small bronchus), L. *clavicular* or E. *clavicle* (small key). 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

Although medical terms have been drawn from many languages, the great majority are from Greek and Latin. Terms of Greek origin occur mainly in clinical terminology, e.g. *cardiology*, *nephropathy*, *gastritis*, Latin terms make up most anatomical terminology (*nomina anatomica*), e.g. *cor*, *ren* or *ventriculus*.

The fall of the Roman Empire did not mean the end of Roman-Greek culture. In the 7<sup>th</sup> century the expansion of Arabs 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 Sīnā, 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 (Flannery; Bujalková and Jurečková 2013: 6). The Arabic influence on English medical terminology (EMT) can be traced in expressions such as *alcohol*, *alchemy*, *alkali* or *nitrate*, which entered 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 origins, e.g. taken from French, such as *jaundice*, *ague*, *cannula*, *poison*, *faint*, *grand mal*, *petit mal*, *massage*, *passage*, *plaque* or *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* and *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 (Dávidová 2011: 9).

### 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 civilisation in the 5<sup>th</sup> century BC. 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 AD) 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, such as *arthritis*, *catarrh*, *diarrhoea*, *dyspnoea*, *nephritis* or *pleuritis* (*pleurisy*) (Répás 2013: 5; Wulff 2004: 187).

At the beginning of the 1<sup>st</sup> 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



Latinised 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 were needed with the rapid expansion of medical science during the last few centuries, Greek words or Greek words with Latin endings were 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 words do not appear different from the classical terms, e.g. *streptococcus* was coined by Viennese surgeon Albert Theodor Billroth in 1877 from *strepto-* ('twisted') and Modern Latin *coccus* ('spherical bacterium', from Greek *kokkos*, 'berry'). Similarly, *appendicitis* was coined in 1886 from the Latin stem of appendix, in the medical sense, and *-itis* ('inflammation'). The term *cystoscopy*, 'examination of the bladder with a cystoscope' (1889), was coined in 1910 from Latinised combining form of Greek *kystis* ('bladder') and *-scope* (OED). A lot of simple Greek root words are used in everyday English without our realising their origin. To quote just a few: *acne*, *basis*, *chaos*, *character*, *criterion*, *dogma*, *horizon*, *stigma*, *thema*, etc. (Répás 2013: 5).

Actually, 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* or *trauma*, most Greek medical terms came into English in a Latinised 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. <i>diafragma</i> → Engl. <i>diaphragm</i>	Gr. <i>ophthalmos</i> → Engl. <i>ophthalmia</i>
Gr. <i>paralysis</i> → Engl. <i>palsy</i>	Gr. <i>pleuritis</i> → Engl. <i>pleurisy</i>
Gr. <i>rhachitis</i> → Engl. <i>rickets</i>	Gr. <i>therapia</i> → Engl. <i>therapy</i>

Here are several examples of Greek adjectives 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* or *wrist* – 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/dermatitis</i>
<i>hepar</i>	liver	<i>hepatic/hepatitis</i>
<i>kardia</i>	heart	<i>cardiac/carditis</i>
<i>nephros</i>	kidney	<i>nephric/nephrosis</i>
<i>osteon</i>	bone	<i>osteal/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 as a living language before it became a means of doctors' communication for long centuries during the Middle Ages. Latin terms penetrated into English terminology in various forms:

- 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*, *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;
- Latin terms assimilated into English: another similarly numerous group is of anglicised 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 specialised 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>

- 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:

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\* A sense now obsolete or rare, replaced by *cardiac*.

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>

- neologisms formed from Latin elements: in the 16<sup>th</sup> 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 (Lat./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, pluralised 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 x 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 Latinised form their plurals according to Greek patterns: *ankylosis x ankyloses*, *arthritis x arthritides*, *condyloma x condylomata*, *sarcoma x sarcomata*, *criterion x criteria* (Dorland 1996; Dirckx 2005: APP 9).

According to *Longman English Grammar* (Alexander 1988: 48), '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.'

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/larvas*, *sarcoma – sarcomata/sarcomas*, *vertebra – vertebrae/vertebras*.

In Latin, any adjectives modifying a noun must ‘agree’ with it in number, gender and case (grammatical concord). For example, in the compound nouns *linea alba* (‘white line’), *aqua destillata* (‘distilled water’) or *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 and Jurečková 2013).

### 3. STRUCTURE OF MEDICAL TERMS

Morphologically medical terms can be basically divided into one-word and multiple-word or descriptive terms. One-word terms can be simple (underived) words, derived words, compounds or combinations of derived and compound words. Drozd and Seibicke (1973) consider derivation and compounding to be the basic word-forming processes.

Generally vocabulary spreads in three possible ways: (1) *forming new names*, (2) *forming new meanings* and (3) *borrowing words from other languages* (Peprník 1992: 7). Other linguists divide forming of new terms according to their ways of formation: (1) *morphological*, by means of derivation/affixation, compounding and abbreviation, (2) *syntactic*, by forming collocations and multi-word phrases, (3) *semantic*, by narrowing (specifying) the meaning of common words and by metaphoric and metonymic transfer of the previous meaning, and (4) *borrowing words from other languages* (Poštolková, Roudný and Tejnor 1983: 34).

### 3.1. Derivation

Words which consist of a root and an affix (or several affixes) are called derived words or derivatives and are produced by the process of word-building known as affixation or derivation. Derived medical terms can consist of a prefix, one or two word roots, and a suffix in various combinations, as witnessed in the following examples:

*myocardium* = myo- (prefix) + card(ium) (root)  
*endocarditis* = endo- (prefix) + card (root) + -itis (suffix)  
*adenoma* = aden(o) (root) + -oma (suffix)

There are numerous derived words whose meanings can be easily deduced from the meanings of their constituent parts. For example, the Greek prefix *di-* and the Latin prefix *bi-* convey the meaning 'two', 'twice' or 'double' in such words as the adjectives *diploid*, *dicentric*, *diphasic*, *bilateral* and *bipolar*, as well as in the nouns *diplopia* and *diglossia*. The identification of the components and the basic block terms from which the words are derived allows associations, which are easily recognisable and in many cases eliminate the need for medical students and doctors for root memorisation (Goumovskaya 2007).

Yet, such cases represent only the simplest stage of semantic readjustment within derived words. The constituent morphemes within derivatives do not always preserve their current meanings and are open to subtle and complicated semantic shifts, e.g. *moral x unmoral x amoral x non-moral x immoral* or *social x asocial x unsocial x antisocial*.

Derivational affixes are used to create new words and they change the grammatical class of the root word to which they are attached, e.g. *haematology* (noun), *haematologist* (noun) and *haematologic(al)* (adjective).

From the etymological point of view, affixes are classified into the same two large groups as words: native and borrowed.

### 3.2. Compounds

The second most productive type of word-formation is compounding. A compound word is a fixed expression made up of more than one word, e.g. *human being*, *blood donor*, *hay fever* or *Black Death*. While in German compound words are easily recognisable because they are always written together, in English writing of compound words varies. Compound words may be written:

- as two/three words: *blood pressure*, *blood group*, *heart attack*, *central nervous system*;
- with a hyphen: *life-span*, *collar-bone*, *birth-control*;
- as one word: *gallstone*, *haemophilia*, *leucocytopenia*, *pseudopolycytemia*.

There are no strict rules for writing the compound word. Occasionally some terms are written with a hyphen, occasionally as two separate words or one word, e.g. *life span* – *life-span* or *gall bladder* – *gallbladder* (Peprník 1992: 13). There is a visible tendency in modern American English to omit hyphens (often recommended by academic medical journals) (Kujawska-Lis 2018).

Composition seems to be older than derivation from a diachronic viewpoint because word-forming affixes developed from independent words. A similar process can be seen nowadays in the development of prefixoids (pseudoprefixes) and suffixoids (pseudosuffixes) (Poštolková, Roudný and Tejnor 1983: 42), e.g. *myo-*, *arthro-*, *haemo-/haemato-*, *adipo-*, *hepato-*, *onco-*, *patho-*, *-aemia*, *-itis*, *-logy*, *-tomy*, *-pathy*, *-cyte*, *-algia*, *-ectomy* or *-scope*. Each of these pseudoaffixes hides a certain meaning, e.g. *myo-* means ‘muscle’, *arthro-* – ‘joint’, *haemo-/haemato-* – ‘blood’, *-aemia* – ‘blood’, *-itis* – ‘inflammation’ and *-logy* – ‘science’, but they are not used as independent words. They have been developed artificially from Greek and Latin word roots for scientific purposes.

### 3.3. Descriptive Terms

Both mentioned types are also classed as morphological because they undergo certain morphological processes. While derivation and com-



pounding prevailed in the past and preferred Latin and Greek roots and affixes, nowadays a syntactic approach prevails: witness the forming of descriptive terms such as *Acquired Immune Deficiency Syndrome*, *Bovine Spongiform Encephalopathy*, *Severe Acute Respiratory Syndrome* or *Irritable Bowel Syndrome*, which subsequently undergo the process of abbreviation because their full names are too long and uneconomical. Many English abbreviations have become internationally so well-known that many laymen may not know their English full-forms (*AIDS*, *HIV*, *BSE*, *SARS*, *IBS*) (Karwacka 2015).

### 3.4. Abbreviations

An abbreviation is a shortened form of a word or phrase. There are many ways of forming abbreviations. Usually, but not always, they consist of a letter or group of letters taken from a word or phrase. Abbreviations occur in written language and their spoken varieties may be only graphic (*g* – *gram*, *h* – *hour*), both graphic and phonetic (*G.P.* – *general practitioner*) or acronymic ([*eits*] – *AIDS*, which developed from its initialisation). According to Crystal (1995), acronyms are initialisms pronounced as single words, like *SARS* (*Severe Acute Respiratory Syndrome*). Sometimes an acronym can be formed from parts of words, as in *Ameslan* (*American Sign Language*). Normally acronyms and initialisms are regarded as subgroups of abbreviations: ‘Some linguists do not recognise a sharp distinction between acronyms and initialisms, but use the former term for both’ (Crystal 1995: 120).

### 3.5. Initialisms

Initialisms are very popular in written medical English to shorten long descriptive terms. For instance, terms from biochemistry such as: *deoxyribonucleic acid* → *DNA*, *ribonucleic acid* → *RNA* or *Adenosine Triphosphate* → *ATP*; and from clinical medicine: *Acute Lymphocytic Leukaemia* → *ALL*, *Chronic Lymphocytic Leukaemia* → *CLL*, *Autoimmune Thrombocytopenia* → *AITP* or *Idiopathic Thrombocytopenia* → *ITP*.

Usage of initialisms is so frequent that in each text it is necessary to introduce the full phrase first and then its abbreviation in brackets to avoid misunderstanding; for instance, the initialism *CML* can mean either *Chronic Myeloid Leukaemia* or *Chronic Monocyte Leukaemia*. Similarly, *IHD* can mean either *Ischemic Heart Disease* or *Intermittent Haemodialysis*. Kujawska-Lis (2018) makes us aware of the abbreviation *HD*, which can have several meanings: *Hansen's disease*, *haemodialysis*, *hip dysplasia*, *Hirschsprung's disease*, *Hodgkin's disease*, *hormone disruptor*, *Huntington's disease* or *hyperactivity disorder*.

#### 4. 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 precise communication more complicated (Horecký 1962 qtd. 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 systemise medical terminology.

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.

##### 4.1. 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 a much more popular practice than creating complex and sophisticated names for each separate meaning which needs to be expressed. This phenomenon is in practice in

specialised 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; for instance, *suture* can mean:

- a type of fibrous joint in which the opposed surfaces are closely united, as in the skull;
- material used in closing a surgical or traumatic wound with stitches;
- 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);
- the act or process of uniting a wound by stitches.

The medical term *surgery* can mean:

- the branch of medicine which treats diseases, injuries and deformities by manual or operative methods;
- the place in a hospital or doctor's or dentist's office where surgery is performed;
- in Great Britain, a room or office where a doctor sees and treats patients;
- the work performed by a surgeon (Dorland 1996: 1612, 1614).

Usually in medical English the context allows the recipient to understand which meaning is activated in a particular utterance (Kujawska-Lis 2018).

#### 4.2. Synonymy

Synonyms are defined as words with similar or very close meanings. Synonymy is very closely connected with calques and borrowings (loanwords) (Džuganová 2013).

The emergence of synonyms in medical lexicon is stimulated by various reasons, e.g. ethical ones. 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* (Goumovskaya 2007).

Synonymy can appear in several levels:

- 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* or *haematopoiesis* x *sanguinification*. Such synonyms arise due to the different motivation of word-formation of individual terms. For example in the term *erythrocyte*, the red colour is emphasised. In its synonymic term *normocyte* the normal development of the cell is emphasised;
- 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 or *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;
- 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 also:

- terms with English spelling: *haemostasia x haemostasis, polyglobulia x polyglobulism, thrombopathia x thrombopathy, thrombopenia x thrombopeny*;
- different affixes are used in words with the same meaning; for instance, we have found in English texts the following terms used as synonyms: *embolia x embolus x embolism* and *coagulum x coagulate x coagulant*.

## 5. 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 colours.

### Body substances

adip(o)/lip(o) – *fat*  
 calc(i) – *calcium*  
 glyc(o) – *sugar*  
 lith(o) – *stone*  
 thromb(o) – *clot*

### Body fluids

chol(e) – *bile*  
 haem(a/o) – *blood*  
 hydr(o) – *water*  
 hidr(o) – *sweat*  
 py(o) – *pus*

### Colours

erythr(o) – *red*  
 leuk(o) – *white*  
 alb(o)/albin(o) – *white*  
 chlor(o) – *green*  
 cyan(o) – *blue*

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

## 6. 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:

- 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* which 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 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);
- 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);
- 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. They provide a method of shorthand for the description of complex objects and procedures in medicine. Knowledge of the simple Greek roots can help in spelling a word more easily. Consider the English definition of

- mononucleosis* (*monos*, meaning 'one', + *nucleus*, meaning 'centre of a cell', + *osis*, meaning 'diseased condition'): an acute infectious disease triggered by the Epstein-Barr virus. Hematic symptoms include excess of monocytes with one nucleus (Goumovskaya 2007);
- 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);
  - 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 and Džuganová 2015);
  - it served as a secret language among doctors. Their patients did not understand it and were thus not forced to immediately confront the full nature of their diagnosis. Nowadays such a paternalistic model of doctor–patient communication should not be used anymore (Kujawska-Lis 2016).

## CONCLUSIONS

Anatomical terminology contains, according to the latest edition of *Terminologia Anatomica: International Anatomical Terminology* (FIPAT 1998), about 5,800 Latin terms (80% of all terms are Latin, 20% are Greek). Clinical terminology copes with 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 branches of medicine 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, as syntax is not addressed in terminology studies). In

medical language, a high number of English 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 emphasised several advantages of the medical terms originating from Greek and Latin terminologies.

### References

- Alexander, L.G. (1994). *Longman English Grammar*. London – New York: Longman.
- Andrews, E. (1947). *A History of Scientific English: The Story of Its Evolution Based on a Study of Biomedical Terminology*. New York: Richard R. Smith.
- Barnau, A. (2014/2015). Vizuálna podpora ako motivačný faktor vo výučbe angličtiny u študentov ošetrovateľstva. *Cizí jazyky*, 58(5), pp. 25–37.
- Barnau, A. (2015). Effective Communication and Visual Aids in Teaching ESP: A Process and Outcome Evaluation. In: *Trendy v jazykovém vzdelávání v terciární sféře v jazykových centrech na FF v ČR a SR 2: Testování a měření jazykových kompetencí*. Available at: [https://www.kal.upol.cz/fileadmin/kal/dokumenty/veda-vyzkum/trendy-v-jazykovem-vzdelavani-ii/BARNAU\\_EDIT\\_FINAL.pdf](https://www.kal.upol.cz/fileadmin/kal/dokumenty/veda-vyzkum/trendy-v-jazykovem-vzdelavani-ii/BARNAU_EDIT_FINAL.pdf) (accessed 15 April 2017).
- Bujalková, M. and Jurečková, A. (2013). *Terminologia Medica: Greco-Latin Medical Terminology*. Bratislava: Univerzita Komenského.
- Bujalková, M. and Džuganová, B. (2015). English and Latin Corpora of Medical Terms: A Comparative Study. *International Journal of Humanities Social Sciences and Education*, 2(12), pp. 82–91.
- Canziani, T., Grego, K. and Iamartino, G. (2014). *Perspectives in Medical English*. Monza: Polimetrica International Scientific Publisher.
- Chabner, D.-E. (1996). *The Language of Medicine*. Philadelphia: W.B. Saunders Company.
- Crystal, D. (1995). *The Cambridge Encyclopedia of the English Language*. Cambridge: Cambridge University Press.
- Dávidová, E. (2011). *Analysis of English Medical Terminology from the Field of Digestive System*. Brno: Masaryk University. Available at: [http://is.muni.cz/th/104783/pedf\\_b/](http://is.muni.cz/th/104783/pedf_b/) (accessed 15 April 2017).



- Dirckx, J.H. (2005). Greek and Latin Medical Terminology. *Stedman's Online.com*. Available at: <http://stedmanonline.com/webFiles/Dict-Stedmans28/APP04.pdf> (accessed 10 April 2017).
- Dobrić, K. (2013). Creating Medical Terminology: From Latin and Greek Influence to the Influence of English as the Current *Lingua Franca* of Medical Communication. *JAHHR*, 4(7), pp. 493–501.
- Dorland, W.A.N. (Ed.). (1996). *Dorland's Illustrated Medical Dictionary*. Philadelphia: W.B. Saunders Company.
- Drozd, L. and Seibicke, W. (1973). *Deutsche Fach- und Wissenschaftssprache*. Wiesbaden: Oscar Brandstetter Verlag.
- Džuganová, B. (2002). A Brief Outline of the Development of Medical English. *Bratisl Lek Listy*, 103(6), pp. 223–227.
- Džuganová, B. (2013). English Medical Terminology: Ways of Forming Medical Terms. *JAHHR*, 4(7), pp. 55–69.
- Flannery, M. (n.d.). Avicenna. *Encyclopaedia Britannica*. Available at: <https://www.britannica.com/biography/Avicenna> (accessed 13 April 2017).
- Fleischman, S. (2008). Language and Medicine. In: *The Handbook of Discourse Analysis*, eds. D. Schiffrin, D. Tannen and H.E. Hamilton. Malden: Blackwell Publishing. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/9780470753460.ch25/summary> (accessed 15 April 2017).
- Goumovskaya, G. (2007). English for Medical Studies. *English*, 24. Available at: <http://eng.1september.ru/article.php?ID=200702407> (accessed 15 April 2017).
- Grego, K. (2014). Medical English as a Research Field: Results, Trends, and Perspectives. In: *Perspectives in Medical English*, eds. T. Canziani, K. Grego and G. Iamartino. Monza: Polimetrica International Scientific Publisher.
- Harding, K. (2007). *English for Specific Purposes*. Oxford: Oxford University Press.
- Horecký, J. (1962). *Anatomické názvoslovie*. Bratislava: Veda.
- Hutchinson, T. and Waters, A. (1987). *English for Specific Purposes: A Learning-centered Approach*. Cambridge: Cambridge University Press.
- Hauser, P. (1980). *Nauka o slovní zásobě*. Praha: Státní pedagogické nakladatelství.
- Mičić, S. (2009). *Studije o jeziku medicine u engleskom i srpskom*. Beograd: Beogradska knjiga.
- Mičić, S. (2013). Language of Medicine: Present and Future. *JAHHR*, 4(7), pp. 217–233.
- Jammal, A. (1988). Les vocabulaires des spécialités médicales: Pourquoi et comment les fabrique-t-on? *Meta*, 33(4), pp. 535–541.
- Karwacka, W. (2015). Medical Translation. In: *Ways to Translation*, eds. Ł. Bogucki, S. Goźdź-Roszkowski and P. Stalmaszczyk. Łódź: Wydawnictwo Uniwersytetu Łódzkiego, pp. 271–298.
- Kujawska-Lis, E. (2016). Extra-Textual Expert Knowledge and Decoding the Meaning in Medical Texts. In: *Translation and Meaning. New Series*, Vol. 2,

- Pt. 2, eds. Ł. Bogucki, B. Lewandowska-Tomaszczyk and M. Thelen. Frankfurt am Main: Peter Lang, pp. 249–261.
- Kujawska-Lis, E. (2018). Synonyms in Medical Terminology: Confusion for Inexperienced Translators? In: *Prace Językoznawcze*, 20(1), pp. 83–99.
- OED. (n.d.). *Online Etymology Dictionary*. Available at: <https://www.etymonline.com> (accessed 28 October 2018).
- Peprník, J. (1992). *Anglická lexikologie*. Olomouc: Univerzity Palackého.
- Peprník, J. (2006). *English Lexicology*. Olomouc: Univerzita Palackého.
- Pilegaard, M. (2000). Introduction. *HERMES, Journal of Language and Communication Studies, Thematic Section: Medical LSP*, 25, pp. 7–9.
- Polackova, G. (2001). Synonymy of Medical Terminology from the Point of View of Comparative Linguistics. *Bratisl Lek Listy*, 103(3), pp. 174–177.
- Požtolková, B., Roudný, M. and Tejnor, A. (1983). *O české terminologii*. Praha: Academia.
- QS University Ranking. (2017). Available at: <https://www.topuniversities.com/university-rankings/university-subject-rankings/2017/life-sciences-medicine> (accessed 13 December 2018).
- Répás, L. (2013). *Basics of Medical Terminology: Latin and Greek Origins*. Debrecen: Litográfia, Nyomda.
- Sinadinović, D. (2013). The Importance of Strategies in Learning and Acquiring Medical English Vocabulary. *JAHHR*, 4(7), pp. 273–291.
- Šimon, F. (1989). O historickom výskume medzinárodnej lekárskej terminológie. *Bratisl Lek Listy*, 90(1), pp. 48–55.
- FIPAT. (1998). Federative International Programme on Anatomical Terminology, *Terminologia Anatomica: International Anatomical Terminology*. Stuttgart – New York: Thieme.
- Vachek, J. (1974). *A Brief Survey of the Historical Development of the Old English, Middle English and Early Modern English*. Bratislava: Comenius University.
- Vicentini, A. and Radicchi, A. (2014). Internet Resources for Medical English. In: *Perspectives in Medical English*, eds. T. Canziani, K. Grego and G. Iamartino. Monza: Polimetrica International Scientific Publisher.
- WHO. (2010). World Health Organisation, *International Statistical Classification of Diseases and Related Health Problems*. Geneva: World Health Organisation. Available at: [http://www.who.int/classifications/icd/ICD10Volume2\\_en\\_2010.pdf](http://www.who.int/classifications/icd/ICD10Volume2_en_2010.pdf) (accessed 15 April 2017).
- Wulff, H.R. (2004). The Language of Medicine. *Journal of the Royal Society of Medicine*, 97, pp. 187–188.
- Ypsilandis, G.S. and Kantaridou, Z. (2007). English for Academic Purposes: Case Studies in Europe. *Revista de Linguística y Leanguas Aplicadas*, 2, pp. 69–83.

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Council for eHealth in Nursing at the National Centre  
for Healthcare Information Systems

## TERMINOLOGY MAPPING: CSIOZ RECOMMENDATION, ICNP® AND SNOMED CT\*

### INTRODUCTION

The nursing history card included in the Recommendation of the Polish Council for eHealth in Nursing at the National Centre for Healthcare Information Systems (Centrum Systemów Informacyjnych Ochrony Zdrowia, CSIOZ) dated 11 September 2013 is compliant with the Polish National Implementation of HL7 Clinical Document Architecture (CDA) standard. An analysis of the Recommendation led to the conclusion that

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\* We would like to thank the Council for eHealth in Nursing at the National Centre for Healthcare Information Systems for consultations and the Chancellor, Dr Jacek Grabowski from the Medical University of Łódź, for providing funds for the project. We also thank our Colleagues from the Social Nursing and Nursing Management Department for valuable tips. The aim of the project was to map the nursing history card (Pol. *karta wywiadu pielęgniarskiego*) included in the Recommendation of the Council for e-Health in Nursing at the Centre for Healthcare Information Systems on International Classification of Nursing Practice ICNP® reference terminology. Our aim was to implement the ICNP® version as the standard of electronic health records (EHR).

the terminology in the Recommendation needed to undergo validation, which was especially important due to the development of an IT tool dedicated specifically to the nursing process. Integrating the Recommendation with reference dictionaries such as ICNP® and SNOMED CT involved finding terms in these dictionaries which could be assigned to terms from the Recommendation. Mapping natural terminology (i.e., terminology used naturally by professionals) on the controlled classifications can support the interoperability of the Recommendation and contribute to extending the technical interoperability of the HL7 CDA standard (Polska Implementacja Krajowa, PIK – Polish National Implementation) prepared at the National Centre for Healthcare Information Systems.

In mapping, one system's resources are assigned to the resources of a corresponding system (including files or network resources). Terminology mapping involves interpreting terminology, its context and description while comparing systems or classifications. The process can be automated, semi-automated or performed manually. By ensuring semantic interoperability, mapping contributes to increasing the system's speed, comfort and functionality (cf. Kim, Hardiker and Coenen 2014; Gianangelo and Fenton 2005; Imel and Campbel 2003).

The ICNP® dictionary was created in 1989 as an initiative of the participants of the Congress of the International Council of Nurses (ICN) in Seoul. It is the first international standard whose aim is to facilitate the description and comparison of nursing practice locally, in regions and countries, as well as globally. The International Council of Nurses systematically updates and develops the Classification. ICNP® is constantly working on ensuring the compatibility of the terminology with other classifications (being in the WHO Classification family). Currently, ICNP® contains over 700 diagnoses and over 800 nursing interventions (ICN 2015a; 2015b).

SNOMED CT is a multinational and multilingual system that can be translated into different languages and dialects. It is a clinical terminology system designed to describe phenomena that accompany patient care for clinical purposes. It is maintained and updated by IHTSDO – International Health Terminology Standards Development Organisation (CSIOZ).

## 1. MATERIAL AND METHODS

The project involved mapping the nursing history card and the health status card onto ICNP®. For this purpose, an equivalence table was prepared, in which natural terms from the Recommendation were entered in the first column. In the second column we entered an adequate corresponding term from the ICNP®, i.e., from a referential terminology set which contains keywords for ensuring consistency and univocity of terms used in the Classification. ICNP® focus axis keywords were used in searches. In the absence of an adequate term, the location, means, action, judgment and time axes were used. The focus axis terms were assigned to diagnoses and presented in the table in the third column. There were 60 terms in the Recommendation which were not found in ICNP®. Consequently, in the second stage of the project, the SNOMED CT dictionary was also applied in the mapping process. For this purpose, the fourth column was added to the table, for a SNOMED CT term whenever an ICNP® term was missing. It is important to note that the ICNP terminology is translated into Polish in compliance with ICN guidelines and consulted with a panel of experts for ICNP translation. The translated version is assessed every two years by the nursing community.

In the next stage, the eHealth Council was consulted and terms which did not reflect the natural terminology contained in the Recommendation were either confirmed or eliminated, as presented in this paper. For the purposes of the mapping process, an Excel spreadsheet with the Polish version of the classification was made available by the ICN-Accredited Centre for ICNP® Research & Development at the Medical University of Łódź. We also used the ICNP Browser for mapping. Subsequently, the online SNOMED CT Browser was used for the SNOMED CT dictionary mapping.

The project was carried out as part of the research activities of the Medical University of Łódź and financed from the funds of the Medical University of Łódź. The mapping process started in August 2017 and ended in March 2018.

The results of the work are presented in Table 1 below. Empty spaces in the SNOMED CT column reflect the fact that SNOMED CT terms were selected only for the terminology from the Recommendation which was not found in ICNP®.

Table 1. The terms of the Recommendation mapped to ICNP and SNOMED CT

History card term	ICNP term	ICNP diagnosis	SNOMED CT
cukrzyca	cukrzyca – <i>diabetes</i> [10005876] (F)		
nadciśnienie tętnicze	hipertensja – <i>hypertension</i> [10009394] (F)		
choroby sercowo-naczyniowe	status kardiologiczny – <i>cardiac status</i> [10003927] (F)		
nowotwór	<i>no corresponding term</i>		neoplastic disease [55342001]
padaczka	<i>no corresponding term</i>		epilepsy [84757009]
gruźlica	<i>no corresponding term</i>		tuberculosis [56717001]
układ oddechowy	status oddechania – <i>respiratory status</i> [10016962] (F)		
choroby nerek	<i>no corresponding term</i>		kidney disease [90708001]
choroby reumatyczne	<i>no corresponding term</i>		rheumatic joint disease [14175009]
udar mózgu	<i>no corresponding term</i>		cerebellar stroke [230690007]
choroba zakrzepowo-zatorowa	<i>no corresponding term</i>		thromboembolic disease [371039008]
tętno	tętno – <i>pulse rate</i> [10016134] (F)		
	tętno na tętnicy promieniowej – <i>radial pulse rate</i> [10016255] (F)		
	tętno na tętnicy grzbietowej stopy – <i>pedal pulse rate</i> [10014215] (F)		
tętno miarowe	normalne – <i>normal</i> [10013295] (I)		
tętno niemiarowe	nieprawidłowe – <i>abnormal</i> [10013269] (I)		
tętno nitkowate	<i>no corresponding term</i>		thready pulse [64661000]

History card term	ICNP term	ICNP diagnosis	SNOMED CT
alergie	alergia – allergy [10041119] (F)	alergia – allergy [10029697] (DC)	
alergia na lek	alergia na lek – medication allergy [10011878] (F)		
alergia na pokarm	alergia pokarmowa – food allergy [10008091] (F)		
alergia na środek chemiczny	alergia na lateks – latex allergy [10011185] (F)	alergia na lateks – latex allergy [10000790] (DC)	
alergia na roztocze	no corresponding term		allergy to house dust mite [232350006]
alergia na sierść zwierząt	no corresponding term		allergy to animal hair [300911008]
alergia na pyłki traw/ drzew	no corresponding term		allergy to tree pollen [419263009]
aktywność fizyczna	ćwiczenie – exercising [10007315] (F)		
tytoń	bez nadużywania tytoniu – no tobacco abuse [10029152] (F) nadużywanie tytoniu – tobacco abuse [10019766] (F) rzucenie palenia – smoking cessation [10038756] (F)	bez nadużywania tytoniu – no tobacco abuse [10029147] (DC) nadużywanie tytoniu – tobacco abuse [10022247] (DC) używanie tytoniu w przeszłości – previous tobacco use [10038858] (DC) nadużywanie substancji – substance abuse [10022268] (DC)	
inne używki	nadużywanie substancji – substance abuse [10018992] (F) bez nadużywania substancji – no substance abuse [10029134] (F) bez nadużywania alkoholu – no alcohol abuse [10028777] (F) nadużywanie alkoholu – alcohol abuse [10002137] (F)	bez nadużywania substancji – no substance abuse [10029123] (DC) bez nadużywania alkoholu – no alcohol abuse [10028765] (DC) nadużywanie alkoholu – alcohol abuse [10022234] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	uzależnienie od alkoholu – <i>alcohol dependence</i> [10041375] (F) bez nadużywania specyfików – <i>no drug abuse</i> [10028875] (F) nadużywanie specyfiku – <i>drug abuse</i> [10006346] (F) uzależnienie od specyfików – <i>drug dependence</i> [10041811] (F) administrowanie – <i>administering</i> [10001773] (A)	uzależnienie od alkoholu – <i>alcohol dependence</i> [10041347] (DC) bez nadużywania specyfików – <i>no drug abuse</i> [10028868] (DC) nadużywanie specyfiku – <i>drug abuse</i> [10022425] (DC) uzależnienie od specyfików – <i>drug dependence</i> [10041381] (DC) administrowanie lekiem – <i>administering medication</i> [10025444] (I) administrowanie antybiotykiem – <i>administering antibiotic</i> [10030383] (I) administrowanie insuliną – <i>administering insulin</i> [10030417] (I) administrowanie leczeniem profilaktycznym – <i>administering prophylactic treatment</i> [10001827] (I) administrowanie lekiem przeciwbólowym – <i>administering pain medication</i> [10023084] (I) administrowanie lekiem przeciwgorączkowym – <i>administering antipyretic</i> [10037248] (I) administrowanie suplementem diety – <i>administering nutritional supplement</i> [10037037] (I) administrowanie szczepionką – <i>administering vaccine</i> [10030429] (I)	
przyjmowane leki			



History card term	ICNP term	ICNP diagnosis	SNOMED CT
urządzenia	urządzenie – <i>device</i> [10005869] (M) urządzenie korekcyjne – <i>corrective device</i> [10005231] (M) urządzenie ortotyczne – <i>orthotic device</i> [10013834] (M) aparat ortodontyczny – <i>tooth brace</i> [10019848] (M) aparat słuchowy – <i>hearing aid</i> [10008805] (M) but korekcyjny – <i>correction shoe</i> [10005220] (M) okulary – <i>glasses</i> [10008460] (M) szkło kontaktowe – <i>contact lens</i> [10005040] (M) urządzenie protetyczne – <i>prosthetic device</i> [10015855] (M) peruka – <i>wig</i> [10021081] (M) proteza dentystryczna – <i>denture</i> [10005750] (M) proteza kończyny – <i>artificial limb</i> [10002602] (M) szklane oko – <i>glass eye</i> [10008473] (M)	administrowanie witaminą – <i>administering vitamin</i> [10037044] (I) administrowanie witaminą B12 – <i>administering vitamin B12</i> [10030438] (I) administrowanie lekiem wziewnym – <i>administering inhalant medication</i> [10046579] (I)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	urządzenie uruchamiające – <i>mobilising device</i> [10012131] (M)		
	laska inwalidzka – <i>walking stick</i> [10020893] (M)		
	aparatura podnosząca – <i>lifting apparatus</i> [10011349] (M)		
	pojazd – <i>vehicle</i> [10020654] (M)		
	wózek inwalidzki – <i>wheelchair</i> [10021052] (M)		
	poręcz – <i>hand rail</i> [10008657] (M)		
dostępny naczyniowe	droga do ciała – <i>body route</i> [10003467] (L)		
wklucie obwodowe	droga dożylna – <i>intravenous route</i> [10010798] (L)		
wklucie centralne	kaniula – <i>venous cannula</i> [10020677] (M)		
	droga centralna – <i>central line</i> [10004115] (M)		
	kaniula dożylna – <i>venous cannula</i> [10020677] (M)		
inne dostępy	droga do jamy ciała – <i>intracavitary route</i> [10010617] (L)		
	droga do miejsca występowania zmiany – <i>intracavitary route</i> [10010686] (L)		
	droga do szyjki macicy – <i>intracervical route</i> [10010629] (L)		
	droga do światła przewodów – <i>intra luminal route</i> [10010693] (L)		
	droga docewkowa – <i>urethral route</i> [10020341] (L)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	<p>droga dodziąsłowa – <i>gingival route</i> [10008439] (L)</p> <p>droga dogalkowa – <i>ocular route</i> [10013615] (L)</p> <p>droga domięśniowa – <i>intramuscular route</i> [10010705] (L)</p> <p>droga donosowa – <i>nasal route</i> [10012430] (L)</p> <p>droga doodbytnicza – <i>rectal route</i> [10016553] (L)</p> <p>droga dooponowa – <i>intrahecal route</i> [10010767] (L)</p> <p>droga doowodniowa – <i>intraamniotal route</i> [10010561] (L)</p> <p>droga dopochwowa – <i>vaginal route</i> [10020581] (L)</p> <p>droga dopęcherzykowa – <i>intravesical route</i> [10010812] (L)</p> <p>droga dosercowa – <i>intracardiac route</i> [10010601] (L)</p> <p>droga dostawowa – <i>intraarticular route</i> [10010588] (L)</p> <p>droga dotętnicza – <i>intraarticular route</i> [10010574] (L)</p> <p>droga doustna – <i>oral route</i> [10013749] (L)</p> <p>droga douszyczna – <i>auricular route</i> [10003008] (L)</p> <p>droga dożylna – <i>intravenous route</i> [10010798] (L)</p> <p>droga ileostomienna – <i>ileostomy route</i> [10009743] (L)</p>		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	<p>droga inhalacji – <i>inhalation route</i> [10031585] (L)</p> <p>droga kolostomijna – <i>colostomy route</i> [10004617] (L)</p> <p>droga nadwardówkowa – <i>epidural route</i> [10007021] (L)</p> <p>droga oddechowa – <i>airway route</i> [10002100] (L)</p> <p>droga okołonerwowa – <i>perineural route</i> [10014355] (L)</p> <p>droga okołostawowa – <i>peritarticular route</i> [10014329] (L)</p> <p>droga podania – <i>topical route</i> [10033157] (L)</p> <p>droga podjęzykowa – <i>sublingual route</i> [10018985] (L)</p> <p>droga podskórna – <i>subcutaneous route</i> [10018963] (L)</p> <p>droga pokarmowa – <i>gastrointestinal route</i> [10008321] (L)</p> <p>droga pozagałkowa – <i>retrobulbar route</i> [10017206] (L)</p> <p>droga pozajelitowa – <i>parenteral route</i> [10014047] (L)</p> <p>droga pozaowodniowa – <i>extraamniotal route</i> [10007434] (L)</p> <p>droga przez szyjkę macicy – <i>endocervical route</i> [10006847] (L)</p>		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	<p>droga przezskórną – <i>intrasternal route</i> [10010751] (L)</p> <p>droga skórna (powierzchnowa) – <i>cutaneous route</i> [10005489] (L)</p> <p>droga tracheostomijna – <i>tracheostomy route</i> [10019946] (L)</p> <p>droga transdermalna – <i>transdermal route</i> [10020011] (L)</p> <p>droga urostomijna – <i>urostomy route</i> [10020510] (L)</p> <p>droga wewnątrzgałkowa – <i>intraocular route</i> [10010714] (L)</p> <p>droga wewnątrzkanalowa – <i>intraductal route</i> [10010672] (L)</p> <p>droga wewnątrzmaciczna – <i>intrauterine route</i> [10010779] (L)</p> <p>droga wewnątrzszustkowa – <i>intraosseous route</i> [10010590] (L)</p> <p>droga wieńcowa – <i>intra coronary route</i> [10010638] (L)</p> <p>droga zatokowa – <i>endosinusal route</i> [10006852] (L)</p> <p>droga śródskórna – <i>intracutaneous route</i> [10010664] (L)</p>		
status społeczny	status społeczny – <i>social status</i> [10018410] (F)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
mieszka z rodziną/ opiekunem	<i>no corresponding term</i>		lives with family [22413007]
mieszka samotnie	<i>no corresponding term</i>		lives alone [105529008]
bezdomny	<i>no corresponding term</i>		homeless [32911000]
status ekonomiczny	<i>no corresponding term</i>		economic status [73831000]
prace	<i>no corresponding term</i>		working [261041009]
renta	<i>no corresponding term</i>		invalidity pension [160981007]
emerytura	<i>no corresponding term</i>		retirement pension [160995005]
zasilek	<i>no corresponding term</i>		benefit status [224192004]
skóra	zaburzenia na skórze – <i>impaired skin</i> [10012917] (F)		
świerzb	<i>no corresponding term</i>		infestation caused by <i>Sarcoptes scabiei</i> var. <i>hominis</i> [128869009]
wszawica	<i>no corresponding term</i>		pediculosiscapitis [81000006] pediculosiscorporis [25188002]
wybroczyny	<i>no corresponding term</i>		petechiae of skin [423716004]
skóra sucha	sucha skóra – <i>dry skin</i> [10006367] (F)		
skóra wilgotna	wilgotna skóra – <i>moist skin</i> [10012149] (F)		
uszkodzenia powierzchni	Pęknięcia – <i>fissure</i> [10007963] (F) maceracja – <i>maceration</i> [10011493] (F) egzema – <i>eczema</i> [10031172] (F)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	trądzik – <i>acne</i> [10029553] (F)		
rany przewlekłe	tkanka bliznowata – <i>scar tissue</i> [10017500] (F)		
	rana skóry – <i>skin wound</i> [10018256] (F)		
	rana – <i>wound</i> [10021178] (F)		
	maceracja – <i>maceration</i> [10011493] (F)		
	pęknięcie – <i>fissure</i> [10007963] (F)		
samookaleczenia	samookaleczenie – <i>self-mutilation</i> [10017795] (F)	samookaleczenie – <i>self-mutilation</i> [10001623] (DC)	
inne zaburzenia	rana nowotworowa – <i>malignant wound</i> [10031688] (F)	rana złośliwa (niegojąca) – <i>malignant wound</i> [10030019] (DC)	
	rana oparzeniowa – <i>burn wound</i> [10030866] (F)	rana oparzeniowa – <i>burn wound</i> [10029737] (DC)	
	rana otwarta – <i>open wound</i> [10046408] (F)		
	rana zamknięta – <i>closed wound</i> [10044928] (F)		
	wrzód – <i>ulcer</i> [10020237] (F)		
	rana urazowa – <i>traumatic wound</i> [10020122] (F)	rana urazowa – <i>traumatic wound</i> [10030088] (DC)	
	rana kłuta – <i>puncture wound</i> [10016147] (F)		
	rana postrzałowa – <i>gunshot wound</i> [10008619] (F)		
	rana szarpana – <i>laceration</i> [10011090] (F)		
	martwica – <i>necrosis</i> [10012482] (F)		
	odmrożenie – <i>frost bite</i> [10008247] (F)		
	oparzenie – <i>burn</i> [10003763] (F)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	otarcie naskórka – <i>excoriation</i> [10007287] (F)		
	stłuczenie – <i>contusion</i> [10005161] (F)		
	zacięcie – <i>cut</i> [10005462] (F)		
	owrządzenie cukrzycowe – <i>diabetic ulcer</i> [10031101] (F)	owrządzenie cukrzycowe – <i>diabetic ulcer</i> [10042181] (DC)	
	owrządzenie stopy cukrzycowej – <i>diabetic foot ulcer</i> [10042650] (F)		
	owrządzenie żyłne – <i>venous ulcer</i> [10020683] (F)	owrządzenie żyłne – <i>venous ulcer</i> [10030100] (DC)	
rana pooperacyjna	rana chirurgiczna – <i>surgical wound</i> [10019265] (F)	rana chirurgiczna – <i>surgical wound</i> [10023148] (DC)	
odleżyny	odleżyna – <i>pressure ulcer</i> [10015612] (F)	odleżyna – <i>pressure ulcer</i> [10025798] (F)	
	bez odleżyny – <i>no pressure ulcer</i> [10029077] (F)	bez odleżyny – <i>no pressure ulcer</i> [10029065] (DC)	
wzrok	wzrok – <i>sight</i> [10018124] (F)		
wzrok prawidłowy, pozytywny	zdolność widzenia – <i>ability to see</i> [10023468] (F)		
niedowidzenie	<i>no corresponding term</i>	zaburzone widzenie – <i>impaired vision</i> [10022748] (DC)	amblyopia [387742006]
ślepość	<i>no corresponding term</i>	zaburzone widzenie – <i>impaired vision</i> [10022748] (DC)	day blindness [399323001]
śluch	śluch – <i>hearing</i> [10008814] (F)		
śluch efektywny	zdolność słyszenia – <i>ability to hear</i> [10023434] (F)		
węch	powonienie – <i>smell</i> [10018327] (F)		
węch efektywny	zdolność odczuwania zapachów – <i>ability to smell</i> [10023475] (F)	efektywny zmysł powonienia – <i>effective sense of smell</i> [10027344] (DC)	
węch zaburzony	<i>no corresponding term</i>	zaburzone odczuwanie zapachów – <i>impaired sense of smell</i> [10022528] (DC)	disorder of smell [275462005]



History card term	ICNP term	ICNP diagnosis	SNOMED CT
niedosluch	<i>no corresponding term</i>	zaburzona zdolność słyszenia – <i>impaired hearing</i> [10022544] (DC)	tone deafness [55647004]
gluchota	<i>no corresponding term</i>	zaburzona zdolność słyszenia – <i>impaired hearing</i> [10022544] (DC)	hearing loss [15188001]
smak	smak – <i>taste</i> [10019458] (F)		
smak efektywny	zdolność odczuwania smaku – <i>ability to taste</i> [10023481] (F)	efektywny zmysł smaku – <i>effective sense of taste</i> [10028538] (DC)	
smak zaburzony		zaburzone odczuwanie smaku – <i>impaired sense of taste</i> [10022814] (DC)	disorder of taste [399993004]
układ nerwowy	status neurologiczny – <i>neurological status</i> [10013141] (F)		
pełna świadomość	świadomość – <i>awareness</i> [10003083] (F)		
nastroj wyrównany	równowaga nastroju – <i>mood equilibrium</i> [10035785] (F)	równowaga nastroju – <i>mood equilibrium</i> [10035792] (DC)	
kommunikacja słowno logiczna	kommunikowanie – <i>communication</i> [10004705] (F) zachowanie interaktywne – <i>interactive behaviour</i> [10010463] (F)	efektywne zachowanie interaktywne – <i>effective interactive behaviour</i> [10028063] (DC)	
rytm snu i czuwania zachowany	adekwatny sen – <i>adequate sleep</i> [10014939] (F)	adekwatny sen – <i>adequate sleep</i> [10024930] (DC)	
nudności	nudności – <i>nausea</i> [10012453] (F)	nudności – <i>nausea</i> [10000859] (DC)	
zaburzenia świadomości	bez nudności – <i>no nausea</i> [10028997] (F) spłątanie – <i>confusion</i> [10004947] (F)	bez nudności – <i>no nausea</i> [10028984] (DC) spłątanie – <i>confusion</i> [10023633] (DC)	
nastroj podwyższony, obniżony	<i>no corresponding term</i>	spłątanie chroniczne – <i>chronic confusion</i> [10000522] (DC) spłątanie ostre – <i>acute confusion</i> [10000449] (DC) nastroj labilny – <i>labile moods</i> [10045652] (DC)	mood swings [18963009]

History card term	ICNP term	ICNP diagnosis	SNOMED CT
zawroty głowy	zawroty głowy – <i>dizziness</i> [10006160] (F)		
omdlenia	<i>no corresponding term</i>		fainting [271594007]
zaburzenia równowagi	równowaga – <i>balance</i> [100031100] (F)	zaburzona równowaga – <i>impaired balance</i> [10047170] (DC)	
utrata przytomności	<i>no corresponding term</i>		loss of consciousness [419045004]
napady padaczkowe	<i>no corresponding term</i>		epileptic seizure – myoclonic [192992007]
rytm snu i czuwania zaburzony	zaburzony sen – <i>impaired sleep</i> [10012929] (F) bezsennosc – <i>insomnia</i> [10010330] (F) hipersomnia – <i>hypersomnia</i> [10009387] (F) lunatykowanie – <i>sleep walking</i> [10018294] (F) niedowład – <i> paresis</i> [10014075] (F)	zaburzony sen – <i>impaired sleep</i> [10027226] (DC)	
niedowłady			
porażenia	porażenie – <i>paralysis</i> [10014006] (F)		
kommunikacja werbalna	zdolność komunikowania werbalnego – <i>ability to communicate by talking</i> [10025039] (F)	zdolna/y do komunikowania werbalnego – <i>able to communicate verbally</i> [10028230] (DC)	
kommunikacja ograniczona, wymuszona	apraxia [10047039] (F)	apraxia [10047041] (DC)	
zaburzenia mowy	dysfazja – <i>dysphasia</i> [10006457] (F) niewyraźna mowa – <i>slurred speech</i> [10018304] (F)	zaburzone komunikowanie werbalne – <i>impaired verbal communication</i> [10025104] (DC)	
zachowanie i reakcje emocjonalne	jąkanie się – <i>stuttering</i> [10018944] (F) zachowanie – <i>behaviour</i> [10003217] (F)		
zachowanie bez zaburzeń	pozytywne zachowanie – <i>positive behaviour</i> [10014816] (F)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
zachowanie adekwatne do sytuacji	zachowanie zorganizowane – <i>organised behaviour</i> [10013777] (F)		
pełna świadomość co do miejsca, czasu i osoby	bez agresywnego zachowania – <i>no aggressive behaviour</i> [10035632] (F) bez przemocy – <i>no violence</i> [10029175] (F)	bez agresywnego zachowania – <i>no aggressive behaviour</i> [10035645] (DC) bez przemocy – <i>no violence</i> [10029168] (DC)	
zaburzenia zachowania	zachowanie asertywne – <i>assertive behaviour</i> [10002660] (F) problem z zachowaniem – <i>behaviour problem</i> [10012545] (F)	problem z zachowaniem – <i>behaviour problem</i> [10029716] (DC)	
niepokój psychoruchowy	zachowania kompulsywne – <i>compulsive behaviour</i> [10004883] (F)		
pobudzenie psychoruchowe	zachowanie autodestrukcyjne – <i>self-destructive behaviour</i> [10017707] (F) zachowanie dezorganizowane – <i>disorganised behaviour</i> [10006059] (F)	zachowanie autodestrukcyjne – <i>self-destructive behaviour</i> [10027424] (DC)	
lęk	zachowanie wycofane – <i>withdrawn behaviour</i> [10040754] (F) niepokój – <i>anxiety</i> [10002429] (F) starch – <i>fear</i> [10007738] (F)	zachowanie wycofane – <i>withdrawn behaviour</i> [10040765] (DC) niepokój – <i>anxiety</i> [10000477] (DC) starch – <i>fear</i> [10000703] (DC)	
agresja	zachowanie agresywne – <i>aggressive behaviour</i> [10002026] (F)		
rozpacz	rozpacz – <i>despair</i> [10005811] (F)	rozpacz – <i>despair</i> [10047056] (DC)	
smutek	smutek – <i>sadness</i> [10017418] (F)	smutek – <i>sadness</i> [10040662] (DC)	
obojętność	<i>no corresponding term</i>		indifference [20602000]
inne	bezradność – <i>helplessness</i> [10008920] (F) bezsilność – <i>powerlessness</i> [10015394] (F) brak nadziei – <i>hopelessness</i> [10009105] (F)	bezradność – <i>helplessness</i> [10039952] (DC) bezsilność – <i>powerlessness</i> [10001578] (DC) brak nadziei – <i>hopelessness</i> [10000742] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	cierpienie – <i>suffering</i> [10019055] (F)	cierpienie – <i>suffering</i> [10025588] (DC)	
	dystres – <i>distress</i> [10006118] (F)		
	frustracja – <i>frustration</i> [10008252] (F)		
	gniew – <i>anger</i> [10002320] (F)	gniew – <i>anger</i> [10045578] (DC)	
	nastroj depresyjny – <i>depressed mood</i> [10005784] (F)	nastroj depresyjny – <i>depressed mood</i> [10022402] (DC)	
	negative euphoria – <i>negative euphoria</i> [10047382] (F)	negative euphoria [10047400] (DC)	
	nerwowość – <i>nervousness</i> [10013071] (F)		
	samotność – <i>loneliness</i> [10011417] (F)		
	wstyd – <i>shame</i> [10017996] (F)	wstyd – <i>shame</i> [10046761] (DC)	
	zagrożenie – <i>insecurity</i> [10010311] (F)		
	zawiść – <i>envy</i> [10007013] (F)		
	zazdrość – <i>jealousy</i> [10010952] (F)		
	zmęczenie – <i>fatigue</i> [10007717] (F)	zmęczenie – <i>fatigue</i> [10000695] (DC)	
		wyczerpanie [10007327] (DC)	
układ sercowo-naczyniowy	status sercowo-naczyniowy – <i>cardiovascular status</i> [10033946] (F)		
zaburzenia	zaburzony – <i>impaired</i> [10012938] (F)	zaburzony układ sercowo-naczyniowy – <i>impaired cardiovascular system</i> [10022949] (DC)	
obrzęki	obrzęk – <i>oedema</i> [10041951] (F)		
	obrzęk limfatyczny – <i>lymphatic oedema</i> [10031661] (F)	obrzęk limfatyczny – <i>lymphatic oedema</i> [10030003] (DC)	
	obrzęk obwodowy – <i>peripheral oedema</i> [10027476] (F)	obrzęk obwodowy – <i>peripheral oedema</i> [10027482] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
	obrzęk wysiękowy – <i>weeping oedema</i> [10033310] (F) bez obrzęków obwodowych – <i>no peripheral oedema</i> [10029031] (F)	obrzęk wysiękowy – <i>weeping oedema</i> [10030116] (DC) bez obrzęków obwodowych – <i>no peripheral oedema</i> [10029020] (DC)	
wodobrzusze	wodobrzusze – <i>ascites</i> [10041946] (F)		
sinica	<i>no corresponding term</i>		cyanosis [3415004]
duszność	duszność – <i>dyspnoea</i> [10006461] (F)	duszność – <i>dyspnoea</i> [10029433] (DC)	dyspnea [267036007]
duszność wysiłkowa	bez duszności – <i>no dyspnoea</i> [10029255] (F) duszność funkcjonalna (wysiłkowa) – <i>functional dyspnoea</i> [10008268] (F)	bez duszności – <i>no dyspnoea</i> [10029264] (DC) duszność funkcjonalna (wysiłkowa) – <i>functional dyspnoea</i> [10029414] (DC)	
duszność spoczynkowa	duszność spoczynkowa – <i>resting dyspnoea</i> [10017117] (F) duszność w pozycji leżącej – <i>orthopnoea</i> [10013823] (F)	duszność spoczynkowa – <i>resting dyspnoea</i> [10029422] (DC)	
żyłaki kończyn dolnych, choroba żylna zakrzepowo-zatorowa	zaburzony proces układu naczyniowego – <i>impaired vascular process</i> [10012993] (F) zakrzepica żył głębokich – <i>deep vein thrombosis</i> [10027495] (F) bez zakrzepicy żył głębokich – <i>no deep vein thrombosis</i> [10036391] (F)	bez zakrzepicy żył głębokich – <i>no deep vein thrombosis</i> [10036406] (DC) efektywna funkcja naczyń obwodowych – <i>effective peripheral vascular function</i> [10028139] (DC)	
układ oddechowy	pozytywny proces układu naczyniowego – <i>positive vascular process</i> [10028118] (F) status oddechania – <i>respiratory status</i> [10016962] (F)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
bez zaburzeń, oddech efektywny	pozytywny proces układu oddechowego – <i>positive respiratory system process</i> [10028156] (F)	efektywna funkcja układu oddechowego – <i>effective respiratory system function</i> [10028160] (DC)  efektywna wymiana gazowa – <i>effective gas exchange</i> [10027993] (DC)  efektywne oddychanie – <i>effective breathing</i> [10041334] (DC)	
zaburzenia układu oddechowego	zaburzony proces układu oddechowego – <i>impaired respiratory system process</i> [10012891] (F)  <i>no corresponding term</i>	zaburzona funkcja układu oddechowego – <i>impaired respiratory system process</i> [10023362] (DC)	
oddech nieregularny	<i>no corresponding term</i>		irregular breathing [248585001]
oddech zwolniony	<i>no corresponding term</i>		slow respiration [86684002]
oddech przyspieszony	<i>no corresponding term</i>		tachypnea [271823003]
oddech świszczący	świszczenie – <i>wheeze</i> [10033334] (F)	świszczenie – <i>wheeze</i> [10030128] (DC)	
stany bezdechu	bezdech – <i>apnoea</i> [10035012] (F)	bezdech – <i>apnoea</i> [10035020] (DC)	
duszność	duszność – <i>dyspnoea</i> [10006461] (F)	duszność – <i>dyspnoea</i> [10029433] (DC)	
	duszenie się – <i>suffocation</i> [10019064] (F)		
	hipoksja – <i>hypoxia</i> [10009608] (F)		
	kwasica oddechowa – <i>respiratory acidosis</i> [10032653] (F)		
aceton	<i>no corresponding term</i>		ketotic breath [23034007]
fetor	<i>no corresponding term</i>		breath smells unpleasant [79879001]
kwaśny	kwasica oddechowa – <i>respiratory acidosis</i> [10032653] (F)		
kaszel	kaszel – <i>cough</i> [10005249] (F)	kaszel – <i>cough</i> [10047143] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
suchy kaszel	<i>no corresponding term</i>		dry cough [11833005]
wilgotny kaszel	<i>no corresponding term</i>		productive cough [28743005]
kaszel napadowy	<i>no corresponding term</i>		paroxysmal cough [43025008]
chroniczny kaszel	<i>no corresponding term</i>		chronic cough [68154008]
pokasywanie	<i>no corresponding term</i>		coughing [263731006]
chrypka	<i>no corresponding term</i>		hoarseness [50219008]
zaleganie w drzewie oskrzelowym	zaburzony proces układu oddechowego – <i>negative respiratory system process</i> [10012891] (F)	zaburzona funkcja układu oddechowego – <i>actual negative respiratory system process</i> [10023362] (DC)	
odkrztuszanie	odkrztuszanie – <i>expectoration</i> [10007362] (F)		
odsysanie	<i>no corresponding term</i>		exhaustion [60119000]
plwocina	plwocina – <i>sputum</i> [10018717] (F)		
kolor plwociny	<i>no corresponding term</i>		gray sputum [277900008] rusty sputum [24816000] green sputum [277908001] white sputum [427931002] brown sputum [277910004] yellow sputum [277907006] clear sputum [248604008] dirty sputum [248605009]
sinica	<i>no corresponding term</i>		cyanosis [3415004]

History card term	ICNP term	ICNP diagnosis	SNOMED CT
sinica obwodowa	<i>no corresponding term</i>		peripheral cyanosis [95442007]
drożność dróg oddechowych	udrożnienie dróg oddechowych – <i>airway clearance</i> [10002090] (F)	zaburzona drożność dróg oddechowych – <i>impaired airway clearance</i> [10001051] (DC) efektywna drożność dróg oddechowych – <i>effective airway clearance</i> [10027964] (DC)	
rurka intubacyjna	rurka intubacyjna – <i>endo tracheal tube</i> [10006868] (M)		
rurka tracheotomijna	tracheotomia – <i>tracheotomy</i> [10019951] (M)		
tlenoterapia	tlenoterapia – <i>oxygen therapy</i> [10013921] (F)	terapia tlenem – <i>real oxygen therapy</i> [10039369] (I)	
cewnik	cewnik – <i>catheter</i> [10004087] (M)		
maska	maska tlenowa – <i>oxygen mask</i> [10013909] (M)		
układ pokarmowy	status układu pokarmowego – <i>gastrointestinal status</i> [10034122] (F)		
bez zaburzeń	efektywna masa ciała – <i>effective weight</i> [10027385] (F)	waga w granicach normy – <i>weight within normal limits</i> [10027392] (DC) niedowaga – <i>underweight</i> [10027316] (DC)	
niedowaga	niedowaga – <i>underweight</i> [10020263] (F)	problem z masą ciała – <i>body weight problem</i> [10027290] (DC)	
nadwaga	zaburzona masa ciała – <i>impaired weight</i> [10013016] (F) nadwaga – <i>overweight</i> [10013899] (F)	nadwaga – <i>overweight</i> [10027300] (DC)	
	zaburzona masa ciała – <i>impaired weight</i> [10013016] (F)	problem z masą ciała – <i>body weight problem</i> [10027290] (DC)	
otyłość	otyłość – <i>obese</i> [10013457] (F)		
	niedożywienie – <i>malnutrition</i> [10042077] (F)		
	kacheksja – <i>cachexia</i> [10003802] (F)		
	kwasziorok – <i>kwashiorkor</i> [10011057] (F)		



History card term	ICNP term	ICNP diagnosis	SNOMED CT
	wyniszczenie – <i>marasmus</i> [10011734] (F)		
	cofanie się pokarmu (reflaks) – <i>regurgitation</i> [10016632] (F)		
jama ustna	status jamy ustnej – <i>oral status</i> [10044225] (F)		
błona śluzowa	błona śluzowa jamy ustnej – <i>oral mucous membrane</i> [10013731] (L)		
pleśniawki	pleśniawka/afta – <i>thrush</i> [10019713] (F)		
owrodzenia	wrzód – <i>ulcer</i> [10020237] (F)		
dysfagia	zdolność przełykania – <i>ability to swallow</i> [10000236] (F)	zaburzone połykanie – <i>impaired swallowing</i> [10001033] (DC)	
zgaga	zgaga – <i>heartburn</i> [10043280] (F)	zgaga – <i>heartburn</i> [10043298] (DC)	
odbijanie	odbijanie – <i>burping</i> [10003785] (F)		
	negatywne odbijanie – <i>negative burping</i> [10012584] (F)		
wymioty	wymioty – <i>vomiting</i> [10020864] (F)		
	niepowsściągliwe wymioty ciężarnych – <i>hyperemesis</i> [10046742] (F)	niepowsściągliwe wymioty ciężarnych – <i>hyperemesis</i> [10046757] (DC)	
	bez wymiotów – <i>no vomiting</i> [10029199] (F)	bez wymiotów – <i>no vomiting</i> [10029181] (DC)	
łaknienie	łaknienie – <i>craving</i> [10005334] (F)	nadmierne przyjmowanie pokarmów – <i>excess food intake</i> [10000682] (DC)	
	pica (łaknienie spazyczne) – <i>pica</i> [10014580] (F)	deficyt w przyjmowaniu pokarmów – <i>deficient food intake</i> [10000607] (DC)	
	przyjmowanie pokarmów – <i>food intake</i> [10008101] (F)		
pragnienie	pragnienie – <i>thirst</i> [10019671] (F)	pragnienie – <i>thirst</i> [10037847] (DC)	
	przyjmowanie płynów – <i>fluid intake</i> [10008015] (F)	zaburzone przyjmowanie płynów – <i>impaired fluid intake</i> [10029873] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
odżywianie enteralne	<i>no corresponding term</i>		enteral feeding [229912004]
PEG	<i>no corresponding term</i>		gastrostomy present [302109006]
odżywianie parenteralne	<i>no corresponding term</i>		intravenous feeding [25156005]
nietolerancja pokarmów	<i>no corresponding term</i>		food intolerance [235719002]
nietolerancja napojów	<i>no corresponding term</i>		milk intolerance [700094005] alcohol intolerance [102612005]
perystaltyka jelit	perystaltyka jelit – <i>bowel motility</i> [10037207] (F) status jelit – <i>bowel status</i> [10027681] (F) defekacja – <i>defaecation</i> [10005628] (F)		
wydalenie	rutyna wypróżnień – <i>bowel routine</i> [10041637] (F) efektywna defekacja – <i>effective defaecation</i> [10028398] (F) bez biegunki – <i>no diarrhoea</i> [10040059] (F) wzdęcia – <i>flatulence</i> [10007985] (F)	efektywna defekacja – <i>effective defaecation</i> [10028403] (DC) bez biegunki – <i>no diarrhoea</i> [10040063] (DC)	
wzdęcia	wzdęcia – <i>flatulence</i> [10007985] (F) negatywne wydalenie gazów – <i>negative flatulence</i> [10012725] (F)		
zaparcia	zaparcie – <i>constipation</i> [10004999] (F) zaklinowanie – <i>faecal impaction</i> [10009817] (F)	zaparcie – <i>constipation</i> [10000567] (DC) zaklinowanie masami kałowymi – <i>faecal impaction</i> [10021885] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
biegunka	biegunka – <i>diarrhoea</i> [10005933] (F) zaburzona defekacja – <i>impaired defaecation</i> [10012652] (F)	biegunka – <i>diarrhoea</i> [10000630] (DC) zaburzona defekacja – <i>impaired defaecation</i> [10022062] (DC)	
stolec zabarwiony krwią	krew – <i>blood</i> [10003319] (F)		tarry stool [269899009]
smolisty stolec	<i>no corresponding term</i>		
	trzymanie stolca – <i>bowel continence</i> [10027699] (F) nietrzymanie stolca – <i>bowel incontinence</i> [10027702] (F) nieretencyjne trzymanie stolca – <i>encopresis</i> [10027725] (F)	trzymanie stolca – <i>bowel continence</i> [10027741] (DC) nietrzymanie stolca – <i>bowel incontinence</i> [10027718] (DC)	
przetoka	stomia – <i>stoma</i> [10018857] (L) ileostomia – <i>ileostomy</i> [10009727] (L)		
układ moczowo-płciowy	kolostomia – <i>colostomy</i> [10004590] (L) status układu moczowego-płciowego – <i>genitourinary status</i> [10034133] (F)		
bez zaburzeń, diureza prawidłowa	pozytywne oddawanie moczu – <i>positive urination</i> [10014987] (F)		
	kontynencja moczu – <i>urinary continence</i> [10026663] (F)	kontynencja moczu – <i>urinary continence</i> [10027836] (DC)	
zaburzenia układu moczowo-płciowego	zaburzone oddawanie moczu – <i>impaired urination</i> [10012986] (F)	zaburzone oddawanie moczu – <i>impaired urination</i> [10021790] (DC)	
dysuria	ból przy oddawaniu moczu – <i>pain during urination</i> [10013966] (F)		
wielomocz, częstomocz	częste oddawanie moczu – <i>urinary frequency</i> [10046682] (F)	częste oddawanie moczu – <i>urinary frequency</i> [10046695] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
skąpomocz, bezmocz	zatrzymanie moczu – <i>urinary retention</i> [10034631] (F)	zatrzymanie moczu – <i>urinary retention</i> [10034654] (DC)	
mocz zagęszczony	<i>no corresponding term</i>		turbid urine [167238004]
krwiomocz	<i>no corresponding term</i>		blood in urine [34436003]
nykturia	moczenie mimowolne – <i>enuresis</i> [10026824] (F)		
inkontynencja	<i>no corresponding term</i>		incontinence [48340000]
urostomia	urostomia – <i>urostomy</i> [10020506] (L)		
inne zaburzenia	białkomocz – <i>proteinuria</i> [10043976] (F)	białkomocz – <i>proteinuria</i> [10043982] (DC)	
	inkontynencja moczu – <i>urinary incontinence</i> [10026895] (F)	inkontynencja moczu – <i>urinary incontinence</i> [10025686] (DC)	
	całkowita inkontynencja moczu – <i>total urinary incontinence</i> [10026876] (F)	całkowita inkontynencja moczu – <i>total urinary incontinence</i> [10026807] (DC)	
	funkcjonalna inkontynencja – <i>functional incontinence</i> [10026830] (F)	funkcjonalna inkontynencja moczu – <i>actual negative functional incontinence</i> [10026778] (DC)	
	odruch inkontynencji moczu – <i>reflex incontinence</i> [10026853] (F)	odruch inkontynencji moczu – <i>reflex incontinence</i> [10026784] (DC)	
	wysiłkowa inkontynencja moczu – <i>stress incontinence</i> [10026869] (F)	inkontynencja stresowa moczu – <i>stress incontinence of urine</i> [10026797] (DC)	
cewnik Foley'a (M)	cewnik urologiczny – <i>urinary catheter</i> [10020373] (M)	nagła inkontynencja moczu – <i>urge incontinence of urine</i> [10026811] (DC)	
pieluchomajtki	pielucha – <i>diaper</i> [10005914] (M)		
inne urządzenia	cewnik zewnętrzny – <i>urinary condom</i> [10020387] (M)		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
cykl miesięczkowy	menstruacja – <i>menstruation</i> [10011976] (F)		
regularny	<i>no corresponding term</i>		normal period [282027006]
nieregularny	<i>no corresponding term</i>		irregular periods [80182007]
menopauza	menopauza – <i>menopause</i> [10011930] (T)		
obfita menstruacja	krwotok menstruacyjny – <i>menorrhagia</i> [10011948] (F)		
bolesna menstruacja	<i>no corresponding term</i>		painful menstruation [289900009]
krwawienia międzymenstruacyjne	krwotok menstruacyjny – <i>menorrhagia</i> [10011948] (F)		
ciąża	ciąża – <i>pregnancy</i> [10015421] (F)		
poród	poród – <i>child delivery</i> [10004311] (T)		
poronienie	cesarskie cięcie – <i>cesarean section</i> [10004143] (M) aborcja samoistna – <i>spontaneous abortion</i> [10018646] (F)		
wydzielina z cewki moczowej	upławy – <i>vaginal discharge</i> [10043320] (F)		
układ kostno-stawowy	status układu mięśniowo-szkieletowego – <i>musculoskeletal status</i> [10034292] (F)		
poruszenie samodzielne, nie wymaga usprawniania, postawa i budowa ciała prawidłowe, napięcie mięśniowe prawidłowe, ruchomość w stawach pełna	status układu mięśniowo-szkieletowego – <i>musculoskeletal status</i> [10034292] (F)	efektywny status układu mięśniowo-szkieletowego – <i>effective musculoskeletal status</i> [10033807] (DC)	

History card term	ICNP term	ICNP diagnosis	SNOMED CT
<p>napięcie mięśniowe obniżone, wzmoczone, przykurcze mięśniowe, zakres ruchów zaburzony, siła mięśniowa zaburzona</p>	<p>skurcz mięśni – <i>muscle cramp</i> [10046703] (F)          proces skręcenia mięśnia – <i>muscle twisting process</i> [10012328] (F)          przykurcz stawu – <i>joint contracture</i> [10010975] (F)</p>	<p>skurcz mięśni nóg – <i>leg cramps</i> [10046719] (DC)</p>	
<p>drżenia mięśniowe</p>	<p>drżenie – <i>tremor</i> [10020146] (F)          drżenie starcze – <i>senile tremor</i> [10017851] (F)</p>	<p>drżenie – <i>tremor</i> [10022846] (DC)          słaba sprawność rąk – <i>actual negative ability to perform fine motor function</i> [10043042] (DC)</p>	
<p>mobilność ograniczona</p>	<p>zdolność poruszania – <i>ability to mobilise</i> [10012108] (F)          mobilność na wózku inwalidzkim – <i>wheelchair mobility</i> [10021068] (F)          mobilność w łóżku – <i>mobility in bed</i> [10003181] (F)</p>	<p>zaburzona mobilność – <i>impaired mobility</i> [10001219] (DC)          zdolny/a do poruszania – <i>able to mobilise</i> [10028461] (DC)          zaburzona mobilność na wózku inwalidzkim – <i>impaired wheelchair mobility</i> [10001363] (DC)          zaburzona mobilność w łóżku – <i>impaired mobility in bed</i> [10001067] (DC)</p>	
	<p>zdolność chodzenia – <i>ability to walk</i> [10000258] (F)</p>	<p>zdolny/a do mobilności w łóżku – <i>able to move in bed</i> [10029240] (DC)          zaburzone chodzenie – <i>impaired walking</i> [10001046] (DC)          zdolny/a do chodzenia – <i>able to walk</i> [10028333] (DC)</p>	
	<p>chodzenie z urządzeniem – <i>walking using device</i> [10020903] (F)</p>		

History card term	ICNP term	ICNP diagnosis	SNOMED CT
wady wrodzone	<i>no corresponding term</i>		birth defect [276720006]
złamania	złamanie – <i>fracture</i> [10008210] (F)		
zwichnięcia	zwichnięcie – <i>sprain</i> [10018698] (F)		
inne zaburzenia	ból mięśniowo-szkieletowy – <i>musculoskeletal pain</i> [10012337] (F)		
	ból mięśni – <i>muscle pain</i> [10012316] (F)		
	ból kości – <i>bone pain</i> [10003569] (F)		
	ból artretyczny – <i>arthritis pain</i> [10002570] (F)	ból artretyczny – <i>arthritis pain</i> [10047104] (DC)	
	ból spowodowany złamaniem – <i>fracture pain</i> [10008223] (F)	ból spowodowany złamaniem – <i>fracture pain</i> [10047127] (DC)	
stan po mastektomii	amputacja – <i>amputation</i> [10002246] (M)		

## 2. SUMMARY OF THE RESULTS

We mapped a total of 203 natural terms, 143 terms from ICNP® and 60 terms from SNOMED CT. We noticed certain inconsistencies in nausea assessment in the Recommendation. The term 'nausea' was included in the scope of food history, while the definition in the Classification indicates that the term should in fact be transferred to the neurological status.

The Recommendation also included the term 'administrowanie lekiem', which could not be mapped within the focus axis, but it was reflected in the action axis and more specifically in the interventions folder. As a result, 2 terms were mapped onto the aforementioned reference terminology.

It is quite apparent that ICNP® allows for assigning more terms to a natural term. The table presents ICNP® terminology for natural terms from the Recommendation such as 'inne używki', 'urządzenia', 'inne dostępy', 'uszkodzenia powierzchowne', 'rany przewlekłe', 'inne zaburzenia skóry', 'rytm snu i czuwania', 'pobudzenie psychoruchowe', 'inne zaburzenia zachowania', 'obrzęki', 'duszność', 'inne zaburzenia układu pokarmowego' or 'inne zaburzenia układu moczowego'. ICNP® terminology is more precise and thus provides more solid support for the nursing process.

Some natural terms in the history card could not be mapped with the ICNP® terminology due to terminological lacunae. They could, however, be mapped with diagnoses: 'węch zaburzony', 'niedosłuch', 'głuchota', 'smak zaburzony', 'nastroj podwyższony, obniżony'.

The Classification seems to have an insufficient number of terms describing some social situations. There was one natural term, 'social status', which was mapped onto the ICNP® terminology. The dictionary lacks the equivalents of such terms as 'live with a family/guardian', 'live alone', 'homeless', 'economic status', 'work', 'pension' and 'benefit'. What is also worth mentioning, specialised terminologies may sometimes use borrowings or calques from their original language versions.

As a result of the mapping process, 451 terms from the nursing history card were identified in the ICNP® dictionary; this was presented in the following way: focus axis – 235 terms, action – 1 term, means – 31 terms,



judgment – 3 terms, location – 54 terms and time axis – 2 terms. ICNP Diagnosis and Interventions folders were mapped with 130 terms and 13 terms, respectively.

The use of ICNP® for mapping natural language terms from Recommendation No. 1/2013 of the Council for e-Health in Nursing of 11 September 2013 demonstrated a possible way to build semantic interoperability for nursing care. This type of interoperability is necessary for the development of electronic health records (EHR). The documents of the nursing history card and the health status card have become international, univocal and precise standards. They allow for continuation, coordination and integration of care, as recommended in Directive 24/2011/EU on patient rights in cross-border healthcare.

## CONCLUSIONS

Due to the lack of equivalents of some of the terms used in mapping, it would be advisable to revise the discussed Polish Recommendation and include terms which would be similar in meaning and available in the above-mentioned classifications. Our analysis confirmed that the ICNP® dictionary is a robust tool for mapping nursing terminology because it can help broaden the description of the patient's health status more precisely than the Recommendation.

## References

- CSIOZ. (n.d.). Klasyfikacje. *Centrum Systemów Informacyjnych Ochrony Zdrowia*. Available at: <https://www.csioz.gov.pl/interoperacyjnosc/klasyfikacje/> (accessed 10 March 2018).
- Gianangelo, K. and Fenton, S. (2005). *Mapping: Creating the Terminology and Classification Connection*. WHO – Family of International Classifications Network Meeting, 16–22 October, Tokyo, Japan. Available at: <http://apps.who.int/classifications/apps/icd/meetings/tokyomeeting/P2-2%20Giannangelo%20>

- %20Mapping%20-%20Creating%20the%20Terminology%20and%20Classification%20Connection%20Poster.pdf (accessed 2 September 2018).
- ICN. (2015a). *About ICNP®*. Available at: <http://www.icn.ch/what-we-do/about-icnpr/> (accessed 30 October 2016).
- ICN. (2015b). *International Classification for Nursing Practice (ICNP®)*. *ICNP Browser: Version 2015*. Available at: <http://www.icn.ch/ICNP-Browser-NEW.html> (accessed 30 October 2016).
- ICN. (n.d.). *ICNP Browser*. Available at: <http://www.icn.ch/what-we-do/ICNP-Browser/> (accessed 15 August 2017).
- Imel, M. and Campbel, J.R. (2003). *Mapping from a Clinical Terminology to a Classification*. AHIMA's 75<sup>th</sup> Anniversary National Convention and Exhibit Proceedings, October. Available at: <http://library.ahima.org/doc?oid=61537#.W6jwo-gzbiU> (accessed 10 September 2018).
- Kim, T.Y., Hardiker, N. and Coenen, A. (2014). Inter-Terminology Mapping of Nursing Problems. *Journal of Biomedical Informatics*, 49, pp. 213–220. Available at: <https://www.sciencedirect.com/science/article/pii/S1532046414000586> (accessed 15 August 2018).
- Kisilowska, M. (2014). Katalogi ICNP®. Istota założenia, wymagania, rozwój, znaczenie. In: *Międzynarodowa Klasyfikacja Praktyki Pielęgniarskiej. ICNP w praktyce pielęgniarskiej*, ed. D. Kilańska. Warszawa: Wydawnictwo Lekarskie PZWL, pp. 42–45.
- SNOMED CT. (n.d.). *SNOMED CT Browser*. Available at: <http://browser.ihtsdo-tools.org/?> (accessed 10 October 2018).

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# COLLOCATIONS, EQUIVALENCE AND UNTRANSLATABILITY AS SELECTED CRITICAL ASPECTS IN MEDICAL TRANSLATION

The best translation does not sound like a translation.  
(Nida 1964: 12)

## INTRODUCTION

Medical translation obviously requires more than familiarity with medical language and a thorough knowledge of the source and target texts, which are the initial and basic prerequisites. Other critical aspects are also involved in this process. The analysis of research on translation shows that the definition of the translation process is still the subject of studies conducted by many specialists, both from theoretical and practical points of view. Defining translation has been discussed by a number of translation scholars (Jakobson 1959; Nida 1982; Dzierżanowska 1988; Newmark 1988; Bassnett-McQuire 1991; Grucza 1991; Wilss 1999; Lipiński 2000; Kierzkowska 2002; Grucza 2009; Radziszewska 2012; Krzywda 2014). The increasing development of this research dates back mainly to the post-war era. For the purpose of this paper, the definition of translation by Nida (1982: 83) was adopted, according to whom 'translation consists of reproducing in the receptor language the closest natural equivalent of the source language message, first in terms of meaning and secondly in terms

of style'. The constantly growing demand for medical translation in Poland proves that the analysis of crucial issues related to translation, such as collocations, equivalence and untranslatability, is still essential, and may contribute to the solution of some problems in translation of (highly specialised) medical texts.

## 1. PROBLEMS RELATED TO THE TRANSLATION OF COLLOCATIONS: PRACTICAL REMARKS

In the language of medicine special attention should be paid to the translation of collocations as they constitute one of the key issues in medical texts. Newmark (1981: 180) observes that 'the translator (...) will be "caught" every time, not by grammar, which is probably suspiciously "better" than that of educated native's, not by his vocabulary, which may well be richer, but by his unacceptable or improbable collocations'.

The term was initially introduced by Firth in the 1950s and was derived from Latin (Takač and Miščin 2013: 237). Collocations, known as conventional syntagms, are the semantico-syntagmatic structures with some extent of combinability (Leśniewska 2006; cf. Białek 2009). A typical collocation is made up of a base and a collocata and is easier to comprehend than to produce.

Research on collocations started about 2,300 years ago in Greece (Robins 1967) and since that time studies have been extensively done by a number of researchers, e.g. Palmer (1933), Mitchell (1971), Cowie (1998), Gledhill (2000), Sinclair (2004), Białek (2009) or Miščin (2013), to name the most outstanding ones. The focus on teaching and learning collocations was particularly analysed (Ellis 1996; Lewis and Conzett 2000; Nesselhauf 2004; Duan and Qin 2012).

Definitions of the term and the criteria for assessing the extent of collocability and their strength vary (cf. Leśniewska 2006; Badziński 2011; Baker 2011). Most researches, however, view them as multi-word phrases in a given language, including fixed expressions (Gledhill 2000: 1). Differ-

ent collocation levels are distinguished in a given language based on the 'unpredictability', which is particularly visible in the case of a comparative analysis of two languages.

One of the most reliable and comprehensive studies on collocations was conducted by Gledhill (2000: 1), who distinguished 3 perspectives: (1) statistical/textual collocations (syntagmatic association of lexemes which prefer the company of another item rather than its synonyms due to usage-related constraints), (2) semantic/syntactic collocations (related to a more abstract relationship that exists between words with reference to the frequency of occurrence; grammatical collocation in which grammatical items are mixed with lexical ones) and finally (3) discoursal/rhetorical collocations, analysed from the perspective of performance with the focus on rhetorical effect with no special attention paid to lexical units or grammar.

For the purpose of this paper the adopted definition of the term *collocations* includes the phenomena larger than words, which are fixed combinations of lexical items.

The problem of medical translation may be partly related to the fact that for many translators medical terminology itself and medical collocations in particular are highly specialised even in the source language. It should also be borne in mind that unlike single-word terms, collocations are characterised by greater precision because they reflect the content of a given concept or notion more comprehensively with the narrowing of its meaning (Krzywda 2014).

In the analysis of the translation of collocations, the frequency of nouns and adjectives is high in most studies (Cowie 1998; Gledhill 2000; Nesselhauf 2004). Additionally, the formation of abbreviations is of great significance in this respect. It should be stressed that currently in the Polish language of medicine there is a tendency to adopt English acronyms or initialisms in the formal register rather than to use their Polish equivalents either abbreviated or non-abbreviated ('CRP' is more often used in Polish than 'białko ostrej fazy' and 'MR' is more often used than its Polish equivalent 'rezonans magnetyczny'). Some of the abbreviations, in particular initialisms and acronyms, have currently become part of the Polish language

of medicine and are used exclusively in their abbreviated form (AIDS, MCV, MCH). In some cases, the choice may be determined and dictated either by specialty ('transaminazy' in internal medicine vs 'aminotrasferazy', typically used in laboratory diagnostics) or by the absence of a proper Polish equivalent as in the case of *watch-and-wait strategy*, the collocation used in oncology settings. This inevitable trend related to abbreviations, mostly represented in medical language by acronyms and initialisms, is constantly on the increase in various specialties such as surgery, cardiac surgery, neurosurgery or radiology (e.g. CPK, CKMB, fMRI).

Even with such basic examinations as complete blood count or biochemical analyses, collocations in the form of abbreviations also appear in the medical records in laboratory diagnostics ('white blood cells' – WBC, 'red blood cells' – RBC, 'platelets' – PLT). This phenomenon is certainly positive due to the fact that the lexical resources of one language are enriched with other elements. Of note, collocations in the form of abbreviations are also frequently used in cases when a rapid implementation of medical procedures is required (emergency medicine or neurosurgery). Due to the fact that some abbreviations can mean different disease entities, this fact can cause confusion and difficulty in the process of translation. To illustrate, *RS* may mean *Rett syndrome* in neurology, *Reye syndrome* in hepatology, *Raynaud syndrome* in rheumatology and *Rumination syndrome* in gastroenterology.

Among the issues related to the translation of collocations, attention should also be paid to semantic and syntactic transformations. Transposition as the replacement of one word from one class with another word with the simultaneous preservation of meaning is of common occurrence (Vinay and Darbelnet 1995). In other words, one grammatical category is replaced with another ('zaciskający pierścień' – constriction ring, 'rozdęcie brzucha' – abdominal distension).

The use of a descriptive equivalent is a procedure based on the extension of translation by placing further information in the target text for more accurate and precise understanding (Radziszewska 2012). A large number of collocations are translated into Polish with the use of descrip-

tive equivalents (blood group antigens – ‘antygeny głównych grup krwi ABO’, dental anaesthesia – ‘znieczulenie do zabiegów stomatologicznych’, coronary care unit – ‘oddział intensywnego nadzoru kardiologicznego’, retain urinary continence – ‘zachować zdolność do utrzymania moczu’, dead on arrival – ‘martwy w chwili przywiezienia do szpitala’, corneal debridement – ‘usunięcie patologicznego nabłonka rogówki’). There is no explicit or prescribed rule in the selection of parts of speech that are incorporated into such collocations. Each time the decision to expand a multi-word group must be made individually based on the language typical of a given field and such a decision is connected with situation-dependent circumstances. Extending the target collocations is sometimes crucial so that the target text could sound not only correct but also natural to a native specialist in the particular medical field.

Furthermore, another frequently observed phenomenon in medical translation is related to collocations consisting of two or more elements often made up of a specialised term and an element (or elements) that are not a medical term, which are taken from general language (interpupillary distance, continuous infusion, papillary layer).

In the translation of collocations the temptation to use calque may occur. Vinay and Darbelnet (1995) have discussed the notion of calque. This phenomenon is defined as ‘the borrowing[s] taken from other languages by literal word-for-word or root-for-root translation’ (Džuganová 2013: 62). Calques may sound particularly odd to specialists in a given field, especially when they themselves use a different equivalent. This procedure is risky when different prefixes are used in both languages or when they occur in a different order (‘podobarometr’ in Polish vs baropodometer in English). Newmark observes that transparent collocations that ‘sound convincing but have not been previously seen are among the translator’s biggest pitfalls’ (1979: 1406).

The authors of manuscripts (i.e., clinicians themselves) frequently apply imprecise and/or inconsistent terms due to the use of professional jargon taken from everyday (spoken) clinical practice. Pilegaard (1997: 175) states that ‘health-care professionals often write about their specialty in

a language which is filled with their own specialised terminology and do not always realise that it is, in fact, jargon, which may be even incorrect when written, even though it is acceptable when used in spoken language. To illustrate, the phrase 'oznaczyć leukocytozę' (literally 'to determine leukocytosis') used in Polish is incorrect as 'leukocytoza' (leukocytosis) is already a pathological condition; this phrase is therefore technically erroneous in the source text, which may result in the wrong translation in the target text if the translator does not possess medical knowledge. The correct term that should be used in Polish is obviously 'oznaczyć liczbę leukocytów', i.e., 'to determine WBC'.

The phenomenon of collocations may also be analysed from the perspective of the terminological density of the text. Although Radziszewska (2012) observed that vocabulary related to general science and specialised vocabulary in German remains at the level of <30%, and this result is even lower in English, this observation in the language of medicine seems to be too far-reaching. For the sake of comparison, 5 randomly selected papers from the field of gastroenterology (*Lancet*, *British Medical Journal*, *New England Journal of Medicine*, *Epidemiological Review*, *JAMA*) were used to analyse their density by the author of this paper. The manuscripts selected for the analysis were related to pseudomembranous colitis. Generally, lexical density was calculated according to the following formula: percentage of specialised terminology out of the total number of words. The percentage of specialised vocabulary varied with the following results: 18.4%, 24.1%, 32.7%, 14.2% and 31.4%, respectively. Although this was only a tentative analysis, it shows an enormous percentage differences related to lexical density. The number of medical collocations in a given text can indirectly influence text density thus increasing or decreasing difficulties related to the process of translation. However, any generalisation in this respect is impossible and therefore further studies are warranted.

A very interesting study that needs to be mentioned was conducted by Gayle (2016). Based on the Oxford English Corpus (OEC) of nearly 2.5 billion words, Gayle used computational linguistics to extract collocations most likely to occur in medical English writing and assessed the



proportion of different parts of speech. The frequency of every collocation from the medical subcorpus was compared to respective frequencies in the OEC corpus and these collocations were ranked depending on the *score*. As a result, a ranked list was formed of the collocations which were most likely to occur in the medical subcorpus. After elimination of duplicate terms, 5,436 entries of 10,000 collocations were then categorised, depending on the grammatical relationship. In total, 'constructions comprised of preposition-dependent nouns, verbs and adjectives were the most prevalent (38%), followed by prepositional phrases (33%)'. 'Preposition-independent noun and verb-based constructions were far less prevalent overall (18% and 5%, respectively)' (Gayle 2016: 2). The study demonstrated that terms of Greek and Latin origin are, in fact, considerably less prevalent than it is generally thought, showing a high prevalence of dependent prepositions in medical English.

Last but not least, culture-related issues may also be involved in the process of translation and the proper use of collocations. As a result of the increasing migration among different nations, a translator should be particularly aware of the culture-specific domain in which collocations may also play a part and pose some problems (Montalt Resurrecció and González Davies 2007; Baker 2011), particularly during translation and interpreting at hospital settings (e.g. emergency cases related to blood transfusion, refusal of certain blood-derived products, faith-related avoidance of certain medical procedures). It may also occur in the case of Chinese medicine and its approaches to treatment when confronted with Western medicine and its mode of treatment. Problems may arise at the level of active substances or even certain procedures. Obviously, it is extremely difficult to provide correct translation of some medico-philosophical concepts (particularly frequent in Chinese medicine) as they are isolated from the environment into which they are placed (Western world) and are introduced into an entirely different language with a completely different system of metaphors and set of values (Unschuld 1989; cf. Lakoff and Johnson 1980). The ethnolinguistic sphere, however, must also be borne in mind in medical translations since the broadly understood phenomena

related to historical background and geographical domains next to the socio-cultural domain are also involved in the translation process. Religious dietary restrictions must also be considered and further explained (if need be) in the case of, e.g., kosher products. In the multicultural society in the UK, it is vital for prescribers and patients to engage in an open dialogue and to consider religious dietary restrictions to optimise treatment. Medical translators should be familiar with all these culture-related issues and frequently use the strategy of adaptation when cultural differences occur between the source language and the target language.

## 2. EQUIVALENCE AND UNTRANSLATABILITY

Equivalence, another crucial concept related to collocations, is widely discussed not only in reference to scientific texts or discourse. Pieńkos (1999) understands the equivalence between source and target texts as a key issue that linguistics of the translation is involved in and translation theorists themselves wonder whether the translation process should be closer to the sender or the recipient of the text. In view of the large number of interpretations, previous attempts to define the phenomenon have not resulted in the development of any universally adopted definition.

In the process of translation, the choice of the proper equivalent should be of utmost importance. Such an equivalent should be selected as the most optimal of many that are available, which is directly related to the phenomenon of equivalence proposed by Jakobson (1959) where the aim in the original language should be identical to the aim in the target language. The main problems are related to the multiplicity of medical terminology where some nomenclature typical of anatomical concepts is based on Latin and Greek, mainly in terms of prefixation and suffixation. It would seem that since science and medicine in particular has developed its own hermetic terminology, establishing the equivalent forms should not be problematic. This is a common misconception because the phenomena known as synonymy and polysemy are so prevalent in the lan-

guage of medicine (housewife's eczema – 'wyprysk ze zużycia' or 'wyprysk gospodyń domowych'; *fever of unknown origin* – 'gorączka o nieznaney przyczynie', 'gorączka o niustalonej etiologii' or 'gorączka nieznanego pochodzenia'). Furthermore, for the Polish term 'choroba wieńcowa' there are as many as 4 different equivalent terms (coronary heart disease, coronary arterial disease, coronary artery disease, ischaemic heart disease); for Polish 'droga' at least 6 terms can be applied in medicine, depending on the collocation and the context (way, pathway, tract, passage, path, route). To illustrate, *sensory pathway*, *alimentary tract*, *upper airways* or *administration route* are just a few examples that show the above phenomenon.

Most medical dictionaries, however, offer context-free words, which does not solve the problem and may even escalate it when an inappropriate term is selected. Therefore the ideal 1:1 correspondence in which one term could correspond to one equivalent is often impossible even at the level of single words (the principle of 1:1 equivalence). Pilegaard (1997: 175) states that 'it should be borne in mind that shades of meaning are not necessarily expressed in the same way in the source language and the target language'.

In the 1960s, Nida (1964: 159) formulated two types of equivalence: formal and dynamic. The first one 'focuses attention on the message itself, in both form and content' bearing in mind that 'the message in the receptor language should match as closely as possible the different elements in the source language'. The latter one is based on Nida's 'principle of equivalent effect' in which the relationship between receptor and message ought to 'be substantially the same as that which existed between the original receptors and the message'. Based on the above, in the case of medical collocations dynamic equivalence is the prevailing relationship between source and target units.

According to Dzierżanowska (1988), equivalence of the text as a whole is more important than the equivalence in terms of word(s). According to that researcher, the translation of a phrase consists in finding the equivalent of the main element, which is most often the noun, forming the basis for a collocation, and then its collocates.

Radziszewska (2012) is of the opinion that translation of specialised terminology is characterised by certain features that distinguish it from other forms of translation. In the process of translation one should bear in mind the fact that the existence of equivalents, which remain in the absolute 1:1 relationship, is not a rule even in the case of such highly specialised texts as medical ones. The most significant aspect is to convey the meaning of the original and not to provide complete grammatical or lexical identity. Vinay and Darbelnet (1995: 342) perceive equivalence-oriented translation as a procedure that ‘replicates the same situation as in the original, whilst using completely different wording’. Despite the fact that they mainly analyse equivalence in relation to idioms and proverbs, it can also be applied in the case of collocations.

One of the most thorough analyses of equivalence was proposed by Baker (2011), who discussed the phenomenon of equivalence at various levels, including above the word level, i.e., at the level of collocations. Baker mentioned the lack of understanding of collocations in the source text as a serious problem. She also emphasised the occurrence of marked collocations in the source text, i.e., new collocations, denoting new concepts and phenomena, which in the language of medicine could correspond to collocations that come into use in new fields, such as nanomedicine or oncology (e.g. *watch-and-wait strategy*).

For Pisarska and Tomaszekiewicz (1996), good translation is based on the equivalence of the global target text compared to the source text. According to them, even if equivalence exists, it is almost always approximate and, in fact, almost never absolute. However, for Newmark (1988), the most important phenomenon is the so-called equivalent effect and in order to achieve it, the function of the source text must be identical to the function of the target text, which is of prime importance in the case of medical translation, where precision is a factor that may decide about human life.

Baker (2011), in turn, discussing the lack of equivalence, postulates that among the procedures to overcome it the following ones should be used: superordinates (i.e., hypernyms – words with a broader and more

general meaning), borrowing with further explanation, translation by means of a paraphrase or translation by omission. The above procedures applied in the case of medical translation will obviously depend on the text itself, the receiver of the text and its purpose.

Interestingly, the phenomenon of equivalence in terms of eponymy is not always observed. According to Newmark (1981: 198), an eponym is defined as 'any word that is identical with or derived from a proper name which gives it a related sense'. Newmark also distinguished three categories of eponyms, i.e., those derived from persons (inventors, discoverers), objects and places. Physicians have disagreed over the appropriateness of eponymous terms with respect to both written and spoken medical discourse. For some, they honour the inventors, whereas for others they give no information other than historical. Despite these controversies, medical language is still replete with eponyms in the number of over 13,000 (Perlińska and Krzyżowski 2009). The translation practice shows that equivalence at the level of eponyms is not always present either. The English equivalent of 'odczyn Biernackiego' (OB) is erythrocyte sedimentation rate, and the contribution of the Polish scientist to the phenomenon in question is currently not marked in the English language. Similarly, 'choroba Leśniowskiego–Crohna' consists of two surnames of scientists (Leśniowski and Crohn), whereas in the Anglo-Saxon terminology the term Crohn(s) disease is used. Lee-Jahnke (1998), after Van Hoof (1993), uses the following typology of eponyms:

- identical eponyms in both source and target texts;
- different eponyms in source and target texts;
- the absence of an eponym in one language.

Taking the above into account, one should consider the fact that equivalence can be obtained at different levels. The concept of equivalence can be seen as a gradual phenomenon, which means that the correspondence may be higher or lower, and the decision lies between the complete equivalence and its absence, and these two points are the extremes of the concept of equivalence (Kizińska 2015). This concept is consistent with the approach of the Leipzig School and illustrates the types of equivalence

where the complete equivalence is a 1:1 correspondence, facultative equivalence is the existence of more equivalents in the target text for one concept from the source language and finally zero equivalence shows no equivalent at all.

Discussing the phenomenon of equivalence, it is essential to mention the notion of untranslatability defined as the impossibility to translate the entire phrase (or its fragments) or the inability to express or convey certain concepts in the target language that can be expressed in the original language (Wojtasiewicz 2005).

According to Wojtasiewicz (2005), scientific texts occupy the third position after trade-related and technical texts as those with the highest percentage of translatability, and if medical discourse is treated as part of scientific texts, it is clear that the problem of untranslatability is minimal. In rare situations, when no direct equivalent is available, the translator should attempt to find a substitute for the term (concept) or maintain the term from the source text (collocation *watch-and-wait* in oncology). The translator may also use a footnote with further explanation.

The situation, however, is not always so obvious. The concept of untranslatability frequently observed at the word-formation level (diminutives, allusions) also occurs in legal and economic discourse and is connected with the broadly understood culture of the sender and the recipient, as well as the source and the target language. In the language of medicine, where most expressions are derived from Latin in the domain of physiognomy and anatomy, the phenomenon of untranslatability should be rather marginal and practically non-existent. However, according to Pilegaard (1997: 162), the lack of physical correspondence between concepts occurs because 'French and German have no terms for *knuckle*, French none for *shin*, and in Russian there is no distinction between *hand* and *arm*'.

Furthermore, in the medico-pharmaceutical areas, untranslatability can also be observed. In the case of pharmacy, understood here as a field of medicine, the Pharmaceutical Law Act is of interest since some of the issues in this Act may include legal terminology or concepts. These may pose a challenge due to the lack of equivalence or different understand-

ing of legal conditions related to the pharmaceutical law depending on the country (e.g. written patient consent, living will, differences in terms of admission of medicinal products and dietary supplements for pharmaceutical turnover) (cf. Mela 2012). To illustrate, the Polish collocation *punkt apteczny* is nowhere to be found in the Anglo-Saxon domain. Economy-related issues (costs of stay, drug reimbursement, finances related to patient healthcare) are also found in medical texts. They may, however, be differently understood, depending on the country (different social conditions and terms and conditions of healthcare premiums paid by patients in Australia vs in Poland), which may directly result in the phenomenon of partial untranslatability.

The notion of untranslatability was clearly observed in one Turkish study. Their authors stressed the significance of errors resulting from mistranslations of the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), which is a self-report questionnaire. Discrepancies due to the real and the comprehended meaning of ‘untranslatable terms in self-reports [resulted in] statistically meaningful changes in the total BASDAI score which affect[ed] the whole treatment approach in these patients’ (Atagunduz et al. 2015). Therefore, the authors of the study argued that the type of terms used should not have been translated into single-sentence questions in self-reports and further visual or verbal explanations ought to be attempted for better understanding by patients to avoid such mistakes in the future. As a result, untranslatability observed in the language of medicine may be associated with the cases of medico-legal and economic terminology and nomenclature, which can be interpreted as exceptions to the general principle of translatability (see Wojtasiewicz 2005). However, caution should be taken regarding texts where legal and economic issues are involved. As Catford (1965: 93) writes, ‘source language texts and items are more or less translatable rather than absolutely translatable or untranslatable’.

Also Lipiński (2000: 171) seems to adopt a very balanced opinion when he postulates that most ‘untranslatable cases are relative’ due to the fact that not all parts of the message are equally important, and ‘introducing

a hierarchy among these features allows for necessary changes so that the “losses” are the least tangible’ [translation mine – A.B.]. As Lipiński further demonstrates, these ‘losses’ are, in fact, not always losses. Furthermore, for Lipiński it is not the difference between the source text and the target text that matters. What is important is to what extent these differences may influence ‘the similarity in the reception of the source text and the target text.’

## CONCLUSIONS

Proper translation of medical texts obviously requires a thorough knowledge of both languages. Translation may, however, still be a real challenge due to the complexity of terminology and poor familiarity with the subject matter. Apart from medical knowledge, the issues of medical collocations, equivalence and untranslatability directly affect the quality of the translation process of (highly specialised) medical texts. It should be borne in mind that aside from methodological mistakes in medical manuscripts, poor translation of papers also results in the rejection of such manuscripts, which may be due to inadequate equivalent forms or misuse of collocations. All these factors may lead to erroneous translation, which not only prevents further dissemination of medical knowledge but may also discredit authors of papers in the eyes of other scientists.

What direction will be adopted in translation of medical texts remains an open question that currently cannot be clearly answered due to a plethora of components, among which equivalence and collocations occupy the key positions. Hopefully, near future will determine the direction of translation studies in the field of medicine, which will (fully) allow us to understand to what extent theoretical issues affect the practical approach and vice versa, thereby contributing to the solution of some translation-related problems.

Translators should always remember that lexical and grammatical precision should be the priority in specialised medical translation. Consequences of lexical errors, however insignificant they may seem, are, in



fact, of paramount importance. A poor non-specialist translation discredits a translator and results in dissatisfaction of recipients at its worst, whereas incorrect medical translation can result in life-threatening conditions, particularly in the case of translation errors in the fields of pharmacology or emergency medicine. For that reason, no other field deserves more attention and higher precision. The discussed phenomena, i.e., collocations, equivalence and untranslatability, can be obviously understood separately. However, in medical translation they are closely related to one another and therefore have been discussed together in the present paper.

### References

- Atagunduz, P., Mammadov, E., Dervishi, I., Beyatli, M., Salci, K.N., Abdulhamid, N.A., Ozen, G., Unal, A.U., Erturk, Z., Inanc, N. and Direskeneli, H. (2015). Problems of Untranslatability: Example of Turkish Version of Basdai. *Arthritis Rheumatol*, 67 (suppl. 10). Available at: <http://acrabstracts.org/abstract/problems-of-untranslatability-example-of-turkish-version-of-basdai/> (accessed 1 March 2018).
- Badziński, A. (2011). *Medyczny słownik kolokacji*. Warszawa: Medipage.
- Baker, M. (2011). *In Other Words: A Course Book on Translation*. London: Routledge.
- Bassnett-McQuire, S. (1991). *Translation Studies*. London: Routledge.
- Białek, E. (2009). *Kolokacja w przekładzie. Studium rosyjsko-polskie*. Lublin: Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej.
- Catford, J. (1965). *A Linguistic Theory of Translation*. London: Oxford University Press.
- Cowie, A. (1998). *Phraseology: Theory, Analysis, and Applications*. Oxford: Oxford University Press.
- Dzierżanowska, H. (1988). *Przekład tekstów nieliterackich*. Warszawa: PWN.
- Duan, M. and Qin, X. (2012). Collocation in English Teaching and Learning. *Theory and Practice in Language Studies*, 2(9), pp. 1890–1894.
- Džuganová, B. (2013). English Medical Terminology: Different Ways of Forming Medical Terms. *JAHHR*, 4(7), pp. 55–69.
- Ellis, N. (1996). Sequencing in SLA: Phonological Memory, Chunking, and Points of Order. *Studies in Second Language Acquisition*, 18(1), pp. 91–126.
- Gayle, A. (2016). Navigating the Challenges of Medical English Education: A Novel Approach Using Computational Linguistics. *PeerJ PrePrints*, 4:e1711v2.

- Available at: <https://doi.org/10.7287/peerj.preprints.1711v2> (accessed 19 November 2018).
- Gledhill, Ch. (2000). *Collocations in Science Writing: Language in Performance Series*. Tübingen: Gunter Narr Verlag.
- Grucza, F. (1991). *Teoretyczne podstawy terminologii*. Wrocław: Zakład Narodowy im. Ossolińskich.
- Grucza, S. (2009). Kategoryzacja języków (specjalistycznych) w świetle antropocentrycznej teorii języków ludzkich. *Komunikacja Specjalistyczna*, 2, pp. 15–30.
- Jakobson, R. (1959). On Linguistic Aspects of Translation. In: *On Translation*, ed. R. Brower. Cambridge: Harvard University Press, pp. 232–239.
- Kierzkowska, D. (2002). *Tłumaczenie prawnicze*. Warszawa: Wydawnictwo TEPIS.
- Kizińska, A. (2015). *Ekwiwalencja w tłumaczeniu tekstów prawnych i prawniczych. Polskie i brytyjskie prawo spadkowe*. Warszawa: Wydawnictwo C.H. Beck.
- Krzywda, J. (2014). *Terminologia języka prawnego i strategie translatorskie w praktyce kodeksu spółek handlowych na język niemiecki*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: The University of Chicago Press.
- Lee-Jahnke, H. (1998). Training in Medical Translation with Emphasis on German. In: *Translation and Medicine*, ed. H. Fischbach. Amsterdam – Philadelphia: John Benjamins Publication Company, pp. 81–91.
- Leśniewska, J. (2006). Collocations and Second Language Use. *Studia Linguistica*, 123, pp. 95–105.
- Lewis, M. and Conzett, J. (2000). *Teaching Collocation: Further Developments in the Lexical Approach*. Hove: Language Teaching Publications.
- Lipiński, K. (2000). *Vademecum tłumacza*. Kraków: Wydawnictwo Idea.
- Mela, W. (2012). Polskie słownictwo prawa farmaceutycznego jako przedmiot konstruowania terminologicznego. *Komunikacja Specjalistyczna*, 5, pp. 33–39.
- Miščin, E. (2013). Verb Collocations in Medical English. *US-China Foreign Language*, 11(8), pp. 609–618.
- Mitchell, T.F. (1971). Linguistic ‘Goings-On’: Collocations and Other Lexical Matters Arising on the Syntagmatic Record. *Archivum Linguisticum*, 2(1), pp. 35–69.
- Montalt Resurrecció, V. and González Davies, M. (2007). *Medical Translation Step by Step: Learning by Drafting*. London – New York: Routledge.
- Nesselhauf, N. (2004). *Collocations in a Learner Corpus*. Amsterdam – Philadelphia: J. Benjamins Publication Company.
- Newmark, P. (1979). A Layman’s View of Medical Translation. *British Medical Journal*, 1, pp. 1405–1407.
- Newmark, P. (1981). *Approaches to Translation*. Oxford: Pergamon Press.

- Newmark, P. (1988). *A Textbook of Translation*. New York: Prentice Hall.
- Nida, E. (1964). *Toward a Science of Translating, with Special Reference to Principles and Procedures Involved in Bible Translating*. Leiden: Brill.
- Nida, E. (1982). *The Theory and Practice of Translation*. Leiden: Brill.
- Palmer, H. (1933). *Second Interim Report on English Collocations*. Tokyo: Institute for Research in English Teaching.
- Perlińska, L. and Krzyżowski, J. (2009). *Medical Eponyms. Leksykon*. Warszawa: Wydawnictwo Medyk.
- Pieńkos, J. (1999). *Przekład i tłumacz we współczesnym świecie*. Warszawa: PWN.
- Pilegaard, M. (1997). Translation of Medical Research Articles. In: *Text, Typology and Translation*, ed. A. Trosborg. Amsterdam – Philadelphia: John Benjamins Publishing, pp. 159–184.
- Pisarska, A. and Tomaszewicz, T. (1996). *Współczesne tendencje przekładoznawcze*. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza.
- Radziszewska, A. (2012). *Strategie translatorskie w przekładzie terminologii z dziedziny zarządzania*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Robins, R. (1967). *A Short History of Linguistics*. London: Longman.
- Sinclair, J. (2004). *Trust the Text: Language, Corpus and Discourse*. New York: Routledge.
- Takač, V.P. and Miščin, E. (2013). Exploring the Collocational Competence of Non-Native Users of Medical English. *JAHHR*, 4(7), pp. 235–256.
- Unschuld, P. (1989). *Approaches to Traditional Chinese Medical Literature: Proceedings of an International Symposium on Translation Methodologies and Terminologies*. Boston: Kluwer Academic Publishers.
- Van Hoof, H. (1993). Histoire de la traduction médicale en occident. *CILL*, 19, pp. 1–2.
- Vinay, J.-P. and Darbelnet, J. (1995). *Comparative Stylistics of French and English: A Methodology for Translation*. Amsterdam – Philadelphia: John Benjamins.
- Wilss, W. (1999). *Translation and Interpreting in the 20<sup>th</sup> Century: Focus on German*. Amsterdam – Philadelphia: John Benjamins.
- Wojtasiewicz, O.A. (2005). *Wstęp do teorii tłumaczenia*. Warszawa: Wydawnictwo TEPIS.



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## TRANSLATION OF MEDICAL TEXTS FROM DISCOURSE PERSPECTIVE

### INTRODUCTION

A medical text is a precise algorithm of meanings coded by specialists for the purpose of communicating medically important information to the recipient. This algorithm is founded on terminological and editorial normalisation, the aim of which is to optimise communication by eliminating any undesirable interpretation. The normalised way of verbalising the object of a text depends on the subject-situational relationship within which it appears, which means that the awareness of this relationship has an important impact on the reception of the text. Translation re-encoding is based on a similar mechanism: what matters is not only the appropriate translation of the content of the source text, but also a skilful rendering of the verbally coded context of the original discourse, which should also be understandable to the prospective recipient of the target text. The sender of the original text is an element of that context as well.

Because of the dual function of any translation – representative and communicative (connected with the illocutionary potential of the original) – the translator is obliged to skilfully render discourse elements unique to the source medical environment, transferring the discourse context to the target culture adequately to the expectation horizon of the target recipient. This requires flexibility in choosing translation strategies, which, in turn, calls for a well-developed discourse competence. The aim

of this article is to show key discourse aspects of medical text translation as exemplified by the hospital discharge summary.

## 1. TRANSLATION AS DISCOURSE

When discussing translation, one needs to begin at the point of departure, i.e., the source text. Every text, whether written or spoken, conforms to codified norms of verbal behaviour, sanctioned within a particular social context. These norms are expressed through genre, and they encompass not only the verbal aspect of the utterances which actualise it, but also the subject-situational context which they represent. As observed by Charaudeau (1995: 103–104), every act of communication is discourse, i.e., an inseparable whole occurring at two levels: verbal (internal circuit – *circuit interne*) and non-verbal (external circuit – *circuit externe*), determining the physical framework of communication (Grzmil-Tylutki 2007: 26). There are four subjects participating in discourse: the communicating subject (*sujet communicant* – the actual sender of the message), the interpreting subject (*sujet interprétant* – the actual recipient of the message), as well as the speaker (*énonciateur*) and the addressee (*destinataire*).

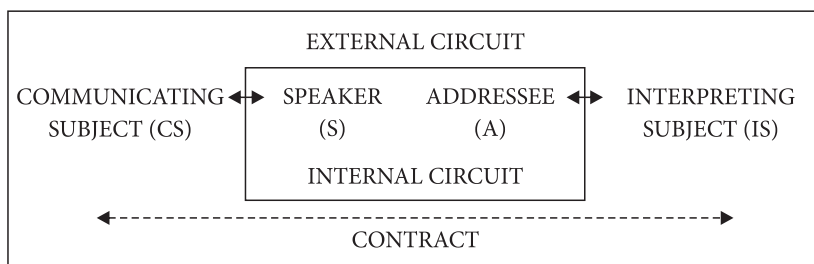


Figure 1. Discourse according to Charaudeau

The first two subjects are partners in discourse, effectuating their discourse roles on the strength of the so-called contract. The contract is es-

essentially a social agreement thanks to which discourse partners are aware of what roles they play within the framework of a given communication situation and are able to verbalise the aims specified in the contract according to their expectations. In other words, discourse is the linguistic realisation of a particular intention (*le faire*), expressed according to a socially established scenario through the strategies it provides (*le dire*), which are appropriate for the discourse roles (Charaudeau and Maingueneau 2002: 138–141; Grzmil-Tylutki 2007: 32).

Translation as a form of text transformation does not only involve its inclusion into another discourse (Labocha 2008: 79), but also, in itself, a form of second-level discourse – one discourse representing another (Hermans 2009: 307). Under this assumption, the translator is a communicating subject of the second level, authorised to broaden the contract binding the partners of the first-level discourse (the speaker and the addressee) to the interpreting subject of the second-level, by rendering first-level internal circuit in the language of the second-level recipient.

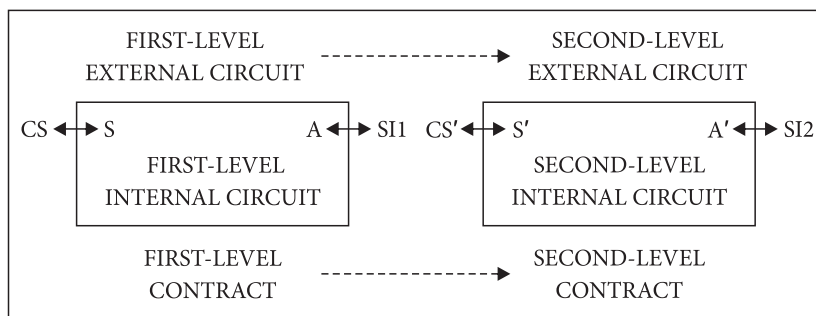


Figure 2. Translation as second-level discourse (Walkiewicz 2013: 36)

What is directly translated is the first-level internal circuit. The translator should not forget, however, that the level of the internal circuit holds information referring to the strictly defined subject-situational context. This is why every translation is an act of negotiation between two cultural paradigms – source and target – based on two basic functions of

translation, independent of functions of the original. The first is that of representing the first-level discourse ('representation'), the second – the communicative function, inscribing the original discourse into another polysystem and the expectation horizon of the second-level addressee ('similarity'; Hermans 2009: 307).

This negotiating suspension between the first-level speaker and the second-level addressee makes the translator's choice less obvious. On the one hand, they are aware that the translation will fulfil its role, i.e., realise the illocutionary potential intended by the speaker of the original in the target culture, only when it reaches the appropriate degree of acceptability at the level of the target internal circuit; in other words, it achieves the satisfying level of resemblance to the target standards of communication. On the other hand, the translator's duty is to preserve the full identity of the first-level communicating subject, who, on the force of translation, incurs a 'contractual' discourse obligation towards the second-level interpreting subject, representative of a different culture. This means that a good translation should make it possible for the target recipient to find themselves in the role of the second-level interpreting subject, tied by the first-level contract to a 'discourse location', as well as to recognise the status and role of the actual first-level communicating subject.

## 2. DISCOURSE IMPLICATIONS OF MEDICAL TEXT TRANSLATION

Medical texts embrace a wide spectrum of genres within the realm of health and medicine, which reflects the complexity of the field and its subject-situational diversity. There is, however, a common denominator linking all medical texts regardless of their genre: one of the partners in discourse – communicating subject (speaker) or interpreting subject (addressee) – is a healthcare representative: a physician, nurse, therapist, pharmacologist, etc. Another thing in common – this time shared with other specialised texts – is the subject matter of the discourse: objective,



measurable, terminologically coded on a largely internationalised scale (Kielar 2003: 153; Lee-Jahnke 2005; Berghammer 2006; Górnicz 2013). This results in the universalisation of medical standards, partly reflected in the standardisation of specialised communication (a unified conceptual system together with its corresponding terminology). On the other hand, diagnostic and therapeutic processes based on international professional standards occur within legal and cultural frameworks, which make professional communication institutionally unique. This is significant in the context of translation.

Since the dominating function of medical texts is the informative one, as in the case of other specialised texts, the translator should aim to reconstruct all its components in the target language, with the use of appropriate techniques. In such a case it is easy to direct the target text at the target recipient (acceptability): since the purpose of the target text is to impart information, it should be rendered in the language that meets target communication norms. Yet, the information coded in the original is of at least dual nature: it concerns the subject matter of the text and the subject that communicates it. The latter gains particular importance in view of the representational function that is fulfilled by every translation, regardless of the text genre and status of the original.

### 2.1. Subject

As a second-level discourse, translation extends language activity, intended by the first-level communicating subject for the original interpreting subject, to a sphere of another culture, broadening the contract which binds the original partners to secondary recipients, not in command of the source language. From this perspective, the translator is required to make it possible for recipients to identify the speaker by revealing the speaker's characteristics and to fully understand their attributed discourse role, especially in view of possible systemic differences between the source and target cultures. In medical texts, the communicating subject is usually presented nominally, through their proper name or their personal data

(a culturally dependent value), as well as verbally, through the use of specialised language (a functionally reproducible value).

The communicating subject can be an institution or a person identified by name. In a hospital discharge summary, which is to be the object of our further consideration, the institutional speaker figures in the heading as the hospital authorised to offer healthcare services in the specified range. The hospital name has a significant semantic value not only because of its identifying function, but also owing to information about the status, form of ownership or the extent of authorisation to provide healthcare services (Łomzik 2016: 87). The scope of services provided is defined by the hospital unit where the patient is admitted (Górnicz 2011: 63–64). Its nominal representatives are the attending physician and the head of department, whose signatures and official stamps validate the document.

Apart from the formal attributes of the communicating subject, the document bears verbal traces of their status in the form of style characteristic of specialised communication. A hospital discharge summary is a text constituting part of an individual hospital file, issued to the patient at the end point of hospitalisation. The patient is not, however, the only addressee of the hospital treatment information card, as there is also the patient's general practitioner and other medical specialists. The dual interpreting subject – non-specialist (patient) and specialist (physician) – is reflected in the presence of verbal features of two subject relationships: specialist–non-specialist and specialist–specialist (Walkiewicz 2016: 128; cf. Lee-Jahnke 2005: 81 and Guével 2007: 78). The former relationship is exemplified by names of diseases in Polish (Dz.U. 2015), the latter by abbreviated forms referring to procedures and tests performed, characteristic of communication within the specialist–specialist circuit (Walkiewicz 2016: 128; cf. Lee-Jahnke 2005: 81 and Guével 2007: 78). The translator should render all information-bearing elements of the style in order to preserve the standards of specialised communication in the target language (Kielar 2003: 43; Karwacka 2016: 90). Only thus will the target text at the internal-circuit level achieve a corresponding functional coherence at the external-circuit level, and it will be able to operate in the target

polysystem next to other, non-translation texts (Lewicki 2000: 11). This condition, as a criterion of communicative felicity, will be fulfilled when the translation has been accepted by the medical community in the target culture, allowing the author of the original (first-level communicating subject) to be acknowledged as its member (Karwacka 2016: 25; cf. Rouleau 2003: 150).

## 2.2. Object

The object of a medical text depends on the genre and the subject-situational framework on which it is based (Doroszewski 2014). In the case of the hospital discharge summary, constituting an important component of the patient's individual medical documentation, the object includes the preliminary diagnosis, as well as the tests, treatment, drugs and procedures administered to the patient; the discourse object is articulated by degrees – at the level of particular segments of the internal-circuit microstructure, as well as systemically – at the level of its macrostructure, mapping hospital procedures characteristic of a given culture.

Indeed, all the information referring to the object of the medical text encoded in the text is verbalised point-by-point at the level of denomination ('what') and systemically at the level of discoursivisation, corresponding to the culturally specific manner of speaking about the discourse object ('how'). Point-by-point presentation applies to disease entities, tests administered, test results expressed in normalised units, medical procedures applied (diagnostic and therapeutic) and medication (cf. Górnica 2011). Difficulties in their translation are often discussed as typical challenges posed by medical terminology (Monin 1993; Rouleau 2003; Lee-Jahnke 2005; Berghammer 2006; Balliu 2005; 2010; Walkiewicz 2016), ameliorated to a large extent by the international terminology standardisation (e.g. ICD-10). Translators are challenged by morphological diversity, polylexy, synonymy, acronymy, eponymy or asymmetry of semantic and terminological fields, yet in medical texts associated with the paradigm of conventional medicine, cases of a total lack of equivalence at the

level of denomination are rare, which largely results from the symmetry of the conceptual framework (Górnicz 2013: 70–71) based on the common substrate, i.e., the human body and its ailments. Apart from the oldest, i.e., anatomy (Lee-Jahnke 2005: 81), the factor that unifies the conceptual and terminological frameworks is also what is the newest, i.e., the superstrate, which may be recognised in diagnostic and therapeutic techniques, as there are few as internationalised fields as medicine.

The situation presents itself rather differently at the level of discoursivisation, i.e., institutionalisation of the way in which the object of denomination is spoken about, where we are dealing with culturally conditioned diversity of medical text genres. As a socially sanctioned expression of codified verbal behaviour, genre is a strongly culturally marked instance not only in the national dimension, but in the professional one as well. Thus it reflects social and legal differences in how healthcare facilities operate. This is why mapping the organisational order of utterance macrostructure in the target language is indispensable for the preservation of the representative function, so important in translating such documents as a hospital treatment information card. Discourse asymmetry at the level of distribution of particular elements of microstructure in functionally analogous text genres is largely ameliorated through internationalisation of diagnostic and therapeutic standards, thanks to which macrostructural differences can be ‘domesticated’ through the means of expressions functioning in the target culture. This means that even if the recipient culture polysystem does not have a symmetrical genre pattern, the missing elements can be found elsewhere on the target genre map (Walkiewicz 2013: 23–24).

It needs to be emphasised that discourse parameters of medical text translation are determined by the source text, i.e., first-level discourse. This results from the assumption that the aim of translating a medical text is to enlarge the circle of recipients to include specialists, in the way that would allow the recipient, while reading the target text, to feel as if they were a member of the same professional community as the author of the original. This assumption implicates the following consequences concerning the choice of translation strategy:

- as a communicating subject actively participating in second-level discourse, the speaker should preserve identity in the target text in such a way as to allow the second-level interpreting subject – the addressee of the translation – to be aware of its professional characteristics (an institution, a physician, their position and specialty, as well as their correspondent form of professional communication);
- the object of first-level discourse ('what') should be communicated by means of language forms used in analogous communication situations in the target culture, whereas the 'scenario' ('how') should reproduce the utterance structure while preserving the speaker's intended materiality threshold (Karwacka 2016).

The dynamic choice of strategy requires from the translator to be aware of discourse implications of translation. The following part of the article will analyse from this perspective three translations of a hospital discharge summary, made by three different translation agencies.

### 3. CASE STUDY

The French translations of a hospital discharge summary analysed here were commissioned, which means that the translators were not aware of the research purpose which their translations would serve. It must be pointed out that the commissioning party did not require a certified translation, which is not without significance for the quality of the translations provided. The original text is the hospital treatment card of a patient hospitalised in the Greater Poland Cancer Centre (Wielkopolskie Centrum Onkologii – WCO) in Poznań, a document characterised by a canonical genre structure\* composed of the following elements: a heading with the information about the healthcare provider, patient data, diagnosis, tests, treatment, medical history report, blood products and drugs administered, as well as recommendations (cf. Górnicz 2011:

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\* A list of components of the genre in question is defined in: (Dz.U. 2002).

63). All this is followed by names of physicians signing the documents, as well as data concerning their position, specialty and medical licence number. The simplicity of the internal circuit structure reflects the clarity of the subject-situational relationship: the communicating subject gives an account of the diagnostic-therapeutic measures taken for the benefit of the patient during their stay in the facility. The addressee of the report is the patient, who is guaranteed by law (Dz.U. 2008) to have full access to information about their health and medical procedures performed, as well as the general practitioner and, possibly, a cancer specialist who provides or is to provide oncological care after discharge from hospital\*. Hence, this is a case of a dual interpreting subject, each representing a different level of expertise: patient – non-specialist and physician – specialist\*\*.

### 3.1. Translating Verbal Markers of the Communicating Subject

A direct first-level communicating subject is the attending physician, whose signature appears at the bottom of the document together with the signature of the head of department, linking the direct communicating subject with the institutional subject, featured in the heading of the document. The institutional subject of the first-level discourse (the original), here the WCO, is not only a physical framework for the situational context, but also an institution legally entitled to provide healthcare services with characteristics coded in its name. The information load of the communicating subject's name imposes on the translator the duty of translating them, to the extent that their role in the first-level discourse is understood institutionally and individually.

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\* On French equivalents of hospital treatment information cards – *compte-rendu d'hospitalisation* – the addressees of the document are listed at the top of the text.

\*\* A similar situation occurs in a construction project: a team of designers is a communicating subject addressing the project to the investor, and to builders as well, as it is them, and not the investor, who are responsible for implementing the project.

### 3.1.1. Institutional Subject

The usually elaborate names assigned to healthcare facilities are loaded with information concerning their locality, the type and status within the health-care system, the form of ownership and the scope of functions (Łomzik 2016: 87). In the case of the WCO, the proper name of the institution includes information about its regional setting (Wielkopolska – Greater Poland), its position within the organisational structure (centre), its scope of functions (oncology) and the name of its patron (Maria Skłodowska-Curie). The information value is not contained within the individual components of the name, but in their sum total: the ‘Greater Poland Cancer Centre’ means that this is the largest regional healthcare facility offering oncology services, and therefore a hospital of the highest referral level (the highest standard of services). For the second-level interpreting subject, the specialist, this is very important information, as it gives credit to the value of the test results presented in the hospital discharge summary.

In the four translations obtained for the study, the authors applied different solutions.

The first translation renders the type of facility and its scope of functions in the target language, preserving the toponym and the anthroponym in their original forms (apart from the French version, the translator preserves the original name), which is unjustified, considering that French dictionaries list a lexicalised equivalent of Wielkopolska – *Grande-Pologne*. The consequence of reducing the name by failing to use a toponym which is clear to the second-level addressee obscures the status of the facility in terms of the referral level. The change of form in the foreign-sounding name is less jarring – after all, it is recommended to leave first names and family names in their original forms. However, the hospital is named after the person who is an individual of global importance, and the internationalisation of her name would be as natural as in the case of Poles using the name ‘Kartezjusz’ for the French *Descartes*. Transferring the original name is then an unjustified trace of foreignness, similar to solution No 2, whose author fails to include the heading altogether. In the latter case, the

Table 1. French translations of the institutional subject's proper name

Polish	French	Technique
Wielkopolskie Centrum Onkologii im. Marii Skłodowskiej-Curie*	1. Centre d'Oncologie de Wielkopolska Maria Skłodowska-Curie (Wielkopolskie Centrum Onkologii)	literal translation with a change in word order and with the toponym in the original form
	2. Ø	omission
	3. Wielkopolskie Centrum Onkologii im. Marii Skłodowskiej-Curie	use of the original name
	4. Centre oncologique de Grande-Pologne Marie Skłodowska-Curie [Wielkopolskie Centrum Onkologii im. Marii Skłodowskiej-Curie]	translation with a change in the syntactic structure and position of the toponym, combined with the original name

\* Translator's note: the full English translation is 'the Maria Skłodowska-Curie Oncology Centre of Greater Poland'; the official English name used by the centre is 'the Greater Poland Cancer Centre'.

trace originates from the incompatibility of the translation to the legally defined norm (Legifrance 2018) based on international medical standards for text genres corresponding to similar communication situations in the target culture. There may be multiple reasons for such a decision: an incorrect interpretation of the principle of (not) translating proper names, a conviction about the integrity of the translation with the original or its copy, an arbitrarily set threshold of the target text's relevance. Solution No 3 renders similar results by directly transferring the name of the hospital in its original form. Introducing a quote from the source language into second-level internal circuit indicates a conscious choice, yet it results in the failure to introduce the first-level communicating subject, so that the



translation does not preserve the precise subject relationship in comparison to the source discourse. Another technique was applied by the fourth translator, who conveyed the full meaning of the original name in the target language while ensuring the appropriate level of acceptability, i.e., also localising the toponym and the anthroponym. Supplementing the translation with the original name, the translator reconstructed both functions of discourse – identification function and informative function, thanks to which the contract binding second-level partners was implemented.

The name of the organisational unit within the hospital structure: Oddział Chirurgii Onkologicznej Chorób Piersi (English: Breast Surgical Oncology Department), turned out to be a less troublesome aspect of the translation owing to the universality of hospital organisational structures. The universality is based on the previously mentioned anatomical substrate, as well as the resulting conceptual and terminological symmetry at the level of medical specialties. This justifies an exceptionally small range of the solutions proposed, demonstrating a full structural analogy with few orthographic variations (use of capital letters with each lexical component of the name).

Table 2. French translations of the organisational unit of the institutional subject

<b>Polish</b>	<b>French</b>	<b>Technique</b>
Oddział Chirurgii Onkologicznej Chorób Piersi	1, 3. Service de Chirurgie oncologique des maladies du sein	literal translation adapted to the target orthographic norm
	2, 4. Service de Chirurgie Oncologique des Maladies du Sein	literal translation in compliance with the original orthographic norm

Both solutions proposed fulfil the representative and informational functions. Although French usage prefers capital letters only for the first element of the multi-component proper name, it is true that equivalent documents often employ capitals with every component of the name. This is probably an effect of the spread of English standards in medical communication.

## 3.1.2. Individual Subject

The first-level individual communicating subject is expressed in the first-level discourse in many ways: nominally (first and family name and signature) and professionally, where the professional aspect is characterised by the medical specialty and the position occupied within the institutional subject's system.

Table 3. French translations of the organisational unit of the institutional subject

<b>Polish</b>	<b>French</b>	<b>Technique</b>
a. lekarz wypisujący [discharging physician]	1a. Médecin délivrant le compte-rendu 1b. spécialisations en chirurgie générale	1a. descriptive translation 1b. literal translation
b. specjalizacje* chirurgii ogólnej [general surgery specialties]	2a. Médecin préparant la sortie du patient 2b. Spécialisations de la chirurgie générale  3a. Médecin traitant 3b. spécialité chirurgie générale  4a. Médecin traitant 4b. spécialité chirurgien généraliste	2a, 2b. descriptive translation  3a. translation by a presumed equivalent** 3b. equivalent  4a. translation by a presumed equivalent 4b. equivalent
c. Ordynator [Head of department]	1c. Chef du service 1d. spécialisations chirurgien oncologique	1c. literal translation 1d. word-for-word translation
d. specjalizacje chirurg onkolog [cancer surgeon specialties]	2c. Chef du Service 2d. spécialisations en chirurgie générale	2c, 2d. literal translation

Polish	French	Technique
	3c. Chef du service 3d. spécialité chirurgien oncologue	3c. literal translation 3d. equivalent
	4c. Chef du service 4d. spécialité chirurgie oncologique	4c. literal translation 4d. metonymic equivalent

\* Original orthography.

\*\* The translator chose an incorrect target phrase as a result of a presumption about one word in the phrase.

Translation of medical specialties should not pose any problems because there is a comparable list of medical specialties both in Poland and in France (FHF; MZ), in contrast to names of positions physicians can occupy within a particular facility, which reflect the unique administrative and organisational characteristics of the Polish healthcare system (cf. Fuentes 2016: 81). The client may expect that the specialty of the first-level communicating subject will be presented in the manner accepted in the target culture for the needs of defining the equivalent professional characteristic. This was achieved in merely four of the expressions (3b, 4b, 7d and 8d), which gives as little as 50% of accuracy. In the other solutions, translators used a wrong equivalent of the term ‘specjalizacja’ (*spécialisation*) or the name of specialty, *chirurgien oncologique*, which is an incorrect structure, based probably on the mistaken presumption of structural symmetry:

*chirurgie oncologique* → \**chirurgien oncologique*

Yet in France, the term preferred by usage is *chirurgien cancérologue*, although *chirurgien oncologue* is also in use (more commonly in Belgium and Switzerland). Thus, despite the possibility of a full localisation of the name of the profession and the optimal presentation of the communicating subject as a member of the same medical community as its equivalent

in the target culture, translators did not use the systemic opportunity, introducing an unintended trace of foreignness.

Apart from the problems caused by physicians' specialties, dilemmas encountered by the authors of the target texts under analysis concern the name of the position of the first-level communicating subject, 'lekarz wypisujący' (discharging physician). The Polish healthcare system does not explicitly recognise the attending physician as the only person authorised to prepare a hospital discharge summary, and consequently a physician on duty at the moment of the patient's discharge from hospital can do that. The situation is different in France, where the attending physician is obliged to prepare the document in question. This is reflected in its microstructure: the *compte-rendu d'hospitalisation* has a rubric *fait par le docteur...*, which unequivocally specifies the attending physician. The systemic asymmetry is reflected in descriptive equivalents used in translations No 1 and No 2. Both *médecin délivrant le compte-rendu* and *médecin préparant la sortie du patient* render the function performed by the speaker of the source text – 'lekarz wypisujący', without assigning to them a role which they would additionally perform in the target culture (diagnostic and therapeutic care of the patient). Such a role, on the other hand, is assigned to the first-level communicating subject by a different solution – *médecin traitant*, which modifies the professional characteristic of the physician – from a hospital physician to a general practitioner.

What also needs to be noted is, above all, the lack of uniform usage, which may result from numerous factors: lack of general-access resources on the subject, lack of standardisation of foreign-language versions of proper names of Polish institutions, including healthcare facilities (cf. Łomzik 2016: 88), as well as strict, inflexible use of translation recommendations, with no regard for the subject-contextual dimension of translation understood as second-level discourse. A two-dimensional approach to a target text as a secondary text in relation to the source text has led to omissions, two versions of names (translated and transferred from the original) or failure to exploit the possibilities of reducing the cultural and systemic distance of the target language (localisation of toponyms).

The observed deficiencies attest to the fact that the translations had not been made by certified translators, who adhere to the Certified Translator's Code of Ethics, at least in terms of using the standardised versions of proper names. Names unconnected with the unique legal-administrative characteristics, those based on the international medical conceptual system (e.g. name of the organisational unit of the hospital, name of medical specialty) have caused fewer problems. Still, even here the translators failed to use all possibilities of expressing the subject's characteristics in the way that would fully match target norms of professional communication. As a result, the first-level communicating subject appeared in most of the translations under analysis as marked by foreignness, inadequate to the relationship which should bind them to the second-level interpreting subject.

### 3.2. Object

The object of the first-level discourse is defined in terms of genre: it is a description of diagnostic and therapeutic procedures performed during the patient's hospitalisation in connection with a particular clinical diagnosis. As one of the major components of a patient's individual medical documentation, the genre occurs in both cultures involved in the translation act, which facilitates the broadening of the contract binding the first-level speaker with the second-level addressee, as there are verbal structures in the target system expressing analogous content at two levels: denomination ('what') and discoursivisation ('how'). The object of the discourse under discussion is composed of particular elements of the medical procedures applied, which represent symmetrical conceptual systems and the corresponding terminological fields (Ligara and Szupelak 2011), subject to international standardisation (e.g. ICD-10). Due to the limited format of this text, only some elements of the denomination level are going to be considered: the diagnosis, the tests selected and the resources used.

In all solutions offered by the translators, the diagnosis was rendered in accordance with the French medical terminology.

Table 4. French translations of the name of disease entity

Polish	French	Technique
Czerniak złośliwy skóry, czerniak złośliwy skóry nieokreślony (C43.9) [malignant melanoma of skin; malignant melanoma of skin, unspecified (C43.9)]	1. Mélanome malin de la peau, Mélanome de la peau, sans précision (C43.9)	literal translation
	2–4. Mélanome de la peau, sans précision (C43.9)	equivalent

The generally available International Statistical Classification of Diseases and Health Problems has undoubtedly facilitated accurate translation by making it possible to find the name of a disease entity through its assigned numerical symbol.

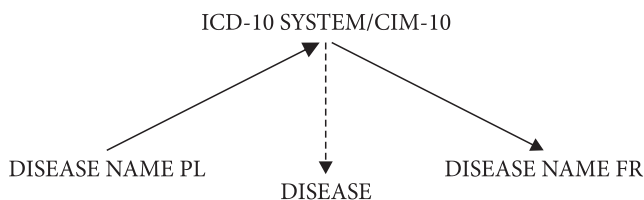


Figure 3. The identification algorithm for equivalent disease names  
(Walkiewicz 2016: 129)

One solution that may raise objections is the first one, constituting a functionally unjustified mirror image of the source structure.

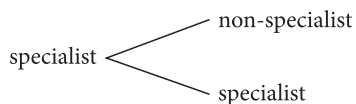
Another component taken into consideration as the first-level discourse object is the names of laboratory blood tests.

The catalogue of lab tests performed in different countries is universalised, i.e., it has terminological equivalents in various languages. The down-side is that there is no generally available terminological system that would have a test classification comparable to the ICD-10 system. This may have contributed to the three translators' decisions to transfer all abbreviations to the second-level discourse in their original forms. Perhaps

Table 5. French translations of names of blood tests

Polish	French	Technique
PLT	1–3. PLT 4. plaquettes	1–3. direct transfer 4. equivalent
NEU	1–3. NEU 4. neutrophiles	1–3. direct transfer 4. equivalent
BASO	1–3. BASO 4. basophiles	1–3. direct transfer 4. equivalent
RBC	1–3. RBC 4. globules rouges	1–3. direct transfer 4. equivalent
LYM	1–3. LYM 4. lymphocytes	1–3. direct transfer 4. equivalent
MONO	1–3. MONO 4. monocytes	1–3. direct transfer 4. equivalent
WBC	1–3. WBC 4. globules blancs	1–3. direct transfer 4. equivalent
HGB	1–3. HGB 4. hémoglobine	1–3. direct transfer 4. equivalent
morfologia [blood count]	1–3. Hémogramme 4. analyse de sang	1–3. equivalent 4. hypernym
czas protrombinowy [prothrombin time]	1–4. temps de prothrombine	1–4. equivalent

the decisive factor was the conviction of the status of the English language, now seen as the current-day *lingua franca* of modern medicine. French physicians certainly understand English-language abbreviations referring to various types of tests, but in professional communication appropriate for their language area they use their native forms, also for the sake of the non-specialist recipient, as the functional equivalent of the hospital treatment information card – *compte-rendu d'hospitalisation* – is based on the analogous, dual subject relationship:



It is worth pointing out that translation by equivalent was applied only to full lexemes – ‘morfologia’ (blood count) and ‘czas protrombinowy’ (prothrombin time), which seems to support the hypothesis of the acknowledgement of the universality of English abbreviations. Only one of the translators translated the names of tests according to the French norm of communication, considering discourse genre and its characteristic subject-situational context.

The last element concerning the object of the first-level discourse is a list of ‘resources used’, i.e., drugs and medical preparations administered during the hospitalisation, whose names were transferred to the second-level discourse in the original form by all the translators.

Table 6. French translations of names of drugs administered

Polish	French	Technique
Amoksiklav	1–4. Amoksiklav	direct transfer
Atropinum sulfuricum	1–4. Atropinum sulfuricum	direct transfer
Clexane	1–4. Clexane	direct transfer
Bridion	1–4. Bridion	direct transfer
Ecolav 0,9%	1–4. Ecolav 0,9%	direct transfer
Paracetamol Kabi	1–4. Paracetamol Kabi	direct transfer
Ephendrinum hydrochloricum	1–4. Ephendrinum hydrochloricum	direct transfer
Fentanyl	1–4. Fentanyl	direct transfer

Transfer of drug trade names is motivated by respect for the original form of the proper name of the drug due to its identifying function. However, if the name itself does not render the semantic and referential value in the target culture it needs to be expressed by means of definition, as



it is done with toponyms non-lexicalised in the target culture. The trade name of the drug is conventional and depends on the producer. If a given preparation is not available on the target culture's market (Amoksiklav, Clexane, Ecolav 0,9%), its original trade name will mean nothing to the second-level interpreting subject. Translators should explicitly name active substances (Górnicz 2011: 67), which would help the addressee identify the drugs available under different names in their culture.

### CONCLUSIONS

The aim of this article has been to present medical text translation from the discourse perspective. An analysis was performed on four French standard (uncertified) translations of a hospital discharge summary from the point of view of strategies and techniques used by translators so as to extend the relationship between the first-level speaker and addressee to the second-level addressee while preserving both the first-level discourse functions (informative) and second-level discourse functions (representational and communicative). The results of the analyses indicate low translation quality, resulting from little awareness of discourse implications of translation. Consequently, the translations appear flat, devoid of any evidence of the awareness of the role that particular verbal structures play in the three dimensions of the subject-situational context. In connection with that, most of the target texts did not achieve analogous relationships between first- and second-level subjects. Neither was the object of the discourse, verbalised at the internal-circuit level, rendered according to the scenario designed for target medical communication. It seems to be the case that even though the authors of the translations are active in the commercial translation market, they still demonstrate low discourse competence, which produced unjustified traces of interventions of the translator as the second-level communicating subject, leading to imitation of surface features of the first level internal circuit, and, consequently, to a serious deficiency of communicative efficacy in the second-level circuit.

## References

- Balliu, Ch. (2005). La didactique de la traduction médicale, deux ou trois choses que je sais d'elle. *Meta*, 50(1), pp. 67–77. Available at: <http://id.erudit.org/ierudit/010658ar> (accessed 8 May 2018).
- Balliu, Ch. (2010). Le traducteur, le médecin et le patient. *Meta*, 55(1), pp. 15–22. Available at: <http://id.erudit.org/ierudit/039598ar> (accessed 8 May 2018).
- Berghammer, G. (2006). Translation and the Language(s) of Medicine: Keys to Producing a Successful German-English Translation. *The Write Stuff*, 15(2), pp. 40–44.
- Charaudeau, P. (1995). Une analyse sémiolinguistique du discours. *Revue Langues*, 117. Available at: <http://www.patrick-charaudeau.com/Une-analyse-semi-olinguistique-du.html> (accessed 8 May 2017).
- Charaudeau, P. and Maingueneau, D. (2002). *Dictionnaire de l'analyse du discours*. Paris: Éditions du Seuil.
- Doroszewski, J. (2014). Podstawy współczesnej komunikacji lekarskiej. In: *Porozumienie z pacjentem. Relacje i komunikacja*, eds. J. Doroszewski, M. Kulus and A. Markowski. Warszawa: Wolters Kluwer Polska, pp. 15–22.
- Dz.U. (2002). Dziennik Ustaw z 2002 r., nr 176, poz. 1450, Rozporządzenie Ministra Spraw Wewnętrznych i Administracji z dnia 1 października 2002 r. w sprawie dokumentacji medycznej w zakładach opieki zdrowotnej utworzonych przez ministra właściwego do spraw wewnętrznych. Available at: <http://www.dziennikustaw.gov.pl/DU/2002/1450/1> (accessed 19 November 2018).
- Dz.U. (2008). Dziennik Ustaw z 2009 r., nr 52, poz. 417, Ustawa z dnia 6 listopada 2008 r. o prawach pacjenta i Rzeczniku Praw Pacjenta. Available at: <http://www.dziennikustaw.gov.pl/DU/2009/s/52/417/1> (accessed 19 November 2018).
- Dz.U. (2015). Dziennik Ustaw z 2015 r., poz. 2069, Rozporządzenie Ministra Zdrowia z dnia 9 listopada 2015 r. w sprawie rodzajów, zakresu i wzorów dokumentacji medycznej oraz sposobu jej przetwarzania. Available at: <http://www.dziennikustaw.gov.pl/du/2015/2069> (accessed 19 November 2018).
- FHF. (n.d.). Les spécialités médicales. *Fédération Hospitalière de France*. Available at: <https://www.hopital.fr/Le-dico-medical/Les-specialites-medicales> (accessed 7 May 2017).
- Fuentes, S. (2016). La traduction des noms de profession dans un système de dictionnaires électroniques coordonnés (ES-FR). *Verbum*, 7. Available at: <http://www.journals.vu.lt/verbum/article/view/10287/8159> (accessed 8 May 2018).
- Górnicz, M. (2011). Tłumaczenie kart informacyjnych leczenia szpitalnego na język angielski. *Lingua Legis*, 19, pp. 63–69.

- Górnicz, M. (2013). Kulturowe uwarunkowania zapożyczeń terminologicznych (na przykładzie terminologii medycznej). In: *Przekład jako akt komunikacji międzykulturowej*, eds. I. Kasperska and A. Żuchelkowska. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza, pp. 69–86.
- Grzmil-Tylutki, H. (2007). *Gatunek w świetle francuskiej teorii dyskursu*. Kraków: Universitas.
- Guével, Z. (2007). Caractéristiques linguistiques et culturelles de la traduction spécialisée. In: *Traduction spécialisée: Pratiques, théories et formations*, ed. E. Lavault-Olléon. Bern: Peter Lang.
- Hermans, T. (2009). Przekład, zadrażnienie i rezonans. In: *Współczesne teorie przekładu*, eds. P. Bukowski and M. Heydel. Kraków: Znak.
- Karwacka, W. (2016). *Przekład tekstów medycznych*. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego.
- Kielar, B.Z. (2003). *Zarys translatoryki*. Wrocław: Zakład Graficzny Uniwersytetu Wrocławskiego.
- Labocha, J. (2008). *Tekst, wypowiedź, dyskurs w procesie komunikacji językowej*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Lee-Jahnke, H. (2005). Teaching Medical Translation: An Easy Job? *Panace@*, 6(20), pp. 81–84.
- Legifrance. (2018). Code de la santé publique, Version consolidée au 7 novembre 2018. Available at: <https://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006072665> (accessed 19 November 2018).
- Lewicki, R. (2000). *Obcość w odbiorze przekładu*. Lublin: Wydawnictwo UMCS.
- Ligara, B. and Szupelak, W. (2011). *Lingwistyka i glottodydaktyka języków specjalistycznych na przykładzie języka biznesu*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Łomzik, M. (2016). Wybrane problemy przekładu polskich i niemieckich nazw szpitali w tłumaczeniu poświadczonym na podstawie analizy składników. In: *Norma a uzus, 1: Z zagadnień przekładu specjalistycznego*, eds. A. Fimiak-Chwiłkowska, B. Walkiewicz and J. Woroch. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza, pp. 87–96.
- Monin, S. (1993). La siglaison en langue médicale et problèmes de traduction. *Asp*, 2. Available at: <http://asp.revues.org/4264> (accessed 8 May 2018).
- MZ. (n.d.). Wykaz specjalności lekarskich i lekarsko-dentystycznych. Ministerstwo Zdrowia. Available at: [http://www2.mz.gov.pl/wwwfiles/ma\\_struktura/docs/zalaczniki14\\_rozpo\\_23052006.pdf](http://www2.mz.gov.pl/wwwfiles/ma_struktura/docs/zalaczniki14_rozpo_23052006.pdf) (accessed 7 May 2017).
- Rouleau, M. (2003). La terminologie médicale et ses problèmes. *Panace@*, 4(12), pp. 143–152.

- Walkiewicz, B. (2013). *O architekturze tekstów o architekturze w perspektywie przekładu*. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza.
- Walkiewicz, B. (2016). Norma kontra uzus. Problemy z terminologią w przekładzie tekstów medycznych. In: *Norma a uzus, 1: Z zagadnień przekładu specjalistycznego*, eds. A. Fimiak-Chwiłkowska, B. Walkiewicz and J. Woroch. Poznań: Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza, pp. 123–136.

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RELEVANCE OF FORMAL  
AND CULTURAL VARIATIONS IN TEXT  
GENRES FOR MEDICAL TRANSLATION:  
MEDICAL BROCHURES, WEB PAGES OF  
HOSPITALS, PATIENT INFORMATION LEAFLETS  
AND INFORMED CONSENTS

INTRODUCTION

The activity of translating medical texts is very old and, throughout history, has been an essential element for spreading medical (and, in general, scientific) knowledge. However, medical translation has not been frequently researched until the last few decades. In the last few years, several studies dealing with very different matters and from very diverse approaches have been published.

Firstly, theoretical reflections on the *fundamentals of medical translation* as well as reflections on the *translation strategies and methods* required for this type of translation have been addressed. An example of this trend might be the works of Fischbach (1998), Jammal (1999), López Rodríguez (2000), Quérin (2001), Vandaele (2001a; 2001b; 2001c; 2003), Balliu (2001), Muñoz Torres (2002), Feinauer and Luttig (2005), Montalt i Resurrecció (2005; 2011; 2013), Mercy (2006), Gil (2008), Tuan (2011), Wright (2012), Ross and Magris (2012), Sechel (2013), García Izquierdo and Conde Ruano (2014), Montalt i Resurrecció and Shuttleworth (2012), Montalt Resurrecció and González Davies (2007), Muñoz-Miquel (2014),

Valero-Garcés, Navaza and Wahl-Kleiser (2014), Lázaro-Gutiérrez (2015) and Dalton-Oates (2017), among many others.

Secondly, another common research area, which has become particularly popular in the last few years, deals with *linguistic issues, such as frequent mistakes and terminological difficulties occurring in medical translation*. Outstanding contributions have been made in this research area in the numerous works of Williams (1996; 2007; 2008; 2009a; 2009b; 2010; 2012; 2013) and doctor Navarro (1996; 1997a; 1997b; 1998; 2000; 2001a; 2001b; 2002; 2003; 2006a; 2006b; 2006c; 2007a; 2007b; 2008a; 2008b; 2008c; 2008d; 2009a; 2009b; 2009c; 2010a; 2010b; 2011; 2012; 2013a; 2013b; 2014; 2015a; 2015b; 2017a; 2017b). However, many other works have also been published on this subject, by researchers such as Díaz Prieto (1995), Ortega Arjonilla et al. (1999), Gutiérrez Rodilla (1998; 2005), Webber, Snelgrove and Mungra (2001), Cabré Castellví (2004), Zethsen (2004), Jiménez Gutiérrez and Mañas Castro (2007), Martínez López (2007; 2010), Ruiz Rosendo (2008), Saladrigas et al. (2008a; 2008b), Texidor Pellón and Reyes Miranda (2009), Mayor Serrano (2010a), Quijada Diez (2013), Khanmohammad and Mousavinasab (2014), Frînculescu (2014), Wandji Tchami, L'Homme and Grabar (2014), Gotti and Dossena (2001), Gotti (2015), Olivier-Bonfils (2015; 2016), Claros Díaz (2016), Popineau (2016), Alarcón-Navío, López-Rodríguez and Tercedor-Sánchez (2016) and Brogger (2017), to mention only a few. Many of the works dealing with linguistic issues have a clear *pedagogical approach*, such as the contributions of Williams (1999), Gómez and Weinreb (2002), Mayor Serrano (2002; 2003a; 2003b; 2003c; 2005), Balliu (2005), Muñoz-Miquel (2016), etc.

Also, works analysing a particular *text genre* and aiming to determine its features or implications for translation have been common, especially in the last decade (i.a. Salager-Meyer 1990; 1992; Nwogu 1991; Webber 1994; Saladrigas et al. 2008a; 2008b; García Izquierdo 2009; 2016; Mayor Serrano 2010b; Muñoz Torres 2011; Salvador 2012; Ramos 2012; Vázquez y Del Árbol 2013; 2014; Villalba Jiménez 2015; Díaz Alarcón 2016).

Finally, studies going beyond and dealing with *cultural issues and textual approximations* have also been frequent (He 1998; 2000; Marsh 1999;

Williams 2004; Mayor Serrano 2005; 2006; Kim 2006; López Arroyo and Méndez-Cendón 2007; Dumas and Boucher 2012; Pietrzak 2015; Olmo Cazevieille 2015; Faya Ornia 2015; Martínez Motos 2016; Lázaro-Gutiérrez 2016; 2017; Lázaro-Gutiérrez and Tejero González 2017; Jiménez-Crespo 2017; Rial Díaz et al. 2017, etc.).

As we can see, there are many different research approaches to medical translation, and some of them might even be combined in the same study (for example, the analysis of a particular text genre with pedagogical purposes). In this sense, the present work focuses mainly on the last two approaches mentioned in this section (i.e., the analysis of text genres and the discussion of cultural issues), since it aims at commenting on the relevance of culture in medical text genres as well as its implications for medical translators (it is essential that translators know and implement the features of a particular text genre in a specific culture).

## 1. MEDICAL TRANSLATION AND SPECIALISED TRANSLATION

Medical translation is the translation of texts that belong to the medical field. However, not all medical texts can be considered 'specialised texts'. Although the topic is one of the most determining factors for specialisation, it is not the only one (Cabré Castellví 1999: 24). Some extra-textual criteria must also be taken into consideration: mainly the text function and the features of the communication participants (Gamero Pérez 1998; 1999; 2001). Some authors even highlight the skills required to translate these texts as another criterion to determine whether a text is specialised or not (Gläser 1990; 1998; Göpferich 1995a; 1995b; Gutiérrez Rodilla 1998; 2005; Gamero Pérez and Hurtado Albir 1999; Alcina Caudet and Gamero Pérez 2002; Olohan 2016).

Medical texts (i.e., those pertaining to the field of medicine) can thus be specialised or not depending on the function of the text and the participants of the communication. In this sense, the proceedings of a medical

conference (whose text function is to report some research outcomes from experts to experts) can be considered a specialised text, whereas a medical brochure (which aims to explain a particular disease to patients) might not.

These three aspects (i.e., the field, the reader and the function of the text), or, in other words, the fact that a text is specialised or not, will determine both the linguistic aspects (vocabulary, register, etc.) and the translation strategies that should be applied in each case. However, translation strategies are not only determined by the topic and the communicative situation, but also by the features of the textual genre.

## 2. FEATURES OF THE GENRE AND CULTURES

Text genres may present different features depending on the culture to which they belong (Gamero Pérez 1998: 166), and in order to detect these differences, cross-cultural studies of different textual genres (not only in the medical context) have been carried out for a wide range of purposes (Moreno 1997; Gamero Pérez 1998; 1999; 2001; Giannoni 2002; Al-Ali 2004; Vergaro 2004; 2005; Pounds 2005; López Arroyo and Méndez-Cendón 2007; Kranich 2011; Soler-Monreal, Carbonell-Olivares and Gil-Salom 2011; Giménez-Moreno and Skorczynska 2013; Ketabi and Rahavard 2013; Aimoldina, Zharkynbekova and Akynova 2014; Lavid and Moratón 2015; Liu and Furneaux 2015; Faya Ornia 2015; 2018; Garrido Rodríguez 2015; López Arroyo and Roberts 2016; 2017; Moyetta 2016; Muñoz-Miquel 2016; Pérez Blanco 2016; Yu and Liu 2016; Zarza and Tan 2016; Gladrow and Kotorova 2017; Orts Llopis 2017, among many others).

The variations between cultures can range from formal issues (such as the design or the macrostructure of the text) to linguistic or stylistic aspects. These differences might not be very frequent in formal and highly specialised texts because scientists tend to follow a fixed pattern and a similarly formal and objective style. The differences might, however, be more frequent in texts addressed to the general public, since they may



require a greater degree of adaptation of both cultural issues and the content if a specialised matter is being discussed. This can be frequently seen in medical texts addressed to patients or their relatives, i.e., the general public, who have a low level of *health literacy*\* (Coulter, Entwistle and Gilbert 1998).

Text genres are determined by both the features of the textual genre itself and the cultural conventions of the country in which they are developed. For that reason, in the next sections of this work, some examples of patient-addressed text genres (medical brochures, web pages, patient information leaflets and informed consents) will be commented on and their features will be contrasted in, at least, two different languages (English and Spanish).

## 2.1. Medical Brochures

Medical brochures present recurring linguistic and structural elements which make this text genre easily recognisable. These texts are usually addressed to patients and their relatives, and, although the content is more important than the form in which the message is transmitted (Smith et al. 1998), they tend to adapt the vocabulary to the level of the health literacy of the readers (i.e., general vocabulary).

In previous studies, this text genre was contrasted in different cultures with the aim of detecting the features that it presents in each culture as well as the possible variations. First, the genre was analysed in cultures of different languages: the UK, Germany and Spain (Faya Ornia 2015; 2016). In a subsequent study, the genre of medical brochures was contrasted again in different cultures, but on this occasion the cultures shared the same language: the UK and the US (Faya Ornia 2018). Each corpus was

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\* *Healthy People* (2010) and the *Institute of Medicine* (2004) define the term as 'the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.' According to these organisations, there are several studies related to the different degrees of knowledge as well as to determining factors (one of the main ones is the cultural context).

formed by 100 brochures collected following the same criteria. In all the analyses, both formal and linguistic differences were detected; here, some of them are commented on.

American and particularly Spanish brochures are usually more appealing and informal than British ones: special thickness paper is frequently used, colourful images abound, and the styles and fonts used are very diverse. In Spanish brochures, images are often informal drawings, whereas American brochures include realistic images as well as impersonal structures which provide a more objective and technical tone. On the other hand, German brochures, not being as appealing as Spanish brochures (in fact, the styles and fonts are extremely sober), are more interactive and informal than British texts regarding the type of paper and the kind of images included. In British brochures, a high number have no images, and in those brochures that do contain them realistic photographs clearly prevail. The layouts are also different: triptychs are undoubtedly preferred in Spanish and American English, whereas the layouts of diptychs, triptychs, booklets and even a collection of stapled sheets coexist in British English. Among German brochures, booklets are the most frequent layout.

Some linguistic differences have also been detected in the analyses, particularly regarding the terminology, the use of acronyms and the length of sentences. For example, Greek-Latin terms are frequent in Spanish brochures, whereas in English and German they are avoided, and explanations or terms with an English or German root are preferred. In this sense, *femur* is less frequent than *thigh bone*, both referring to the same concept. The same is true for *clavicle* and *collar bone* or *paraesthesia* and *pins and needles*. In Spanish, this duplicity is much less frequent, though it may also occur, such as in *pediculosis* and *piojos* or *cefalea* and *dolor de cabeza*. Thus, we can conclude that the degree of specialisation of terminology is higher in Spanish (i.e., technical terms are more frequent in this language). Secondly, acronyms are much more frequent in English than in Spanish (GP, HIV, ID, NHS, UK, etc.). It might be thought that acronyms are also more common in general English, but the fact that they are even more common in American brochures (which confers them a more

technical aspect) than in British brochures means that acronyms might be considered a cultural feature rather than a linguistic one. Something similar happens with linguistic repetitions, which seem to be related more to the function of the brochure rather than to the language or culture itself. Finally, sentences in Spanish are longer due to the frequent subordination and coordination that usually take place in this language. However, in this language, information is not usually structured in paragraphs (as happens with British and German brochures) but in independent sentences (as happens in American brochures, in which sentences tend to be quite short and direct).

The aspects analysed, particularly the lexical ones (i.e., general vocabulary, specialised terminology, presence of acronyms, etc.), are influenced by the linguistic features of the language itself (i.e., English, Spanish or German) as well as by the conventions of the genre (i.e., lexis exclusive to the field), the text class (i.e., vocabulary adapted because of brochures being informative texts) and the text type (i.e., the use of one term or another depending on the intention and communicative situation). However, the fact that American brochures behave slightly differently regarding issues such as specialised terms and acronyms means that it may be a cultural matter rather than a linguistic one (Wierzbicka 1985).

## 2.2. Web Pages

The necessity of adaption according to the reader and target culture referred to above is not only present in printed texts but can also be seen in online materials, as is the case of web pages.

Although there are several works that focus on the linguistic aspects of web pages as well as their legibility or the translation procedure (such as Silberg, Lundberg and Musacchio 1997; Cleary 2000; Gouadec 2003; Diéguez Morales 2008; Chen et al. 2009; Androutsopoulos 2010; Fernández Costales 2010; Gutiérrez y Restrepo and Martínez Normand 2010; Tercedor Sánchez 2010; Diéguez Morales and Lazo Rodríguez 2011; Jiménez-Crespo 2011; 2013; Jiménez-Crespo and Tercedor Sánchez 2011; Andreu Vall and Marcos

2012; Bestué 2015; Chuang and Lee 2015; Medina Reguera and Ramírez Delgado 2015; Rodríguez Tapia 2015; Rodríguez Vázquez 2015; Suau Jiménez 2015; Desjardins 2016), none of them deals with the study of web pages of hospitals or health centres nor contrasts them between different cultures or languages, which might be very useful for translators.

For that reason, a reduced corpus of web pages was compiled. It was formed by 30 web pages of British hospitals, 30 web pages of American hospitals and 30 web pages of Spanish hospitals. The contrastive analysis is based on the same model of analysis as that used for medical brochures, and clear differences have been detected: Spanish public hospitals share a homogenous layout, but this homogeneity is not so frequent among English public hospitals. And even less homogenous is the case of American websites, in which every single hospital website analysed presented a completely different layout. This may be related to the fact that healthcare in Spain and the UK is public, whereas it belongs to the private sector in the US.

The Spanish hospital websites analysed have a clear structure and include plenty of information about the hospital itself, the services offered and the healthcare team. Also, different kinds of guidelines for the patient and even teaching and research-related options are offered. Their general layout and the type of vocabulary used are similar to that stated for medical brochures: colourful layouts, pictures (both real or drawings) and user-friendliness. The British public hospital websites analysed present a sober aspect and follow the same patterns detected in the analysis of medical brochures. Information is not so clearly structured as in the Spanish websites and images are not very common, and, if included, they are real images (i.e., photographs). Details on location (or even details on how to help) and information on the healthcare team are provided (although the emphasis seems to be more on the 'doctors' and their career rather than the 'kind of services' offered). However, teaching and research-related sections are missing. Finally, American hospitals have a more commercial layout, in which persuading strategies are frequently used. The structure is clear (though in many different formats) and information about the

hospital and the services offered is provided, including some details on rankings and ratings, so that users can compare that particular centre with other hospitals. As happens in marketing products, pictures are frequent, but they are always real photographs that provide a more serious and responsible aspect.

This contrastive analysis of British, American and Spanish hospital websites aims to be the first approach to this text genre and its variations in different countries, but a further analysis would be required in order to provide more conclusive outcomes. It would also be advisable for subsequent research to consider the ownership of the hospital as well (i.e., the public sector in the case of Spain and the UK, and the private sector in the case of the US) when assessing the results to determine how this fact influences the features of the text genre (if it does).

### 2.3. Patient Information Leaflets

Information leaflets or package inserts are written documents which come with medicines and are addressed to the consumer or user. They include information on the authorisation holder or the manufacturer, the drug composition, some guidelines for taking the medicine, maintenance, secondary effects, interactions, contraindications, etc.

However, although the text genre of patient information leaflets is mainly addressed to patients, due to the macrostructure and the specificity of the vocabulary used some patients may have difficulties in understanding them (see ASEDEF 2007; Bradley et al. 1994; Mirón Canelo, Sardón and Sáenz González 2000; Wilson et al. 2001; Pérez García 2004; Blancafort, De Cambra and Navarro 2005; Clerehan and Buchbinder 2006; Barrio-Cantalejo et al. 2008; Pol Viedma et al. 2008; Auta et al. 2011; Jensen and Zethsen 2012; Berkel and Gerritsen 2012; Jensen 2013; Vázquez y del Árbol 2013; 2014; Álvarez et al. 2014; Maglie 2015; Pierini 2015). These difficulties may be partially due to the degree of specialisation of the terminology included as well as the diversity of formats. There are two main formats of user information leaflets: traditional and

modern. Traditional brochures are not numbered, their sentences are short and they have a highly specialised aspect, as demonstrated by the usage of specialised terms and complex syntax. Modern leaflets are frequently numbered, tend to explain the contents, include images and use less complex terms and sentences (Vázquez y del Árbol 2014: 119). The first work of Vázquez y del Árbol (2013) focuses on traditional leaflets, whereas the second (2014) focuses on modern ones – both contrastive studies provide exhaustive summary charts with the main outcomes. Currently, both formats co-exist, but the modern format is becoming more and more frequent and has virtually replaced the traditional one. For that reason, here only the most remarkable results of modern information leaflets are mentioned.

Modern English information leaflets are more flexible and visual than Spanish ones. The macrostructure in English leaflets is also more varied than in Spanish (though in the corpus of traditional information leaflets the opposite is apparent). They include non-verbal elements and punctuation marks, whereas Spanish leaflets demonstrate a greater degree of soberness and formality, and icons are rarely used. In this regard, Spanish leaflets seem to follow a stricter layout (as a technical sheet), and thus headings are less varied than in English. The register in English leaflets is also lower than in Spanish ones, since plenty of contractions, phrasal verbs or even exclamations may be found.

Moreover, patient information leaflets have been subject to different laws and rules to determine their labelling, content, advertising, etc., meaning that the macrostructure has evolved differently in different cultures. In this regard, as can be seen in the summary charts on macrostructure offered by Vázquez y del Árbol (2013: 92–96; 2014: 120–126), the order of some sections may vary from English to Spanish patient information leaflets. For this reason, translators must not only take into account the norms established by each pharmaceutical laboratory, but also be aware of changes in the macrostructure between the two cultures involved and implement the necessary changes in the target text.

## 2.4. Informed Consents

Informed consents are formal written medical-legal documents of the doctor–patient communication that match a clinical relationship based on the ethics of autonomy (Ramos 2012). The relevance of this common kind of text in doctor–patient communication has generated great interest among scholars, who have published several papers with different approaches (i.a. Brown et al. 2004; Bührig 2005; Montalt Resurrecció and González Davies 2007; Penney et al. 2011; Albi 2012; Ramos 2012; Busque 2015; Specker Sullivan 2017).

Some differences have been observed between English and Spanish informed consents. They relate not only to the kind of content included (which is determined by the legislation of each country and the rules of each hospital) or the vocabulary used (as happened with medical brochures, Latin terms are frequent in Spanish but not in English), but are also related to the format (as happened with patient information leaflets and in opposite to medical brochures, informed consents in English and in Spanish are very formal, but Spanish informed consents are even more serious). Moreover, differences regarding some linguistic aspects have also been recorded: for example, the greater length of Spanish sentences, the structuring of information into paragraphs in English and sentences in Spanish or the frequent use of verbs at the beginning of sentences in English against the prevalence of nouns in Spanish.

Despite all the work done in this field, further contributions related to informed consents seem necessary since the translating activity of these texts challenges the translator, who must deal with different disciplines, registers, specialised terminology and possible macrostructure adaptations, such as the type and content of elements included. An exhaustive contrastive analysis of the languages involved in the translation may thus be of great help for the translator.

## CONCLUSIONS AND LIMITATIONS OF THE RESEARCH

As we have seen, the features of text genres may vary from one culture to another (Gamero Pérez 1998). These changes may be due to linguistic or cultural conventions, or even the economic restrictions of a particular country.

It is advisable that translators (though it can be applied to any professionals dealing with languages, such as editors or proof-readers) be aware of the differences that a particular genre presents in the source and target languages (García Izquierdo 2000; 2002; Gamero Pérez 2001) in order to obtain a target text that complies with the features that a specific genre presents in the target culture, and therefore with readers' expectations. Translated texts including these types of changes are better accepted by their addressees and comply more effectively with the function with which they were created (García Izquierdo 2002; Sánchez Trigo 2002; Muñoz Torres 2002). In order to detect these similarities and differences, contrastive analyses may be useful (Firbas 1992; Johansson 2003).

In this sense, based on previous contrastive research, in the present study we have commented on the differences found in the text genres of medical brochures, web pages of hospitals, patient information leaflets and informed consents, mainly in English and Spanish, but also in German in the case of medical brochures (because of previous research in that language) and in American English (in the case of medical brochures and web pages).

In our opinion, the results obtained might be interesting and useful to both translators and editors of these kinds of texts so that they can comply with the expectations of the readers in the target culture. However, this work might also be completed with future research. For example, the model of analysis could be extended so that further linguistic and formal elements can be contrasted. Also, the corpora can be enlarged either with a greater number of documents or even with the inclusion of new subcorpora (for example, a corpus of translated documents, to see the current trends of translation, such as we did with medical brochures; a corpus of texts in other languages to observe the behaviour of a particular text



genre in a different language, such as we did with the German medical brochures; or even a corpus on different accents or varieties of the same language, as we did with medical brochures and webpages of hospitals, where we also analysed the American version).

## References

- Aimoldina, A., Zharkynbekova, Sh. and Akynova, D. (2014). Exploring Communication Strategies in Kazakhstani and US Sales Promotional Letters: A Cross-Cultural Comparison. In: *International Conference on Education and Social Sciences (INTCESS)*, ed. F. Uslu. Istanbul: International Organization Center Academic Research, pp. 273–281.
- Al-Ali, M. (2004). How to Get Yourself on the Door of a Job: A Cross-Cultural Contrastive Study of Arabic and English Job Application Letters. *Journal of Multilingual and Multicultural Development*, 25(1), pp. 1–23.
- Alarcón-Navío, E., López-Rodríguez, C.I. and Tercedor-Sánchez, M. (2016). Denominative Variation and Familiarity as a Source of Uncertainty in Medical Translation. *Meta*, 61(1), pp. 117–144.
- Albi, A.B. (2012). Aproximación traductológica a los textos médico-jurídicos. *Panace@*, 13(36), pp. 167–175.
- Alcina Caudet, A. and Gamero Pérez, S. (2002). *La traducción científico-técnica y la terminología en la sociedad de la información*. Castellón de la Plana: Servicio de Publicaciones de la Universitat Jaume I.
- Álvarez, G., Palazzesi, A., Cargnel, E., Cardoso, P. and Curbelo, J. (2014). Problemas en la comprensión de los prospectos de medicamentos de venta libre. El caso del Paracetamol en Argentina. *Onomázein*, 29(1), pp. 15–30.
- Andreu Vall, M. and Marcos, M.C. (2012). Evaluación de sitios web multilingües: Metodología y herramienta heurística. *El Profesional de la Información*, 21(3), pp. 254–260.
- Androutsopoulos, J. (2010). Localizing the Global on the Participatory Web. In: *The Handbook of Language and Globalization*, ed. N. Coupland. Oxford: Wiley-Blackwell, pp. 201–231.
- ASEDEF. (2007). *La redacción del prospecto. Recomendaciones para mejorar su comprensión*. Asociación Española de Derecho Farmacéutico. Madrid: ASEDEF.
- Auta, A., Shalkur, D., Banwat, S.B. and Dayom, D.W. (2011). Readability of Malaria Medicine Information Leaflets in Nigeria. *Tropical Journal of Pharmaceutical Research*, 10(5), pp. 631–635.

- Balliu, Ch. (2001). Medical Translation and the Synchronic and Diachronic Instability of the Medical Sociolect. *Meta*, 46(1), pp. 92–102.
- Balliu, Ch. (2005). La didactique de la traduction médicale, deux ou trois choses que je sais d'elle. *Meta*, 50(1), pp. 67–77.
- Barrio-Cantalejo, I.M., Simón-Lorda, P., March Cerdá, J.C. and Prieto-Rodríguez, M.Á. (2008). Legibilidad gramatical de los prospectos de los medicamentos de más consumo y facturación en España en 2005. *Revista Española de Salud Pública*, 82(5), pp. 559–566.
- Berkel, J. van and Gerritsen, M. (2012). Patient Information Leaflets in Flanders and the Netherlands: Unnecessary Differences? *Linguistic Insights*, 151, pp. 151–171.
- Bestué, C. (2015). El deber de información como criterio de aceptabilidad de las traducciones jurídicas de las páginas Web. *Trans*, 19(2), pp. 225–241.
- Blancafort, S., De Cambra, S. and Navarro, M.D. (2005). *Funciones y utilidad del prospecto del medicamento*. Barcelona: UAB.
- Bradley, B. et al. (1994). Readability of Patient Information Leaflets On Over-the-Counter (OTC) Medicines. *The Journal of Clinical Pharmacy and Therapeutics*, 19(1), pp. 7–15.
- Brogger, M.N. (2017). When Translation Competence Is Not Enough: A Focus Group Study of Medical Translators. *Meta*, 62(2), pp. 396–414.
- Brown, H., Ramchandani, M., Gillow, J.T. and Tsaloumas, M.D. (2004). Are Patient Information Leaflets Contributing to Informed Consent for Cataract Surgery? *Journal of Medical Ethics*, 30(2), pp. 218–220.
- Bühlig, K. (2005). Speech Action Patterns and Discourse Types. *Folia Linguistica*, 39(1–2), pp. 143–171.
- Busque, M. (2015). The English–Spanish Translation of Informed Consent in Clinical Research. *Panace@*, 16(42), pp. 241–242.
- Cabré Castellví, M.T. (1999). *La terminología: Representación y comunicación: Elementos para una teoría de base comunicativa y otros artículos*. Barcelona: Universitat Pompeu Fabra, Institut Universitari de Lingüística Aplicada.
- Cabré Castellví, M.T. (2004). La terminología en la traducción especializada. In: *Manual de documentación y terminología para la traducción especializada*, eds. C.G. García and V. García Yebra. Madrid: Arco, pp. 89–122.
- Chen, J.V., Ross, W.H., Yen, D.C. and Akhapon, L. (2009). The Effect of Types of Banner Ad, Web Localization, and Customer Involvement on Internet Users' Attitudes. *Cyber Psychology & Behavior*, 12(1), pp. 71–73.
- Chuang, Y.-T. and Lee, Y.-T. (2015). The Impact of Globalisation on Website Translation. In: *Translation and Cross-Cultural Communication Studies in the Asia Pacific*, eds. L. Ko and P. Chen. Amsterdam: Brill Rodopi, pp. 239–259.

- Claros Díaz, M.G. (2016). La traducción al español de los fármacos y de los compuestos químicos. *Translation and Translanguaging in Multilingual Contexts*, 2(1), pp. 49–65.
- Cleary, Y. (2000). The Impact of Subjective Cultural Issues on the Usability of a Localized Web Site: The Louvre Museum Web Site. In: *International Conference on Museums and the Web 2000*, eds. D. Bearman and J. Trant. Minneapolis: Archives & Museum Informatics, p. 208.
- Clerehan, R. and Buchbinder, R. (2006). Toward a More Valid Account of Functional Text Quality: The Case of the Patient Information Leaflet. *Text and Talk*, 26(1), pp. 39–68.
- Coulter, A., Entwistle, V. and Gilbert, D. (1998). *Informing Patients: An Assessment of the Quality of Patient Information Materials*. London: King's Fun.
- Dalton-Oates, B. (2017). Medical Translation: The Neglected Human Right. *International Journal of Human Rights in Healthcare*, 10(4), pp. 228–238.
- Desjardins, R. (2016). Translation and Web Localization. *The Interpreter and Translator Trainer*, 10(3), pp. 364–366.
- Díaz Alarcón, S. (2016). Introducción a la traducción médica francés–español: Los folletos de salud. *Panace@*, 17(43), pp. 4–15.
- Díaz Prieto, P. (1995). La importancia de la normalización terminológica en la calidad de la traducción científico-técnica. *Estudios Humanísticos. Filología*, 17, pp. 355–364.
- Diéguez Morales, M.I. (2008). Análisis terminológico de sitios web localizados del inglés al español: Uso de técnicas de amplificación y elisión. *Revista Tradumàtica*, 6.
- Diéguez Morales, M.I. and Lazo Rodríguez, R.M. (2011). El español en Internet: Aciertos y errores en sitios web localizados del inglés. *Onomázein*, 24, pp. 299–326.
- Dumas, G. and Boucher, C. (2012). Medical Translations and Practical Compilations: A Necessary Coincidence? *Early Science and Medicine*, 17(3), pp. 273–308.
- Faya Ornia, G. (2015). Estudio contrastivo del folleto médico (inglés–español). *Quaderns – Revista de Traducció*, 22, pp. 347–362.
- Faya Ornia, G. (2016). Los folletos médicos originales en inglés, alemán y español. In: *New Insights into Corpora and Translation*, ed. D. Gallego. Newcastle upon Tyne: Cambridge Scholars Publishing, pp. 145–161.
- Faya Ornia, G. (2018). Análisis contrastivo en distintas culturas, pero en la misma lengua: El género textual del folleto médico en el Reino Unido y en los Estados Unidos. In: *La traducción y la interpretación en contextos especializados: Un enfoque multidisciplinar para la transmisión del conocimiento científico (II)*, eds. J.M. Castaño and A. Ruiz. Granada: Comares.

- Feinauer, I. and Lutttig, L. (2005). Functionalism Is Not Always the Remedy. *Perspectives: Studies in Translatology*, 13(2), pp. 123–131.
- Fernández Costales, A. (2010). *Traducción, localización e internacionalización. El caso de las páginas web universitarias*. Doctoral thesis. Alicante: Universidad de Oviedo.
- Firbas, J. (1992). *Functional Sentence Perspective in Written and Spoken Communication*. Cambridge: Cambridge University Press.
- Fischbach, H. (1998). *Translation and Medicine*. Amsterdam – Philadelphia: John Benjamins.
- Frínculescu, I.C. (2014). False Friends: The Traps of Medical Translation. *Analele Universitatii Din Craiova – Seria Stiinte Filologice, Lingvistica*, 36(1–2), pp. 225–233.
- Gamero Pérez, S. (1998). *La traducción de textos técnicos (alemán–español): Géneros y subgéneros*. Bellaterra: Universitat Autònoma de Barcelona.
- Gamero Pérez, S. (1999). La traducción de textos técnicos y la diversidad tipológica. *Sendebarr*, 10–11, pp. 127–158.
- Gamero Pérez, S. (2001). *La traducción de textos técnicos: Descripción y análisis de textos (alemán–español)*. Barcelona: Ariel.
- Gamero Pérez, S. and Hurtado Albir, A. (1999). La traducción técnica y científica. In: *Enseñar a traducir*, ed. A. Hurtado Albir. Madrid: Edelsa, pp. 139–153.
- García Izquierdo, I. (2000). The Concept of Text Type and its Relevance to Translator Training. *Target*, 12(2), pp. 283–295.
- García Izquierdo, I. (2002). El género: Plataforma de confluencia de nociones fundamentales en didáctica de la traducción. *Discursos*, 2, pp. 13–21.
- García Izquierdo, I. (2009). *Divulgación médica y traducción. El género información para pacientes*. Berna: Peter Lang.
- García Izquierdo, I. (2016). Organising Specialized/Medical Knowledge for Academic and Professional Settings: The Case of Patients Information Genres. In: *Language for Specific Purposes: Research and Translation across Cultures and Media*, eds. G.E. Garzone, D. Heaney and G. Riboni. Newcastle upon Tyne: Cambridge Scholars, pp. 148–168.
- García Izquierdo, I. and Conde Ruano, T. (2014). Necesidades documentales del traductor médico en España. *Trans*, 18, pp. 141–162.
- Garrido Rodríguez, I. (2015). Macroestructura de los estatutos de sociedades alemanas y españolas: Influencias legislativas y análisis contrastivo. *Studien Zur Romanischen Sprachwissenschaft Und Interkulturellen Kommunikation*, 103, pp. 515–539.
- Giannoni, D.S. (2002). Worlds of Gratitude: A Contrastive Study of Acknowledgement Texts in English and Italian Research Articles. *Applied Linguistics*, 23(1), pp. 1–31.

- Gil, A. (2008). Foundations of Scientific Translation: French, Italian, Spanish. *Target*, 20(2), pp. 393–395.
- Giménez-Moreno, R. and Skorczyńska, H. (2013). Comunicación profesional en tres culturas europeas: Un análisis contrastivo de correos electrónicos británicos, españoles y polacos. *Ibérica*, 26, pp. 77–98.
- Gladrow, W. and Kotorova, E. (2017). Kontrastive Untersuchung von Sprachhandlungsmustern. *Zeitschrift Fur Slawistik*, 62(3), pp. 365–386.
- Gläser, R. (1990). *Fachtextsorten im Englischen*. Tübingen: Narr.
- Gläser, R. (1998). Fachtextsorten der Wissenschaftssprachen I: Der wissenschaftliche Zeitschriftenaufsatz. In: *Fachsprachen: Ein internationales Handbuch zur Fachsprachenforschung und Terminologiewissenschaft*, 1, eds. L. Hoffmann, H. Kalverkämper and H.E. Wiegand. Berlin – New York: Walter de Gruyter, pp. 482–488.
- Gómez, M.A. and Weinreb, S. (2002). An Alternative Instructional Model: Teaching Medical Translation Online. *Meta*, 474, pp. 643–648.
- Göpferich, S. (1995a). *Textsorten in Naturwissenschaften und Technik. Pragmatische Typologie, Kontrastierung, Translation*. Tübingen: Narr.
- Göpferich, S. (1995b). A Pragmatic Classification of LSP Texts in Science and Technology. *Target*, 7(2), pp. 305–326.
- Gotti, M. (2015). Insights into Medical Discourse: Diachronic and Synchronic Perspectives. *Esp Today – Journal of English for Specific Purposes at Tertiary Level*, 3(1), pp. 5–24.
- Gotti, M. and Dossena, M. (Eds.). (2001). *Modality in Specialized Texts: Selected Papers of the 1<sup>st</sup> CERLIS Conference (Linguistic Insights Studies in Language & Communication)*. Oxford – Wien: Peter Lang.
- Gouadec, D. (2003). Le bagage spécifique du localiseur/localisateur: Le vrai “nouveau profil” requis. *Meta*, 48(4), pp. 526–545.
- Gutiérrez Rodilla, M.B. (1998). *La ciencia empieza en la palabra: Análisis e historia del lenguaje científico*. Barcelona: Península.
- Gutiérrez Rodilla, M.B. (2005). *El lenguaje de las ciencias*. Madrid: Gredos.
- Gutiérrez y Restrepo, E. and Martínez Normand, L.A. (2010). Localization and Web Accessibility. *Revista Tradumática*, 8.
- He, Sh. (1998). Concept Similarity and Conceptual Information Alteration via English-to-Chinese and Chinese-to-English Translation of Medical Article Titles. *Journal of the American Society for Information Science*, 49(2), pp. 169–175.
- He, Sh. (2000). Translingual Alteration of Conceptual Information in Medical Translation: A Crosslanguage Analysis between English and Chinese. *Journal of the American Society for Information Science and Technology*, 51(11), pp. 1047–1060.

- Healthy People. (2010). *Understanding and Improving Health*. US Department of Health and Human Services. Washington, DC: US Government Printing Office.
- Institute of Medicine. (2004). *Health Literacy: A Prescription to End Confusion*. Washington, DC: National Academies Press.
- Jammal, A. (1999). A Methodology for Medical Translation. *Meta*, 44(2), pp. 217–237.
- Jensen, M.N. (2013). *Translators of Patient Information Leaflets: Translation Experts or Expert Translators? A Mixed Methods Study of Lay-Friendliness*. Aarhus: Aarhus University.
- Jensen, M.N. and Zethsen, K.K. (2012). Translation of Patient Information Leaflets: Trained Translators and Pharmacists-Cum-Translators – A Comparison. *Linguistica Antverpiensia*, 11, pp. 31–49.
- Jiménez-Crespo, M.Á. (2011). The Future of General Tendencies in Translation: Explication in Web Localization. *Target*, 23(1), pp. 3–25.
- Jiménez-Crespo, M.Á. (2013). *Translation and Web Localization*. New York: Routledge.
- Jiménez-Crespo, M.Á. (2017). Combining Corpus and Experimental Studies: Insights into the Reception of Translated Medical Texts. *JoSTrans. The Journal of Specialised Translation*, 28, pp. 2–22.
- Jiménez-Crespo, M.Á. and Tercedor Sánchez, M.I. (2011). Applying Corpus Data to Define Needs in Web Localization Training. *Meta*, 56(4), pp. 998–1021.
- Jiménez Gutiérrez, I. and Mañas Castro, A. (2007). Un ejemplo de análisis terminológico en el ámbito específico de la traducción de textos médicos inglés-español (anatomía). In: *Traducción y mediación cultural: Reflexiones interdisciplinarias*, eds. M. del Carmen Balbuena Torezano and Á. García Calderón. Granada: Atrio, pp. 317–324.
- Johansson, S. (2003). Contrastive Linguistics and Corpora. In: *Corpus-Based Approaches to Contrastive Linguistics and Translation Studies*, eds. S. Granger, J. Lerot and S. Petch-Tyson. Amsterdam – New York: Rodopi, pp. 31–44.
- Ketabi, S. and Rahavard, Sh. (2013). Cultural Variations across Academic Genres: A Generic Analysis of Intertextuality in Master's Theses Introductions. *English Language Teaching*, 6(11), pp. 148–159.
- Khanmohammad, H. and Mousavinasab, S.M.H. (2014). Translation Shifts in Medical Translation from English into Farsi. *SKASE Journal of Translation and Interpretation*, 7(1), pp. 73–90.
- Kim, J. (2006). Beyond Paradigm: Making Transcultural Connections in a Scientific Translation of Acupuncture. *Social Science & Medicine*, 62(12), pp. 2960–2972.
- Kranich, S. (2011). L'emploi des expressions épistémiques dans des lettres aux actionnaires en France, aux États Unis et en Allemagne. *Langage et Société*, 137(3), pp. 115–134.

- Lavid, J. and Moratón, L. (2015). Intersubjective Positioning and Thematisation in English and Spanish: A Contrastive Analysis of Letters to the Editor. *NJES Nordic Journal of English Studies*, 14, pp. 289–319.
- Lázaro-Gutiérrez, R. (2015). The Evolution of Communication with Foreign Population in Medical Settings in Spain. *A Multidisciplinary Approach to Service Encounters (Studies in Pragmatics, 14)*, pp. 164–187.
- Lázaro-Gutiérrez, R. (2016). Analysis of Healthcare Videos Addressed to Migrant Populations in Spain. *New Voices in Translation Studies*, 14, pp. 100–121.
- Lázaro-Gutiérrez, R. (2017). Healthcare Videos Addressed to the Migrant Population: From Intercultural Mediation to Transcreation. *LFE – Revista de Lenguas para Fines Específicos*, 23(1), pp. 140–162.
- Lázaro-Gutiérrez, R. and Tejero González, J.M. (2017). Interculturality and Cultural Mediation in Health Care Settings: Description of the Implementation of an Intercultural Mediation Programme in the Health Care Service of Castilla-La Mancha. *Panacea*, 46(18), pp. 97–107.
- Liu, X. and Furneaux, C. (2015). Argument Structures in Chinese University Students' Argumentative Writing: A Contrastive Study. *English Text Construction*, 8(1), pp. 65–87.
- López Arroyo, B. and Méndez-Cendón, B. (2007). Describing Phraseological Devices in Medical Abstracts: An English/Spanish Contrastive Analysis. *Meta*, 52(3), pp. 503–516.
- López Arroyo, B. and Roberts, R.P. (2016). Differences in Wine Tasting Notes in English and Spanish. *Babel*, 62(3), pp. 370–401.
- López Arroyo, B. and Roberts, R.P. (2017). Genre and Register in Comparable Corpora: An English/Spanish Contrastive Analysis. *Meta*, 62(1), pp. 114–136.
- López Rodríguez, C.I. (2000). Tipologías textuales y géneros en la normalización terminológica y ortotipográfica de la traducción médica. *Terminologie et Traduction*, 3, pp. 95–115.
- Maglie, R.B. (2015). 'Can You Read This Leaflet?': User-Friendliness of Patient Information Leaflets in the UK and in Italy. In: *Insights into Medical Communication*, eds. M. Gotti, S.M. Maci and M. Sala. Bern: Peter Lang, pp. 159–188.
- Marsh, M. (1999). Algunas consideraciones sobre la traducción médica. In: *Aproximaciones a la traducción*, eds. A.G. de Carrasco and L. Hickey, Madrid: Instituto Cervantes.
- Martínez López, A.B. (2007). Problemas de traducción de la terminología médica (del inglés al español) para el sector audiovisual: El caso de la serie 'House' en español. In: *Traducción y mediación cultural: Reflexiones interdisciplinarias*, eds. M. del Carmen Balbuena Torezano and Á. García Calderón. Granada: Atrio, pp. 335–348.



- Martínez López, A.B. (2010). La terminología médica en francés, inglés y español: Problemas que se derivan de la presencia del inglés como *lingua franca* de la comunicación científica a escala internacional. *Anales de Filología Inglesa*, 18, pp. 393–404.
- Martínez Motos, R. (2016). *El género prospecto y el efecto de la traducción inglés-español en su legibilidad y facilidad de uso para el lector lego*. Doctoral thesis. Alicante: Universidad de Alicante.
- Mayor Serrano, M.B. (2002). *Tipología textual pragmática y didáctica de la traducción en el ámbito biomédico*. Granada: Universidad de Granada.
- Mayor Serrano, M.B. (2003a). Análisis contrastivo (inglés-español) del libro de texto de medicina e implicaciones didácticas para la formación de traductores. *LSP and Professional Communication*, 3(2), pp. 49–65.
- Mayor Serrano, M.B. (2003b). Elementos metacomunicativos en el artículo de divulgación médica (inglés-español) e implicaciones didácticas para la formación de traductores. *Ibérica*, (6), pp. 89–109.
- Mayor Serrano, M.B. (2003c). La formación de traductores médicos en España, ¿otra asignatura pendiente? *Trans*, 7, pp. 131–136.
- Mayor Serrano, M.B. (2005). Análisis contrastivo (inglés-español) de la clase de texto ‘folleto de salud’ e implicaciones didácticas para la formación de traductores médicos. *Panace@*, 6(20), pp. 132–141.
- Mayor Serrano, M.B. (2006). La citación en la comunicación médica escrita (inglés-español): Funciones y tipos. *Lebende Sprachen*, 51(2), pp. 72–77.
- Mayor Serrano, M.B. (2010a). Necesidades terminológicas del traductor de productos sanitarios: Evaluación de recursos. *Panace@*, 11(31), pp. 10–14.
- Mayor Serrano, M.B. (2010b). Revisión y corrección de textos destinados a los pacientes... y algo más. *Panace@*, 11(31), pp. 29–36.
- Medina Reguera, A. and Ramírez Delgado, C. (2015). La localización de la sección productos en sitios web de empresas exportadoras agroalimentarias. *inTRAlínea*, 17, pp. 203–214.
- Mercy, O.E. (2006). English-Edo Medical Translation. *Perspectives: Studies in Translatology*, 13(4), pp. 268–277.
- Mirón Canelo, J.A., Sardón, M.A. and Sáenz González, M. de C. (2000). Estimar la comprensión de los prospectos de los medicamentos. *Atención Farmacéutica*, 2(4), pp. 358–363.
- Montalt i Resurrecció, V. (2005). *Manual de traducció científicotècnica*. Vic: Eumo Editorial.
- Montalt i Resurrecció, V. (2011). Medical Translation and Interpreting. In: *Handbook of Translation Studies*, eds. Y. Gambier and L. van Doorslaer. Amsterdam – Philadelphia: John Benjamins Publishing, pp. 79–83.



- Montalt i Resurrecció, V. (2013). Medical Translation. In: *Encyclopaedia of Applied Linguistics*. Oxford: Wiley-Blackwell.
- Montalt i Resurrecció, V. and Shuttleworth, M. (2012). Research in Translation and Knowledge Mediation in Medical and Healthcare Settings. *Lingüística Antverpiensia*, 11, pp. 9–29.
- Montalt Resurrecció, V. and González Davies, M. (2007). *Medical Translation Step by Step: Learning by Drafting*. London – New York: Taylor and Francis.
- Moreno, A.I. (1997). Genre Constraints across Languages: Causal Metatext in Spanish and English RAs. *English for Specific Purposes*, 16(3), pp. 161–179.
- Moyetta, D. (2016). The Discussion Section of English and Spanish Research Articles in Psychology: A Contrastive Study. *Esp Today – Journal of English for Specific Purposes at Tertiary Level*, 4(1), pp. 87–106.
- Muñoz Torres, C.A. (2002). Tipología textual y análisis para la traducción. Una tipología de géneros médicos. *Translating Science. Proceedings 2<sup>nd</sup> International Conference on Specialized Translation*. Barcelona: Institut Universitari de Lingüística Aplicada.
- Muñoz Torres, C.A. (2011). *Análisis contrastivo y traductológico de textos médicos (inglés-español). El género 'caso clínico'*. Barcelona: Universidad Autónoma de Barcelona.
- Muñoz-Miquel, A. (2014). El perfil y las competencias del traductor médico desde el punto de vista de los profesionales: Una aproximación cualitativa. *Trans*, 18, pp. 163–181.
- Muñoz-Miquel, A. (2016). La enseñanza de la traducción médica en los programas de posgrado españoles: ¿Qué competencias se enseña a los estudiantes? *Sendebarr*, 27, pp. 123–150.
- Navarro, F. (1996). Palabras alemanas de traducción engañosa en medicina. *Medicina Clínica*, 106(14), pp. 537–544.
- Navarro, F. (1997a). Anatomía de la traducción médica. In: *Lecciones de teoría y práctica de la traducción*, eds. L.F. Fernández and E. Ortega Arjonilla. Málaga: Universidad de Málaga, pp. 137–162.
- Navarro, F. (1997b). *Traducción y lenguaje en medicina*. Barcelona: Fundación Dr. Antonio Esteve.
- Navarro, F. (1998). En pos de la verdadera causa de los anglicismos médicos. In: *Traducción e interpretación en el ámbito biosanitario*, eds. L.F. Fernández and E. Ortega Arjonilla. Granada: Comares, pp. 451–461.
- Navarro, F. (2000). *Diccionario crítico de dudas inglés-español de medicina*. Madrid: McGraw-Hill and Interamericana.
- Navarro, F. (2001a). La traducción médica ante el siglo XXI: Tres retos para el lenguaje científico en español. In: *II Congreso Internacional de la Lengua*

- Española*. Valladolid: Real Academia Española e Instituto Cervantes. Available at: [http://cvc.cervantes.es/obref/congresos/valladolid/ponencias/nuevas\\_fronteras\\_del\\_espanol/1\\_la\\_traduccion\\_en\\_espanol/navarro\\_f.htm](http://cvc.cervantes.es/obref/congresos/valladolid/ponencias/nuevas_fronteras_del_espanol/1_la_traduccion_en_espanol/navarro_f.htm) (accessed 20 November 2018).
- Navarro, F. (2001b). El inglés, idioma internacional de la medicina. Causas y consecuencias de un fenómeno actual. *Panace@*, 2, pp. 35–51.
- Navarro, F. (2002). En pos de la verdadera causa de los anglicismos médicos. *Ars Medica. Revista de Humanidades*, 1(1), pp. 53–64.
- Navarro, F. (2003). Diccionarios médicos alemán–español. ¿Cuál me compro? *Traducción & Comunicación*, 4, pp. 85–120.
- Navarro, F. (2006a). La traducción de los nombres de fármacos y medicamentos: Zantac, penicillin G, aspirin, EPO, dipyrone, viagra, AZT, dilantin, sirolimus... In: *Corcillum: Estudios de traducción, lingüística y filología dedicados a Valentín García Yebra*, eds. C. Gonzalo and P. Hernández. Madrid: Arco Libros, pp. 547–566.
- Navarro, F. (2006b). Pequeño glosario inglés–español de términos jergales y coloquiales en medicina (1.a parte: A–J). *Panace@*, 7(23), pp. 39–54.
- Navarro, F. (2006c). Pequeño glosario inglés–español de términos jergales y coloquiales en medicina (2.a parte: K–Z). *Panace@*, 7(24), pp. 183–198.
- Navarro, F. (2007a). Minidiccionario crítico de dudas. *Panace@*, 8(25), pp. 3–14.
- Navarro, F. (2007b). Minidiccionario crítico de dudas (II etapa, 2.ª entrega). *Panace@*, 8(26), pp. 108–115.
- Navarro, F. (2008a). Repertorio de siglas, acrónimos, abreviaturas y símbolos utilizados en los textos médicos en español. *Panace@*, 9(27), pp. 55–59.
- Navarro, F. (2008b). Glosario de dudas y dificultades inglés–español para pediatras. *Revista Pediatría de Atención Primaria*, 10, pp. 317–338.
- Navarro, F. (2008c). Ciento cincuenta palabras y expresiones inglesas de traducción difícil o engañosa en dermatología. *Actas Dermo-Sifiliográficas*, 99, pp. 349–362.
- Navarro, F. (2008d). La anglización del español: Mucho más allá de *bypass*, *piercing*, *test*, *airbag*, *container* y *spa*. In: *Traducción: Contacto y contagion*, eds. L. González and P. Hernández. Brussels: ESLETRA, pp. 213–232.
- Navarro, F. (2009a). Patientspeak: A Spanish-English Glossary of Lay Medical Malapropisms. *The Write Stuff – The Journal of European Medical Writers*, 18, pp. 2–4.
- Navarro, F. (2009b). Minidiccionario crítico de dudas (II etapa, 3.a entrega). *Panace@*, 10(29), pp. 3–8.
- Navarro, F. (2009c). Minidiccionario crítico de dudas (II etapa, 4.a entrega). *Panace@*, 10(30), pp. 117–123.

- Navarro, F. (2010a). Minidiccionario crítico de dudas (II etapa, 5.a entrega). *Panace@*, 11(31), pp. 3–9.
- Navarro, F. (2010b). Minidiccionario crítico de dudas (II etapa, 6.a entrega). *Panace@*, 11(31), pp. 117–123.
- Navarro, F. (2011). Heilpflanzen LA-DE-ES: Trescientas plantas medicinales de uso frecuente en Centroeuropa, con su sinonimia popular en alemán y español. *Panace@*, 12(34), pp. 166–199.
- Navarro, F. (2012). Minidiccionario crítico de dudas (II etapa, 7.a entrega). *Panace@*, 13(35), pp. 57–68.
- Navarro, F. (2013a). *Cosnautas*. Available at: <http://www.cosnautas.com/es> (accessed 20 November 2018).
- Navarro, F. (2013b). Palabras francesas de traducción compleja o engañosa en medicina (primera parte: A–D). *Panace@*, 14(38), pp. 176–196.
- Navarro, F. (2014). Palabras francesas de traducción compleja o engañosa en medicina (segunda parte: E–Q). *Panace@*, 15(39), pp. 3–33.
- Navarro, F. (2015a). Palabras francesas de traducción compleja o engañosa en medicina (tercera parte: R–Z). *Panace@*, 16(41), pp. 7–25.
- Navarro, F. (2015b). *Medicina en español. Laboratorio del lenguaje: Florilegio de recomendaciones, dudas, comentarios etimológicos, errores, anglicismos y curiosidades varias del lenguaje médico*. Madrid: Fundación Lilly – Unión Editorial.
- Navarro, F. (2017a). *Medizin. Gran diccionario médico alemán-español*. Available at: <http://www.cosnautas.com/es/catalogo/diccionario-aleman> (accessed 20 November 2018).
- Navarro, F. (2017b). *Medicina en español II. Laboratorio del lenguaje: Florilegio de recomendaciones, dudas, comentarios etimológicos, errores, anglicismos y curiosidades varias del lenguaje médico*. Madrid: Fundación Lilly – Unión Editorial.
- Nwogu, K.N. (1991). Structure of Science Popularizations: A Genre-Analysis Approach to the Schema of Popularized Medical Texts. *English for Specific Purposes*, 10(2), pp. 111–123.
- Olivier-Bonfils, D. (2015). Le traducteur médical au XIXe siècle. Quelle fidélité? Quelle éthique? *Meta*, 60(2), p. 359.
- Olivier-Bonfils, D. (2016). A Medical Translator of the XIX Century: Gustave Borginon and the Antisepsis. *Meta*, 61, pp. 113–130.
- Olmo Cazevielle, F. (2015). Aproximación cultural y textual a los informes médico forenses en la traducción especializada francés/español. *Synergies Espagne*, 8, pp. 33–47.
- Olohan, M. (2016). *Scientific and Technical Translation: A Coursebook*. London: Routledge.

- Ortega Arjonilla, E., Echevarría Pereda, E., Martínez López, A.B. and Villena Álvarez, I. (1999). *Manual práctico de traducción médica. Diccionario básico de términos médicos (inglés-francés-español)*. Granada: Comares.
- Orts Llopis, M. de los Á. (2017). El género textual en dos culturas jurídicas: Análisis pretraductológico de las decisiones judiciales en inglés y en español. *Revista de Llingua I Dret*, 67, pp. 220–236.
- Penney, K., Snyder, J., Crooks, V.A. and Johnston, R. (2011). Risk Communication and Informed Consent in the Medical Tourism Industry: A Thematic Content Analysis of Canadian Broker Websites. *BMC Medical Ethics*, 12(1).
- Pérez Blanco, M. (2016). 'An Important Issue': A Corpus-Based Contrastive Study of Evaluation along the Parameter of Relevance in English and Spanish Newspaper Opinion Discourse. *RAEL – Revista Electrónica de Lingüística Aplicada*, 15(1), pp. 36–52.
- Pérez García, E. (2004). Los prospectos: Estudios de lo tecnolectal hacia lo divulgativo. Tonos digital. *Revista Electrónica de Estudios Filológicos*, 8.
- Pierini, P. (2015). On the User's Side: Definitions in Italian and British Patient Information Leaflets. *Círculo de Lingüística Aplicada a la Comunicación*, 63, pp. 218–239.
- Pietrzak, P. (2015). Stylistic Aspects of English and Polish Implications for Translation. *Journal of Specialised Translation*, 23, pp. 316–332.
- Pol Viedma, M.V., Burgos Pol, R., Pol Yanguas, E. and Pol Yanguas, E. (2008). Los prospectos de medicamentos: ¿Necesitan un cambio? *E-Farmacéutico Comunitario: Revista de la Sociedad Española de Farmacia Comunitaria*, 3(1), pp. 7–8.
- Popineau, J. (2016). (Re)penser l'enseignement de la traduction professionnelle dans un master français: L'exemple des zones d'incertitudes en traduction médicale. *Meta*, 61(1), pp. 78–103.
- Pounds, G. (2005). Writer's Argumentative Attitude: A Contrastive Analysis of 'Letters to the Editor' in English and Italian. *Pragmatics. Quarterly Publication of the International Pragmatics Association*, 15(1), pp. 49–88.
- Quérin, S. (2001). Medical Translation and Documentation: Introduction. *Meta*, 46(1), p. 5.
- Quijada Diez, C. (2013). La doble terminología médica en alemán y sus implicaciones para el traductor: De la 'Otitis' a la 'Ohrenentzündung' por el camino del medio. *Panace@*, 14(37), pp. 121–128.
- Ramos, L.C. (2012). El consentimiento informado. *Panace@*, 13(36), pp. 294–298.
- Rial Díaz, J.M., Hernández Cuenca, A.E., Cruz Carballosa, Y., Cruz Suárez, B. and Herrera López, Y. (2017). Sugerencias para la traducción de textos médicos y científico-técnicos del inglés al español. *Revista Cubana de Educación Médica Superior*, 31(1), pp. 252–260.

- Rodríguez Tapia, S. (2015). Descripción microestructural contrastiva inglés-español de un corpus de sitios web corporativos sobre automoción: Fundamentos teórico-metodológicos para un análisis cuantitativo y cualitativo. *Moenia*, 21, pp. 187–210.
- Rodríguez Vázquez, S. (2015). Making Localised Web Content Accessible: A Collaborative Task between the Developer and the Localiser. In: *Conducting Research in Translation Technologies*, eds. P. Sánchez-Gijón, O. Torres-Hostench and B. Mesa-Lao. Bern: Peter Lang, pp. 93–115.
- Ross, D. and Magris, M. (2012). The Role of Communication and Knowledge Management as Evidenced by HCP Vaccination Programs in the Netherlands, Germany and Italy: Possible Suggestions for Medical Translators. *Linguística Antverpiensia*, 11, pp. 133–150.
- Ruiz Rosendo, L. (2008). English and Spanish Medical Languages: A Comparative Study from Translation Point of View. *Trans*, 12, pp. 213–246.
- Saladrigas, M.V., Navarro, F., Munoa, L., Mugüerza, P. and Villegas, Á. (2008a). Glosario EN-ES de ensayos clínicos (1.ª parte A–M). *Panace@*, 9(27), pp. 8–54.
- Saladrigas, M.V., Navarro, F., Munoa, L., Mugüerza, P. and Villegas, Á. (2008b). Glosario EN-ES de ensayos clínicos (2.ª parte N–Z). *Panace@*, 9(28), pp. 107–141.
- Salager-Meyer, F. (1990). Discoursal Flaws in Medical English Abstracts: A Genre Analysis per Research- and Text-Type. *Text*, 10(4), pp. 365–384.
- Salager-Meyer, F. (1992). A Text-Type and Move Analysis Study of Verb Tense and Modality Distribution in Medical English Abstracts. *English for Specific Purposes*, 11(2), pp. 93–113.
- Salvador, N.G.S. (2012). Hacia una ‘globalización’ de la traducción: El caso de la traducción jurada de los documentos médico-legales (inglés-español). *Sendebear*, 23, pp. 227–250.
- Sánchez Trigo, M.E. (2002). Tipologías textuales y traducción. *Trans*, 6, pp. 121–134.
- Santesmases, M. (1996). *Términos de marketing. Diccionario-case de datos*. Madrid: Ediciones Pirámide.
- Sechel, T.D. (2013). The Politics of Medical Translations and Its Impact upon Medical Knowledge in the Habsburg Monarchy 1770–1830. *East Central Europe*, 40(3), pp. 296–318.
- Silberg, W.M., Lundberg, G.D. and Musacchio, R.A. (1997). Assessing, Controlling, and Assuring the Quality of Medical Information on the Internet: Caveant Lector et Viewer – Let the Reader and Viewer Beware. *Generations*, 21(3), pp. 53–55.
- Smith, H., Gooding, S., Brown, R. and Frew, A. (1998). Evaluation of Readability and Accuracy of Information Leaflets in General Practice for Patients with Asthma. *BMJ*, 317(7153), pp. 264–265.

- Soler-Monreal, C., Carbonell-Olivares, M. and Gil-Salom, L. (2011). A Contrastive Study of the Rhetorical Organisation of English and Spanish PhD Thesis Introductions. *English for Specific Purposes*, 30(1), pp. 4–17.
- Specker Sullivan, L. (2017). Dynamic Axes of Informed Consent in Japan. *Social Science and Medicine*, 174(1), pp. 159–168.
- Suau Jiménez, F. (2015). Traducción de calidad de webs hoteleras: Discurso interpersonal e implicación del cliente. *Onomázein*, 32(32), pp. 152–170.
- Tercedor Sánchez, M.I. (2010). Translating Web Multimodalities: Towards and Inclusive Web Localization. *Revista Tradumática*, 8.
- Texidor Pellón, R. and Reyes Miranda, D. (2009). Algunas reflexiones acerca de los errores más frecuentes encontrados en textos médicos traducidos del idioma inglés. *Revista Cubana de Educación Médica Superior*, 23(4), pp. 220–225.
- Tuan, L.T. (2011). The Application of Coordinate Translation Model (CTM) in Medical Translation Practice. *Theory and Practice in Language Studies*, 1(6), pp. 594–606.
- Valero-Garcés, C., Navaza, B. and Wahl-Kleiser, L. (2014). Introspectiva y retrospectiva: Rumbos de la traducción e interpretación médica. *Panace@*, 15(40), pp. 165–167.
- Vandaele, S. (2001a). Bibliographie sélective pour la traduction des sciences biomédicales. *Meta*, 46(1), pp. 117–127.
- Vandaele, S. (2001b). Utilisation des bases de données bibliographiques spécialisées en traduction médicale. *Meta*, 46(1), pp. 104–116.
- Vandaele, S. (2001c). Noyaux conceptuels et traduction médicale. *Meta*, 46(1), pp. 17–21.
- Vandaele, S. (2003). Mise en ligne d'outils pédagogiques: Une panacée pour l'enseignement de la traduction médicale? *Meta*, 48(3), pp. 370–378.
- Vázquez y del Árbol, E. (2013). Traditional patient information leaflet frente al prospecto medicamentoso tradicional: El orden de los factores ¿no altera? el valor del producto. *Panace@*, 14(37), pp. 89–97.
- Vázquez y Del Árbol, E. (2014). Modern user information leaflet frente al prospecto medicamentoso moderno: El orden de los factores ¿no altera? el valor del producto (segunda parte). *Panace@*, 15(39), pp. 118–127.
- Vergaro, C. (2004). Discourse Strategies of Italian and English Sales Promotion Letters. *English for Specific Purposes*, 23(2), pp. 181–207.
- Vergaro, C. (2005). 'Dear Sirs, I Hope You Will Find This Information Useful': Discourse Strategies in Italian and English 'For Your Information' (FYI) Letters. *Discourse Studies*, 7(1), pp. 109–135.
- Villalba Jiménez, R. (2015). Medicine in Television: Implications for Translation. The Dubbing of Television Medical Dramas. *Sendebarr*, 26, pp. 9–36.

- Wandji Tchami, O., L'Homme, M.C. and Grabar, N. (2014). Frame Semantics-Based Study of Verbs across Medical Genres. *Studies in Health Technology and Informatics*, 205, pp. 1075–1079.
- Webber, P. (1994). The Function of Questions in Different Medical Journal Genres. *English for Specific Purposes*, 13(3), pp. 257–268.
- Webber, P., Snelgrove, H. and Mungra, Ph. (2001). The Use of Modality in Different Medical Text Genres. In: *Modality in Specialized Texts*, eds. M. Gotti and M. Dossena. Bern: Peter Lang, pp. 399–416.
- Wierzbicka, A. (1985). Different Cultures, Different Languages, Different Speech Acts: Polish vs. English. *Journal of Pragmatics*, 9(2–3), pp. 145–178.
- Williams, I.A. (1996). A Contextual Study of Lexical Verbs in Two Types of Medical Research Report: Clinical and Experimental. *English for Specific Purposes*, 15(3), pp. 175–197.
- Williams, I.A. (1999). Results Sections of Medical Research Articles: Analysis of Rhetorical Categories for Pedagogical Purposes. *English for Specific Purposes*, 18(4), pp. 347–366.
- Williams, I.A. (2004). How to Manage Patients in English-Spanish Translation: A Target-Oriented Contrastive Approach to Methods. *Target*, 16(1), pp. 69–103.
- Williams, I.A. (2007). A Corpus-Based Study of the Verb *Observar* in English-Spanish Translations of Biomedical Research Articles. *Target*, 19(1), pp. 85–103.
- Williams, I.A. (2008). Semantico-Syntactic Environments of the Verbs Show and Demonstrate and Spanish *Mostrar* and *Demostrar* in a Bilingual Corpus of Medical Research Articles. *International Journal of Corpus Linguistics*, 13(1), pp. 38–74.
- Williams, I.A. (2009a). A Corpus-Based Study of Spanish Translations of the Verb 'Report' in Biomedical Research Articles. *Meta*, 54(1), pp. 146–160.
- Williams, I.A. (2009b). Discourse Style and Theme-Rheme Progression in Biomedical Research Article Discussions: A Corpus-Based Contrastive Study of Translational and Non-Translational Spanish. *Languages in Contrast*, 9(2), pp. 225–266.
- Williams, I.A. (2010). Cultural Differences in Academic Discourse: Evidence from First-Person Verb Use in the Methods Sections of Medical Research Articles. *International Journal of Corpus Linguistics*, 15(2), pp. 214–239.
- Williams, I.A. (2012). Contrastive Analysis of Finite Verb Profiles in 2 Medical Texts Translated from Spanish into English. *Babel*, 40(3), pp. 146–169.
- Williams, I.A. (2013). Self-Reference in Biomedical Research Article Discussions Further Evidence for Cross-Cultural Diversity in Academic and Scientific Discourse. *International Journal of Corpus Linguistics*, 17(4), pp. 546–583.

- Wilson, P., Sowden, A., Watt, I., Newbronner, L. and Acton, Ch. (2001). *Involving Patients in Effective Health Care*. York: University of York.
- Wright, S.E. (2012). Scientific, Technical, and Medical Translation. In: *The Oxford Handbook of Translation Studies*, eds. K. Malmkjær and K. Windle. Oxford: Oxford University Press, pp. 250–267.
- Yu, Z. and Liu, M. (2016). A Contrastive Study on Generic Structure of Introduction to English Chemistry Research Articles: L1 Chinese Student Writers versus L1 English Published Writers. *International Journal of English Linguistics*, 6(5), pp. 112–120.
- Zarza, S. and Tan, H. (2016). Patterns of Schematic Structure and Strategic Features in Newspaper Editorials: A Comparative Study of American and Malaysian Editorials. *Discourse and Communication*, 10(6), pp. 635–657.
- Zethsen, K.K. (2004). Latin-Based Terms: True or False Friends? *Target*, 16(1), pp. 125–142.



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## TRANSLATING PATIENT INFORMATION LEAFLETS: EXPECTATIONS OF USERS AND THE REALITY

### 1. TRANSLATING MEDICAL TEXTS: NEEDS AND EXPECTATIONS OF USERS

Due to the diversity of medical texts, translators have to find an effective way to communicate with the receivers of these text and to take into account their needs, requirements and expectations (Montalt Resurrecció and González Davies 2007). Therefore, the challenge for the translator is not only the terminology applied and the proper use of terms in translation, but also the communicative effectiveness of such a message, i.e., ensuring the correct understanding of the text by the user. The users in the context of this paper shall be the final receivers of the Patient Information Leaflets, i.e., the patients (this group also includes members of their families or caregivers).

Medical texts, similarly to other types of texts devoted to scientific or technical topics, are intended to convey objective (objectified) information but not cultural references (Montalt Resurrecció and González Davies 2007). This results in a relatively neutral, impersonal and homogeneous style. Generally, medical texts can be divided into three groups, namely:

- official documentation relating to the marketing of medicinal products and medical devices (so-called regulatory documents), which is very extensive and must meet rigorous subject-specific, technical and formal requirements;

- medical texts of educational and informational character (e.g. information about new medicines, presentations of research results, papers to be published in medical journals) that are targeted at specific groups of users (health professionals, patients);
- medical documentation related to the patient's health (e.g. hospital discharge reports, hospital records, diagnostic results).

All the above texts are, for various purposes, translated. The translator should therefore find a balance between translation-related requirements and the features of each type of text. These features are primarily syntax, specialised terms (terms of art), terminologicality and precision, and as such constitute the characteristics of a specialised language. The way in which content is communicated is, apart from specialised terminology, the most serious challenge for the translator. The aforementioned absence of cultural references, typical of medical texts, means more emphasis on the informative function of the text. Therefore, the priority and basic requirement for the translator is an effective way of communicating with the receivers of the text and meeting their needs, requirements and expectations (Albin 1998; a wider overview of translation of medical texts in Kościalkowska-Okońska 2012; 2015).

Medical language is very domain-specific and is seen in the contextual variety of medical genres (that became the focus of research of, e.g., Gotti and Salager-Meyer 2006). Yet, apart from the genres that are targeted at health professionals, medical experts, etc., there is a growing tendency to involve patients – as non-experts or lay receivers – in health communication. Within the last several years this increased focus on health communication has aimed at making it more effective, easier to understand for users and thus more lay-friendly. An increased emphasis on the needs of patients (Montalt i Resurrecció and Shuttleworth 2012) and the tendency to expand patient participation in the treatment process result in the medication-related information being one of the most important components of the health education process. The educational level of societies has been steadily on the increase in general, which is reflected in the patients' motivated willingness to expand knowledge and apply it using state-of-the-art

technologies and Internet sources. Patients are keenly interested in information about their health and healthcare (see e.g. Kenny et al. 1998: 476), as general health education on a satisfactory level is conducive to health promotion and disease prevention which, in turn, is becoming an increasingly essential trend in contemporary societies. Further, due to rapid and outstanding developments and achievements of medicine and related fields, information about new revolutionary procedures, treatment methods or medications is widely recognised and spreading quickly. However, there is one problematic issue that cannot be ignored: as research and studies demonstrate, nearly 30% of all drugs are not taken in accordance with doctors' instructions (this phenomenon is known as patient non-compliance; Derkacz et al. 2014: 92). Moreover, many patients do not read leaflets as these seem too long or too many adverse effects are mentioned (the so-called fright factor; see MHRA 2005: 36–39). Further, functional illiteracy (affecting ca. 70 million people in Europe and nearly 20% of the Polish population; ELINET 2015) is taking its toll since limited reading and comprehension skills may result in health impairment, problems with treatment of chronic diseases, not to mention more (and longer) hospital stays and higher treatment costs. The lack of comprehension on the part of the patient may also lead to other serious consequences, such as overdosing the medication or not reporting existing side effects. These factors illustrate how complex and difficult it is to cater for all needs and expectations of users and to ensure that patients understand the information and are capable of complying with instructions given.

### 1.1. Legal Regulations: The Establishment of PIL as a New Genre

In order for those needs and expectations to be satisfied, since 1999 all medicines must be accompanied by leaflets (Patient Information Leaflets, hence PILs) that patients as users will be able to read and understand. The applicable legal regulations are the following directives: 92/27/EEC, 2001/83/EC and 2004/27/EC. The need to develop patient- or lay-friendly communication resulted in the establishment of new genres, including the

PIL (implemented mandatorily by the Council Directive 92/27/EEC). As stipulated in Article 63(2) of EU Directive 2001/83/EC, the PIL ‘must be written and designed to be clear, understandable and enable the users to act appropriately’, thus safeguarding lay-friendliness.

The PIL – discussed in this paper from the perspective of EU regulations – is a document developed by a pharmaceutical company that goes with the medicine as a package insert and is intended to inform the user about a given medication. Since the pharmaceutical industry is – as any industry – regulated by legal regulations established by European institutions, the PIL is also a regulated document: on the European level by the European Medicines Agency (EMA), and on the local level by locally competent authorities (e.g. the Medicines and Healthcare products Regulatory Agency, or MHRA, in the UK). In Poland, this nationally competent body is the Office for Registration of Medicinal Products, Medical Devices and Biocidal Products (Urząd Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych). It should also be noted that the PIL is named differently in the literature: Askehave and Zethsen (2003) and Connor et al. (2008) call it the ‘patient package insert’. For Clerehan and Buchbinder (2006) and Kenny et al. (1998), ‘patient information leaflets’ are varieties of types of medicinal informational materials for patients. As far as the research on PILs is concerned (regrettably, still not too extensive), some studies refer to textual reception (e.g. Hirsh et al. 2009; Bernardini et al. 2001; Pander Maat and Lentz 2010) or to the text of PILs *per se*. Askehave and Zethsen (2003) focused in their research on communication barriers to patient comprehension, whereas Clerehan and Buchbinder (2006) and Garner, Ning and Francis (2011) attempted to evaluate PILs from a more conceptual framework-oriented perspective.

PILs represent a category of documents whose structure is conventionalised. Genres in general develop at a rather slow rate, yet in PILs the changes are – dynamically – triggered by legal regulations. A PIL template was produced by the committee of the EMA, i.e., the Quality Review of Documents group (hence it is called a QRD template), to facilitate the production process of the text and to ensure its consolidated layout. This

template enumerates a sequence of headings and specifies types of information to be given within these particular sections as well as assumes (and requires) the use of wordings for a variety of information types. While the sequence of information is stipulated in legal regulations, the remaining part tends to be enforced (see Pander Maat, Lentz and Raynor 2015). Following the regulatory procedures templates are turned into complete documents and as such are not always compatible with the patients' needs. Studies by, e.g., Pander Maat and Lentz (2010) and Askehave and Zethsen (2003) show that most patients do not find leaflets helpful: they cannot find relevant information, they do not understand the information given and are not always capable of applying it, or they do not feel the need to read the information and comply with the instructions. PILs also are perceived as lengthy and difficult to understand due to technical details included and a huge bulk of information covered. The EU regulations provide for PILs' consolidated uniformity in terms of format, content, headings and wordings for given terms, yet they cannot ensure the usability of the leaflet. Usability refers to linguistic readability and visual legibility which depends on such factors as font sizes and types or paper quality. The PIL should be easily comprehensible so that patients can use a given medication safely, and the level of discourse specialisation should be rather low (see Gotti 2005: 25–27). This is related to the treatment of medical terms in PILs, and this issue is elaborated in the readability guideline recommended by the European Commission:

Medical terms should be translated into language which patients can understand. Consistency should be assured in how translations are explained by giving the lay term with a description first and the detailed medical term immediately after. On a case by case basis, the most appropriate term (lay or medical) may then be used thereafter throughout the leaflet in order to achieve a readable text. (EC 2009: 9–10)

The importance of medical terms used was also highlighted in the report published by the MHRA which suggests developing a glossary of lay terms:

There are many factors to consider when describing side effects. Currently, descriptions of side effects are submitted by companies and assessed individually for each PIL, resulting in differing and inconsistent terminology. For patients, who may read about the same side effect described in two or more quite different ways, this inconsistency is likely to be unhelpful. Standardisation of side effect terminology would therefore seem desirable, and adoption of ‘preferred lay terms’ for specific side effects would also be helpful to industry and regulators. (MHRA 2005: 46)

Annex 8 (MHRA 2005: 123–128) to this report includes a list of 56 medical terms with their proposed lay correspondents to replace the medical terms and thus ensure effective communication, e.g.:

leucopenia	– reduction in the number of white blood cells, which makes infections more likely
bradycardia	– slower heart beat
ectopic pregnancy	– pregnancy outside the womb which can cause severe pain, bleeding or collapse
hypokalaemia	– low blood levels of potassium which can cause muscle weakness, twitching or abnormal heart rhythm
hyperkalaemia	– high blood levels of potassium which can cause abnormal heart rhythm
jaundice	– yellowing of the skin or whites of the eyes caused by liver or blood problems

Obviously, descriptive terms provided facilitate understanding of the PIL on the part of patients who do not have extensive (or even any) knowledge of medical language. The explanation of medical terms in the leaflet should – at least theoretically, considering the phenomenon of non-compliance – contribute to more effective observance of treatment regimens through following and understanding the mechanisms and processes involved in the action of medications.

## 1.2. PILs in Translation: Requirements

Due to the fact that Poland as a non-English speaking country imports products of pharmaceutical companies (e.g. from the UK), PILs have to be translated from English into Polish. The pharmaceutical company is responsible for the production and, in the later stage, revision, analysis and correction of the translation of the leaflet. When the original leaflet is in English, the entire content (the Summary of Product Characteristics – SPC) is transferred. After successful completion of the market authorisation for a given medicinal product (compliant with all relevant regulations and procedures), the material is translated into Polish.

The production of PILs entails not only the need to observe valid legal requirements but also the awareness of the knowledge asymmetry between the author or sender (health professional) and the receiver or lay user: the author is an expert and the user is not. Moreover, the producers of the text try to reach the population as a whole, thus there is no specific reader, and – following Askehave and Zethsen (2003) – they may have problems with conceptualising the potential user and with being knowledgeable about his needs and expectations.

The patient leaflet must also comply with the SPC, which applies to all authorised medicinal products intended for market commercialisation. This division of medicinal information materials is justified by the content of these documents. The SPC is quite extensive, intended primarily for doctors or pharmacists, and includes medical terminology, which the average patient may find difficult to understand. The patient leaflet contains data on the efficacy and safety of the medicinal product. The leaflet layout is part of the whole process of registration of a medicinal product and must meet certain requirements (in Poland as stipulated in the Regulation of the Polish Minister of Health of 20 February 2009 concerning the labelling of medicinal product packaging and the package leaflet).

The guidelines in the Polish and European legislation (Directive 2001/83/EC, the *Guidelines* of the European Commission of 2009) specify the detailed requirements for the layout and contents of all information

materials. In light of these regulations, the leaflet must be understandable, accurate and useful to the patient, as well as legible and transparent; in other words, it must be communicatively effective. Article 63(1) of Directive 2001/83/EC provides for the following: ‘The information leaflet must be written in a language that is understandable and affordable to the patient and drawn up in the official language or languages of the Member State where the product is placed on the market’.

This assumption is also reflected in Article 59(3), which stipulates that ‘the leaflet included in the package of the medicinal product specifies the results of consultation with the target patient groups to ensure that the leaflet is legible, clear and easy to use’.

Statutory requirements address a number of issues, and the communicative efficiency of the leaflet is conditioned by the users’ ability to read and understand written texts; therefore, prior to being approved and accepted by the Office for Registration of Medicinal Products, Medical Devices and Biocidal Products, the leaflet must be subject to the readability test. PILs are, by virtue of EU legal regulations in force since 2005, user-tested. User-testing must be done by pharmaceutical companies (prior to marketing authorisation and product commercialisation). Yet, it must be noted that only one language version must be tested (in compliance with regulations as stipulated by the European Commission in 2006), this version being the English one in the absolute majority of cases. The English version (non-translated) is usually the first to be drafted and further submitted to regulatory authorities; consequently, the results of user-testing procedures are submitted to the EMA.

The requirements mentioned are categorised into formal and communicative ones. Formal requirements refer to the font size, which should be as large as possible to aid users in reading. The minimum to be considered is a font size of 9 points (measured in Times New Roman) that is not narrowed, and the space between lines should have at least 3 mm. Capitals should be rather avoided (the *Guidelines* explain that the brain recognises words in written documents by the word shape so lower case text should be chosen for large text fragments). Another important issue is the con-



trast between the text and the background; this includes paper weight, size, weight and colour of the font and of the paper itself.

The other category of communicative requirements recommends the use of simple words of few syllables (due to poor reading skills of some receivers) and avoiding long sentences (maximum sentence length being up to 20 words). Further, the *Guidelines* stress that it is better to use a few shorter sentences rather than one long sentence. Similarly, long paragraphs can be confusing for readers, especially when side effects are enumerated. The passive voice should give place to more direct and more personal style and so the active voice is preferable. When patients are informed about actions they should take in particular, those instructions should be followed by reasons and explanations. In situations when there is a need to use (or repeat) the name of the medication, demonstratives (e.g. *this* medication) or possessives (e.g. *your* medication) are recommended, yet the context must be explicit as to the object of reference. Medical terms occurring in the text should be explained and more lay-friendly language should be used, thus enabling comprehension on the part of the users.

Legal requirements, formal and communicative requirements, and the asymmetry of knowledge between the author and the user result in even more difficulties for the translator. The translator is somewhat in the middle, between the text producer and the lay text receiver (Jensen 2012). Moreover, by the force of law the PIL must be available in all EU languages in all the states in which a given medicinal product or a medical device are marketed.

## 2. COMPARISON OF THE ENGLISH AND POLISH VERSIONS OF THE PATIENT INFORMATION LEAFLET AND THE SUMMARY OF PRODUCT CHARACTERISTICS

The two main genres in medicinal information materials that are of interest to us in the following section are the Summary of Product Characteristics and the Patient Information Leaflet. As already mentioned, the SPC

covers information of pivotal importance for health professionals on safe and effective use of the medication, and forms the basis for the PIL, which is said to be a simplified summary version of the SPC to be understood by non-experts who could then use the medication safely and in a relevant manner. A typical feature of the PIL is its shortness: it is usually much shorter than the SPC. As it is conventionalised, it follows the 'working' framework of the sender, communicative purpose, intended audience, content, textual structure and graphological aspects (such as font type and size, paper colour, etc.). The intended audience are the final users of the medication (patients) who, as Piorno (2012) observes, are a large and heterogeneous non-expert audience (also Albin 1998: 118) that vary by age, background knowledge and education.

These two genres fulfil different functions and address the needs of specific receivers (see concepts of referential and functional intertextuality in Montalt Resurrecció and González Davies 2007: 55–56). They have to reflect in their structure and communicative content, respectively, decreasing degrees of formality and specialisation (also Piorno 2012) to the benefit of simplification in PILs. What is further emphasised by Montalt Resurrecció and González Davies (2007: 162–164) is the emergence of other procedures that can be applied when developing PILs out of SPCs. These procedures include synthesising information, expanding information that is of relevance for the target readers, shifting the focus from the author of the text and the textual content to comprehension on the part of the user. Other essential procedures consist in adjusting the tenor so as to achieve more personalised and direct communication with the user, simplifying syntactic structures, using verbs instead of nouns or noun phrases that may be perceived as too complicated or too difficult, and finally making complex medical terms less complicated, and thus more lay-friendly.

To illustrate differences in information content and ways of addressing the needs and expectations of the users, an analysis of the translation of commonly recognised and used painkillers (Nurofen Express, produced by the UK-based manufacturer Reckitt-Benckiser) was performed. The

original texts submitted by the manufacturer for approval to undergo registration procedures by competent authorities are the Patient Information Leaflet and the Specific Product Characteristics. Both these documents were originally developed in English. All leaflets are updated once a year on average (the analysed material is the valid version for 2014 and 2015). In compliance with the law, the PIL and the SPC in Polish are to be translated from the PIL and the SPC in English.

The material in the table below is divided into four columns corresponding to the original PIL and SPC in English (columns 1 and 2) and their versions in Polish ('ulotka dla pacjenta' and 'Charakterystyka Produktu Leczniczego' in columns 3 and 4) in the registration documents. Due to the spatial limitations of this paper, the number of examples presented – accompanied by comments – was reduced to 8. Because of the specificity of the text (a leaflet), criteria such as the use of ordinary or specialised language and terminology, directiveness, syntax typical of specialised text, compliance with the objective, i.e., readability, simplicity of expressions, accuracy and precision were used to evaluate the translation. The examples demonstrated below are accurate reproductions of the original content layout that occur in graphically correspondent positions in both texts.

Table 1. Example 1

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
How to take Nurofen Express 200mg liquid capsules?	Posology and method of administration	Sposób podania	Dawkowanie i sposób podawania

The English version of the leaflet includes a question which is followed by a direct answer in the text. No specialised terminology was used. In the SPC, the word 'posology' appears and is used exclusively in a specialised

(pharmacological) context. There is no significant difference between the PIL and SPC in Polish – ‘dawkowanie’ (‘administration’) is omitted in the former, but ‘sposób podania’ does not differ semantically from ‘sposób podawania’, only the verb form is longer.

Table 2. Example 2

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
You should take the lowest dose for the shortest time necessary to relieve your symptoms.	Undesirable effects may be minimized by using the lowest effective dose for the shortest duration necessary to control symptoms.	Przyjmowanie leku w najmniejszej dawce skutecznej przez najkrótszy okres konieczny do łagodzenia objawów zmniejsza ryzyko działań niepożądanych.	Działania niepożądane można ograniczyć stosując najmniejszą skuteczną dawkę przez najkrótszy możliwy okres konieczny do łagodzenia objawów.

The English leaflet directly addresses the user, while the information is synthetic and focuses on the important issue of not taking excessive amounts of the drug. The SPC, in a manner typical for medical texts specifically and for specialised texts in general, uses the passive voice, the sentence is impersonal and ‘thick’ content-wise. In the PIL, the information relevant for the patient is clarified by shifting to the second person form (‘You should take...’).

In the Polish leaflet, the sentence is again very similar to the sentence in the Polish SPC, but a shift of emphasis is visible: in the former, the first information item is ‘przyjmowanie leku w najmniejszej dawce’ (‘taking the lowest dose’), while in the SPC, the reduction of side effects is the priority.

Table 3. Example 3

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
Do not take Nurofen Express 200mg liquid capsules if you: – have had a worsening of asthma, skin rash, itchy runny nose or facial swelling when previously taking ibuprofen, aspirin or similar medicines	Contraindications: Patients who have previously shown hypersensitivity reactions (e.g. asthma, rhinitis, angioedema, or urticaria) in response to aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs)	Kiedy nie stosować leku Nurofen Express: – jeśli u pacjenta kiedykolwiek występowały duszność, astma, nieżyt nosa, obrzęk lub pokrzywka po przyjęciu kwasu acetylosalicylowego lub innych podobnych leków przeciwbólowych (NLPZ)	Przeciwwskazania: – u pacjentów z reakcjami nadwrażliwości w wywiadzie (np. skurcz oskrzeli, astma, zapalenie błony śluzowej nosa, obrzęk naczyńioruchowy lub pokrzywka) związanymi z przyjęciem kwasu acetylosalicylowego (ASA) lub innych niesteroidowych leków przeciwzapalnych (NLPZ)

In the English materials, the difference in terminology applied is very clear – in the PIL all terms describing the patient's sensations or complaints are given in lay terms, while the SPC uses specialised terminology which a lay user would certainly have difficulties in understanding (e.g. 'urticaria' from Latin is replaced with 'rash').

Expressions characteristic of scientific language, such as 'contraindications' or 'hypersensitivity', are translated into full sentences: 'Do not take Nurofen (...) if you have had a worsening of...'. In order to achieve a more personalised communication, the tenor is adjusted in the PIL, and the language is more personal. The degree of formality decreases (e.g. 'rhinitis' is translated as 'itchy runny nose').

In the Polish PIL, ‘nieżyt nosa’ (‘rhinitis’) may not be a concept with which an average user is familiar. In addition, at the end of the sentence the initialism NLPZ (NSAID) is used, which – not entirely in compliance with the principles of translation logic – was provided in the SPC (which is intended for professionals who certainly know the term). This explanation of the initialism is, unfortunately, missing in the package leaflet where it would be far more useful and helpful, especially considering the fact that the patient may not associate NSAIDs (NLPZ) with commonly taken analgesics.

Table 4. Example 4

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
(Patients who) – have severe liver or kidney problems	Patients with severe hepatic failure, severe renal failure or severe heart failure (NYHA Class IV)	– jeśli u pacjentów stwierdzono ciężką chorobę wątroby, nerek, choroby wieńcowe lub niewydolność serca	– u pacjentów z ciężką niewydolnością wątroby, ciężką niewydolnością nerek lub ciężką niewydolnością serca

The distinction between ‘liver’ and ‘hepatic’ (lay and specialised terms for the liver and related terms) or ‘kidney’ and ‘renal’ (for issues related to kidney problems) is visible in English. In the Polish leaflet, ‘choroby wątroby’ and ‘choroby nerek’ (‘liver disease’ and ‘kidney disease’, respectively) are used instead of ‘ciężka niewydolność wątroby’ and ‘ciężka niewydolność nerek’ (‘severe hepatic failure’ and ‘severe renal failure’) in the SPC. This solution is certainly conducive to understanding the term by the patient as scientific terms are avoided and replaced by popular terms.

In the Polish leaflet, the term ‘choroby wieńcowe lub niewydolność serca’ (‘coronary heart disease or heart failure’) was retained and, surprisingly, the SPC version does not mention ‘coronary heart disease’ at all.

Table 5. Example 5

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
– are taking other NSAIDs (non-steroidal anti-inflammatory drugs) or more than 75mg aspirin a day	Use with concomitant NSAIDs, including cyclo-oxygenase-2 specific inhibitors – increased risk of adverse reactions.	Należy unikać jednoczesnego stosowania z innymi NLPZ, w tym z selektywnymi inhibitorami cyklooksygenazy-2, ze względu na zwiększone ryzyko wystąpienia działań niepożądanych.	Jednoczesne stosowanie z NLPZ, w tym z selektywnymi inhibitorami cyklooksygenazy-2, zwiększa ryzyko wystąpienia reakcji niepożądanych, należy zatem takiego połączenia unikać.

In the PIL, the information is clear and understandable, and the initialism has been explained descriptively. The SPC contains highly specialised information and the name of the active substance ('cyclo-oxygenase-2') is used which would be incomprehensible for the lay user but understood by the health professional.

In the Polish version of the PIL, the name of the active substance was retained ('cyklooksygenazy-2') which renders communication ineffective: the name of this compound is not common knowledge. The leaflet version is only slightly different from the SPC, the only difference being certain stylistic changes (e.g. shifts in word order) that do not, however, affect the overall information content.

The English leaflet as the first information item presents the way to avoid side effects and, what follows, the need to not take other NSAIDs, which is further enhanced by an imperative ('do not take this product'). The names of active substances are also given. The SPC, in turn, starts with the necessity to avoid more NSAIDs being co-administered due to the possible side effects.

Table 6. Example 6

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
To reduce the risk of side effects, do not take this product with other NSAID containing products (e.g. aspirin, ibuprofen).	Avoid concomitant use of two or more NSAIDs as this may increase the risk of side effects.	Należy poinformować o przyjmowaniu kwasu acetylosalicylowego lub innych NLPZ (leków przeciwzapalnych i przeciwbólowych), gdyż może to zwiększyć ryzyko wystąpienia owrzodzenia przewodu pokarmowego lub krwawienia.	Jednoczesne stosowanie kilku NLPZ może zwiększać ryzyko owrzodzenia przewodu pokarmowego oraz krwawienia ze względu na synergistyczne działanie. Z tego względu należy unikać jednoczesnego stosowania leku z innymi NLPZ.

In the Polish leaflet, the patient is instructed to inform – presumably the doctor, but the sentence is impersonal and does not make any reference to the person that should be informed – about taking other medications. In contrast to the English leaflet, the names of active substances are not given, even though it would certainly make the choice of drugs easier for the patients. The chemical compound name, i.e., acetylsalicylic acid, was given, which does not necessarily result in any associations and many patients will not be familiar with it. In addition, the sentence structure is very similar to the sentence in the SPC – apart from the explanation of the initialism (NLPZ/NSAID), medical terms used are identical. Moreover, contrary to the general rule, the PIL is longer than the SPC due to the inclusion of the acetylsalicylic acid and its responsibility for the risk of occurrence of gastrointestinal ulceration or haemorrhage (this information is present only in the PIL in Polish).



Table 7. Example 7

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
– to stimulate your heart (e.g. glycosides)	– cardiac glycosides: NSAIDs may exacerbate cardiac failure, reduce GFR and increase plasma glycoside levels	– digoksyny (lek stosowany w niewydolności serca), gdyż działanie digoksyny może się nasilić	– digoksyna: jednoczesne stosowanie produktu leczniczego z lekami zawierającymi digoksynę może zwiększać stężenie tych leków w surowicy krwi

The leaflet in English refers to medications by their specific purpose, whereas their chemical names are given in parentheses. The SPC explains the effects – using medical terms – of interactions with NSAIDs. Information concerning clinical usage of the medication, pharmaceutical particulars and pharmacological details of the SPC is synthesised to a minimum in the PIL.

The name of the active substance (which is also the trade name of the medicinal product) is given in the Polish leaflet, and an expression that its performance can be enhanced ('może się nasilić') does not carry any information for the patient that could be treated as a major warning. In addition, 'glikozydy' ('glycosides') were replaced by 'digoksyny' ('digoxins') that are more common in the Polish medical context. The SPC contains only the information on the effect of digoxins. In the Polish SPC, the information about GFR (i.e., glomerular filtration rate) reduction and the increasing severity of heart failure was omitted. This omission can raise doubts since the SPC is intended for health professionals, for whom this information is necessary and relevant in their daily practice, and not for lay users.

Table 8. Example 8

Patient Information Leaflet	Summary of Product Characteristics	Ulotka dla pacjenta	Charakterystyka Produktu Leczniczego
– for HIV treatment (e.g. zidovudine)	– Zidovudine: increased risk of haematological toxicity when NSAIDs are given with zidovudine. There is evidence of an increased risk of haemarthroses and haematoma in HIV(+) haemophiliacs receiving concurrent treatment with zidovudine and ibuprofen	– zydowudyna (lek stosowany w leczeniu HIV/AIDS), gdyż stosowanie leku Nurofen Express może zwiększać ryzyko krwawienia do stawu lub krwawienia prowadzącego do obrzęku u pacjentów z hemofilią zakażonych HIV	– zydowudyna: istnieją dane wskazujące na zwiększone ryzyko krwawienia do stawu oraz powstawania krwinków u HIV-dodatnich hemofilików otrzymujących jednocześnie leczenie zydowudyną i ibuprofenem

In this case, there is a very clear difference between the English PIL and SPC and their Polish translation. The English PIL informs only about the purpose of the treatment and the name of the medication, while information concerning clinical usage of the medicine, pharmaceutical particulars and pharmacological details present in the SPC is synthesised to a minimum. The SPC explains the negative effects of using NSAIDs together with the drug – specialised terms are used and additional information is provided.

The Polish leaflet provides the information given in the SPC; the difference between the English and the Polish leaflet is very distinctive: the latter is a slightly modified version of the SPC. Nominalisations ('HIV-dodatni hemofilik/HIV(+) haemophiliac') are turned into a full expression ('pacjent z hemofilią zakażony HIV/patient with haemophilia and HIV').

Even a very cursory glance at the materials allows to draw preliminary conclusions: the materials in English are two largely independent documents, differing not only in terms of the layout, but above all in terms of the language used. The leaflet, contrary to the SPC, employs ordinary language and does not include specialised terms.

It should be stressed that in the examples above extensive differences can be seen as to the volume of the English version of the leaflet and its Polish translated version. Certain words are missing from the translation, while other words, not present in the original, are added. The two documents also vary in length: the leaflet in English is two pages long (ca. four pages of standard print) and the SPC is eight pages long. In contrast, the materials in Polish are 11 and 14 pages long, respectively.

The fact that the English leaflet was produced in a non-specialist, non-hermetic language that is not intended specifically for professionals is a much more important issue, and undoubtedly it is more significant in terms of communication efficiency. The wording is understandable, clear and communicatively effective, and thus it accomplishes the assumed objective: a clear informative message for the patient that will help him to use the medication, which will improve his health or wellbeing. From the point of view of communicative efficiency, it is important to note that the Polish leaflet and SPC are actually very similar, and thus the first condition of adapting the text to the needs and expectations of the receiver has not been fulfilled. The leaflet was somewhat shortened, several terms – as shown in the examples in the table – were slightly simplified, yet its general image and content do not facilitate understanding. The terms used are not lay terms and the language is definitely not lay-friendly, and thus the text itself is not clearly understandable to the user. In addition, the ‘parallelism’ of the document translation process itself was not used, i.e., the basis for the Polish translation of the leaflet was not the English PIL. In a sense, the leaflet in Polish was developed as an adaptation of the SPC in Polish (which was translated from the SPC in English). Therefore, it is more formal and largely dominated by lay-unfriendly syntax and specialised terms.

## CONCLUSIONS

The observed differences in the translated materials evidence the difference in lay-friendliness, and this certainly deserves a further analysis and more profound insights in future research. The understanding of the information in the medication leaflets and medicinal information materials is of primary importance for the users as their health and wellbeing is at stake. Therefore, good and relevant translation of medication-related documents is a key issue: potential problems with the understanding of the leaflets and very negative consequences resulting from failure to comprehend these texts (e.g. deterioration of one's health) can be eliminated by the production of texts adapted to the needs and expectations of the user.

The translated versions of original English materials analysed in this paper do not meet their users' expectations: they are too formal, too impersonal, too stylistically complex, too specialised terminologically and too lay-unfriendly. Lay-friendly language is more understandable to lay users, and as such should be used in leaflets. However, although the tendency to involve patients in the treatment process, e.g. by shifting the focus to communicative efficiency of these texts, has been increasingly becoming a worldwide trend, in Poland there is still a lot to be done in the field of both social awareness and the pharmaceutical companies' perception of the local market, the users, their needs and expectations.

## References

- Albin, V. (1998). Translating and Formatting Medical Texts for Patients with Low Literacy Skills. In: *Translation and Medicine*, ed. H. Fischbach. Amsterdam – Philadelphia: John Benjamins, pp. 117–129.
- Askehave, I. and Zethsen, K. (2003). Communication Barriers in Public Discourse: The Patient Package Insert. *Document Design*, 1, pp. 22–41.
- Bernardini, C., Ambrogi, V., Fardella, G. and Grandolini, G. (2001). How to Improve the Readability of the Patient Package Leaflet: A Survey on the Use of Colour, Print Size and Layout. *Pharmacological Research*, 43(5), pp. 437–444.

- Clerahan, R. and Buchbinder, R. (2006). Toward a More Valid Account of Functional Text Quality: The Case of the Patient Information Leaflet. *Text & Talk*, 26(1), pp. 39–68.
- Connor, U., Ruiz-Garrido, M., Rozycki, W., Goering, E. and DeAman Kinney, E. (2008). Patient-Directed Medicine Labeling: Text Differences between the United States and Spain. *Communication & Medicine*, 5(2), pp. 117–132.
- Coordination Group for Mutual Recognition and Decentralised Procedures-Human. (2007). *Consultation with target patient groups – meeting the requirements of Article 59(3) without the need for a full test – recommendations for bridging*. Available at: [http://www.hma.eu/uploads/media/patient\\_consultation\\_bridging.pdf](http://www.hma.eu/uploads/media/patient_consultation_bridging.pdf) (accessed 23 November 2018).
- Derkacz, M. et al. (2014). Jak pacjenci stosują się do zaleceń lekarskich dotyczących przyjmowania zaordynowanych leków? *Family Medicine & Primary Care Review*, 16, pp. 91–93.
- EC. (2009). *Guideline on the Readability of the Labelling and Package Leaflet of Medicinal Products for Human Use*. European Commission. Available at: [http://ec.europa.eu/health/sites/health/files/files/eudralex/vol-2/c/2009\\_01\\_12\\_readability\\_guideline\\_final\\_en.pdf](http://ec.europa.eu/health/sites/health/files/files/eudralex/vol-2/c/2009_01_12_readability_guideline_final_en.pdf) (accessed 23 November 2018).
- ELINET. (2015). *High Level Group Report on Literacy*. European Literacy Policy Network. Available at: <http://www.eli-net.eu/research/high-level-group-report-on-literacy/> (accessed 23 November 2018).
- EU. (1992). EU Directive 92/27/EEC of the European Parliament and of the Council of 31 March 1992. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0027&from=en> (accessed 23 November 2018).
- EU. (2001). EU Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001. Available at: [http://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/dir\\_2001\\_83\\_consol\\_2012/dir\\_2001\\_83\\_cons\\_2012\\_en.pdf](http://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/dir_2001_83_consol_2012/dir_2001_83_cons_2012_en.pdf) (accessed 23 November 2018).
- EU. (2004). EU Directive 2004/27/EC of the European Parliament and of the Council 31 March 2004. Available at: [http://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/dir\\_2004\\_27/dir\\_2004\\_27\\_en.pdf](http://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/dir_2004_27/dir_2004_27_en.pdf) (accessed 23 November 2018).
- European Medicines Agency. (2011). *The Linguistic Review Process of Product Information in the Centralised Procedure – Human*. Available at: [https://www.ema.europa.eu/documents/regulatory-procedural-guideline/linguistic-review-process-product-information-centralised-procedure-human\\_en.pdf](https://www.ema.europa.eu/documents/regulatory-procedural-guideline/linguistic-review-process-product-information-centralised-procedure-human_en.pdf) (accessed 23 November 2018).
- Garner, M., Ning, Z. and Francis, J. (2011). A Framework for the Evaluation of Patient Information Leaflets. *Health Expectations*, 15(3), pp. 283–294. Available

- at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5060624/> (accessed 23 November 2018).
- González Davies, M. (1998). Student Assessment by Medical Specialists: An Experiment in Relating the Undergraduate to the Professional World in the Teaching of Medical Translation in Spain. In: *Translation and Medicine*, ed. H. Fischbach. Amsterdam – Philadelphia: John Benjamins, pp. 93–104.
- Gotti, M. (2005). *Investigating Specialised Discourse*. Bern: Peter Lang.
- Gotti, M. and Salager-Meyer, F. (Eds.). (2006). *Advances in Medical Discourse Analysis: Oral and Written Contexts*. Bern: Peter Lang.
- Hirsh, D., Clerehan, R., Staples, M., Osborne, R. and Buchbinder, R. (2009). Patient Assessment of Medication Information Leaflets and Validation of the Evaluative Linguistic Framework (ELF). *Patient Education & Counseling*, 77, pp. 248–254.
- Jensen, M.N. (2012). Patient Information Leaflet Translators in the EU: Mapping the Hypothetical Competences of Professional Translators and Pharmacists-Cum-Translators. In: *Translation and the Reconfiguration of Power Relations: Revisiting Role and Context of Translation and Interpreting*, eds. B. Fischer and M.N. Jensen. Berlin – Munster – Wien: LIT Verlag.
- Kenny, T., Wilson, R., Purves, I., Clark, J., Newton, L., Newton, D.P. and Moseley, D.V. (1998). A PIL for Every Ill? Patient Information Leaflets (PILs): A Review of Past, Present and Future Use. *Family Practice*, 15(5), pp. 471–479.
- Kościalkowska-Okońska, E. (2012). Translating Medical Texts for Legal Purposes: A Growing Challenge for Court Translators and Interpreters. *Comparative Legal Linguistics. International Journal for Legal Communication*, 11, pp. 7–21.
- Kościalkowska-Okońska, E. (2015). Tłumacz przysięgły a pułapki tekstów medycznych. *Rocznik Przekładoznawczy. Studia Nad Teorią, Praktyką i Dydaktyką Przekładu*, 10, pp. 127–138.
- Lee-Jahnke, H. (2005). Teaching Medical Translation: An Easy Job? *Panacea*, 6(20), pp. 81–84.
- MHRA. (2005). *Always Read The Leaflet: Getting the Best Information with Every Medicine*. Available at: <http://www.mhra.gov.uk/home/groups/pl-a/documents/publication/con2018041.pdf> (accessed 23 November 2018).
- Montalt i Resurrecció, V. and Shuttleworth, M. (2012). Research in Translation and Knowledge Mediation in Medical and Health Settings. *Linguística Antverpiensia*, 11, pp. 9–29.
- Montalt Resurrecció, V. and González Davies, M. (2007). *Medical Translation Step by Step: Learning by Drafting*. Manchester: St Jerome.
- Pander Maat, H., Lentz, L. and Raynor, D.K. (2015). How to Test Mandatory Text Templates: The European Patient Information Leaflet. *PLoS ONE*, 10(10), pp. e0139250.

- Pander Maat, H. and Lentz, L. (2010). Improving the Usability of Patient Information Leaflets. *Patient Education and Counseling*, 80(1), pp. 113–119.
- Pierini, P. (2015). On the User's Side: Definitions in Italian and British Patient Information Leaflets. *Círculo de Lingüística Aplicada a la Comunicación*, 63, pp. 218–239. Available at: <http://pendientedemigracion.ucm.es/info/circulo/no63/pierini.pdf> (accessed 23 November 2018).
- Piorno, P.E. (2012). An Example of Genre Shift in the Medicinal Product Information Genre System. *Linguistica Antverpiensia*, 11, pp. 167–187.





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## TEACHING MEDICAL SIMULTANEOUS INTERPRETING: FROM THEORY TO PRACTICE

### INTRODUCTION

Simultaneous interpreting (SI), which is the most modern form of interpreting, is a type of real-time conference interpreting formally introduced for the first time in Germany during the Nuremberg trials in 1945 (Gaiba 1998). This mode is frequently applied at international (or multinational) meetings, conferences and symposia with the use of specialised electronic equipment (i.e., soundproof booths, headphones and a microphone) and is also known as booth interpreting. In turn, whispered interpreting (also known as *chuchotage*) is conducted without the use of specialised technical equipment by interpreters who stand (or sit) next to a person or a small group of listeners and provide interpreting of what is being said in a low voice. Also sight interpretation, in which an interpreter reads a written text and simultaneously interprets it, is part of SI (Florczak 2013: 32). The last form of SI, known as relay interpreting (or indirect interpreting), is most commonly adopted when there are multiple target languages employed in a conference, meeting or event or if no interpreter can be found for a particular language combination. The process of SI ‘encompasses listening, processing of the original discourse and its restitution in the target language with operations of linguistic decoding bringing into play different types of memory and language production’; therefore, this process ‘implies attention sharing and decision-taking, with the management of risks and difficulties’ (Gile 1995: 17 qtd. in Setton 1999: 34).

Medical interpretation belongs to the most rapidly developing areas of interpreting. It covers the whole spectrum, from community interpreting at medical settings to specialised conferences and whispered interpreting, particularly in the case of medical specialties that develop at an immense rate (invasive cardiology, oncology or genetics).

Medical SI is related to the communication process either among health-care professionals themselves who use different languages or among patients (or their families) and medical specialists. The process of SI is conducted by an interpreter who is usually formally educated to provide interpretation services. Medical SI requires experience and subject matter expertise in medical nomenclature and medically-related procedures. Medical background of an interpreter, though highly desired, is an asset – not a necessity.

Due to a rapid increase in the demand for medical SI, the need for proper training of medical interpreters seems to be of great importance – not only to meet the demands and requirements of the market in terms of the number of interpreters, but first and foremost to disseminate medical knowledge between the specialist–specialist domain and the specialist–layman domain in the ever-changing medical settings and realities. Florczak (2013: 54 after Plusa 2007) is of the opinion that teaching interpreting is a necessity rather than a possibility and that it should be taught and ‘the specificity of the acquisition of immensely complex interpreting skills requires an organised training course and practice conducted by specialised university centres with high level experts.’

The main difficulties of medical interpreting encountered by students are related to their unfamiliarity with medical knowledge and terminology on the one hand, and the process of interpreting on the other. Both problems can be overcome by preparing a special program allowing students to gain experience in the process of interpreting, which depends on the abilities to process the information and the use of specific strategies to convey the meaning of the source text (ST) so that it is reflected in the target text (TT). At the same time, they also extend their knowledge connected with medicine. Therefore, a fully comprehensive programme of teaching medical interpreting can be prepared only when these two components are combined.

## 1. MEDICAL SI TRAINING

The programme proposed in this paper is based on the elements that have already been implemented in the training process of students at the Institute of English of the University of Silesia in Sosnowiec, Poland. The University provides excellent conditions for SI (including the booths). The SI course is conducted for 3 years, starting from Year 3, and covers 6 semesters in total. Each semester consists of fifteen 90-minute classes.

Year 3 is dedicated to the explanation of certain theoretical issues related to interpreting and practical classes. Medical interpreting is introduced starting from Year 4. Additionally, different domains are also discussed, including economy, business, politics or law.

The proposed holistic system of teaching SI with special attention paid to the medical domain is as follows.

### 1.1. Year 3 (Both Semesters)

Teaching SI cannot be detached from the theoretical framework. Therefore certain concepts must be introduced at the very early stage of the student training.

Active listening is the first principle that Stoica (2008: 205) considers to be of prime importance in SI. It is crucial and prepares the foundations for further processes. Stoica (2008: 205) quotes Bowen and Bowen (1984), who distinguish 4 types of listening, i.e., passive, protective, selective and active, of which only the last one is related to the process of interpretation and, as Jones (1998) rightly states, must be learnt and trained as it is not an innate ability. It is of particular importance due to the fact that in medical SI a prefix or a suffix can determine the meaning of the word as a whole.

In the simultaneous mode particular attention should be paid to the cognitive nature of the process of SI and the differences between SI and the consecutive mode or translation. Students need to be familiarised with the theoretical framework of SI, including information processing models, the effort model and the interpretative theory of translation (Lederer

1981; Gile 1995). The processes of memory and comprehension in SI with the analysis of a model of memory proposed by Daró and Fabbro (1994) is discussed. Although the above may appear to be a little extensive for a theoretical background, it must be borne in mind that without the awareness of the processes involved in SI interpreting cannot be done properly. Additionally, such a detailed explanation is necessary partly due to the fact that at the University of Silesia simultaneous and consecutive interpreting are introduced at the same time. Listening and analysis, memory effort, production effort and coordination effort are interpreting phases and students should be able to find a balance among them with respect to energy. Additionally, the phenomenon of simultaneous listening and production must be also discussed as it is not present in any other mode of translation or interpreting.

Furthermore, the management of time lag between the ST input and the interpreter's target (ear-voice span) requires further explanation. The Polish language is not characterised by a fixed word order (compared to English) and therefore some syntactic changes (subject-predicate-object) must be implemented into English, which may also entail lag (Bartłomiejczyk 2015: 209).

The above concepts obviously do not have to (and should not) be introduced in the form of a formal lecture – they can be discussed as 'mini-lectures' (Bartłomiejczyk 2015: 210). Despite the fact that both shadowing and paraphrasing of the ST have been criticised by some researchers (Dejéan le Féal 1997), they may be useful at the initial stages of learning. Of note, sight interpreting may also be provided at the very beginning of classes as a warming-up activity (Bartłomiejczyk 2015: 210). The opinion presented by Dejéan le Féal (1997), according to which students at the initial level of interpreting should interpret the text firstly in the consecutive and then in the simultaneous mode, seems to be very useful and practical. At this stage commonly known fairy tales (such as *Little Red Riding Hood*) are recommended to be interpreted both from and into English. The speed at which the material is recorded should be around 130 words per minute (wpm). These tales may be interpreted several times (Gillies 2004:

127). Although such a situation is almost impossible in real interpreting settings, it provides the possibility for a deeper analysis of the TT and students' mistakes. It should be borne in mind that the level of STs should be appropriate and should not exceed the capability of students. Students may initially listen to certain material and then interpret it, which is beneficial in respect to understanding, particularly in the case of some more complex or specialised terms that can additionally be provided to students in the form of handouts.

Another crucial aspect that needs to be taken into account is related to one of the most controversial issues in interpreting studies (Dejéan le Féal 1998) – directionality, which refers to language combination and direction (e.g. English into Polish vs. Polish into English). In the process of SI training, interpreting from A language to B language and from B to A is considered, which is consistent with the studies using neurolinguistic techniques, which revealed that different brain areas are activated depending on the direction of interpretation (Tommola et al. 2000/2001).

Special attention in the interpreter training should be paid to the analysis of strategies used in SI. First of all, however, the following question should be posed: what elements define strategy? Liontou (2011: 38) distinguishes 4 components required to form the strategy: (1) procedures performed by an individual, (2) which contain an element of planning, (3) aim at fulfilling particular targets, and (4) refer to a sequence of activities during the process of target realisation.

Teaching various strategies during SI classes is an essential component of the interpreter training. Interpreting strategies, known as 'coping tactics' (Gile 1995) or 'techniques' (Jones 1998), are crucial aspects of interpreting expertise (Xiangdong 2013: 105). Since the beginning of the 1970s, many studies on this issue have been conducted (e.g. Barik 1971; Wilss 1978; Kirchoff 2002; Bartłomiejczyk 2006, to name just a few). These strategies are both intentional and goal-oriented procedures that are employed to solve certain problems stemming from the limitations of the processing capacity of interpreters or the gaps in their knowledge. Strategies can also be employed to facilitate tasks of interpreters and

prevent the occurrence of potential problems (Kalina 1992; Gile 1995; Bartłomiejczyk 2006: 152; Liontou 2011; Xiangdong 2013: 106). Consequently, the appropriate implementation of strategies results in overcoming the capacity limitations and taking advantage of available processing capacity (Riccardi 2005: 758). As a result, the intentional and automatic use of some strategies (from the total number of over 30 found in the literature; Xiangdong 2013: 109) contributes to the reduction in the cognitive load thus facilitating the interpreting process. Obviously, students need to be informed that the very same strategy may be given a different name by different researchers. To illustrate, the omission strategy understood here as a non-interpreted message resulting from, for instance, memory failure and considered either as a mistake or a technique that may be implemented in extremely difficult conditions in the case of cognitive overload is also termed message abandonment (Bialystok 1990: 39), skipping (Al-Salman and Al-Khanji 2002) or ellipsis, depending on the researcher.

Among the most common strategies, the following are found in SI (Bartłomiejczyk 2006; cf. Xiangdong 2013):

- compression (interpreting delivered in a concise manner with no repetitive or redundant information);
- omission (abandonment of certain messages that are not interpreted at all);
- morpho-syntactic transformation (providing the meaning of the original message with the use of different syntactic constructions);
- calque (word-for-word interpreting);
- substitution (invention of the message to avoid, e.g., unfinished sentences);
- addition (extra information provided by an interpreter for better understanding of the TT);
- approximation (providing a near equivalent term in the TT in the absence of the correct term);
- repair (self-correction employed to correct previous misinterpreting);
- no repair (conscious choice not to make repairs as they could result in poorer interpreting);

- inference (recovery of the lost information either based on context or the general knowledge of an interpreter);
- reconstructing (different positioning of the information by an interpreter);
- delaying response (providing generic utterances in order to cover long pauses in the output).

The above-discussed phenomena constitute the basis for both theoretical and practical aspects of SI irrespective of a scientific area or field (e.g. technical, legal or medical).

### 1.2. Years 4 and 5 (Four Semesters)

Once students have been familiarised with the theoretical framework and strategies related to SI, the next stage of their training should include preparation in terms of medical SI. In the very beginning, different types of competence are briefly discussed, including strategic competence, transfer competence and extra-linguistic competence consisting of specialist knowledge, which is of great significance for medical interpreting.

At this stage students are also made aware of the significance and responsibility of medical interpreting and its further consequences related to patient wellbeing. Medical interpreting unlike any other field is directly related to human health and therefore any mistake in interpretation may have (literally) fatal consequences. This, however, should not discourage students from the process of interpreting.

Students should be encouraged to familiarise themselves with medical texts at home, firstly in Polish and then in English. They can start from texts addressed to the general public and then proceed to more scientifically-related texts in both languages. It would be most beneficial if the texts in both languages were similar in terms of the subject matter (parallel texts), which could facilitate not only memorising some words, phrases or even collocations but also contribute to the broadening of the knowledge related to particular medical issues.

In terms of directionality, interpreting is performed from and to B language. However, it should be borne in mind that in real circumstances (e.g. at conference settings) medical simultaneous interpreters usually interpret to English. There is a relatively smaller demand for interpreting from English (to Polish, for instance) since the majority of doctors are at least passively familiarised with the English language and the medically-related terms from their speciality. Consequently, problems are usually related to the output in English.

After the presentation of the subject matter scheduled for interpreting in the following week, students are (strongly) advised to do some research at home on this particular issue. Then, the subject is introduced by the teacher followed by a brief discussion with students (in case of any ambiguity). At this point the role of the teacher is to provide adequate explanation of unknown terms and strategies for learning with the continuous encouragement of learner autonomy (cf. González Davies, Scott-Tennent and Rodríguez Torras 2001).

The main criterion in the selection of medical STs is the authenticity of the material. Obviously, initial texts for medical interpreting may be prepared specifically for the purpose of the interpreter training (e.g. abridged versions of the original texts and lectures), but not artificially since such preparation might result in a distortion of the subject matter. Consequently, at the initial stage STs should contain a lower amount of specialised terminology and refer to less complex medical issues. Seeber (2015: 85) postulates that speed and density of STs should not be considered as separate components but as one item since 'discourse with low lexical density presented at a high speaking rate can be perceived as slow [and] discourse with high lexical density presented at a low speaking rate can be perceived as fast'.

Speed is, in fact, a factor that may be particularly challenging in medical interpreting. In practice, the average number of 100–120 wpm given by Seleskovitch (1978) or Lederer (1981) as the ideal speaking rate for SI may be considerably exceeded in the real settings. At some medical conferences, however, speaking rates have been found to considerably exceed



170 wpm and to reach almost 205 words wpm, which obviously may result in a substantial incidence of mistakes. This, however, most often occurs when certain information and data are read by the speakers. Consequently, in the classroom settings such a high rate does not seem to be attainable at the level of novice interpreters. Obviously, students must be informed that higher speed is the product of practice and experience.

The first two months (8 classes) are dedicated to the explanation of the medically-related issues (mainly pathologies and normal and abnormal conditions). These include the following 6 main domains:

- structures of medical words derived from Latin and Greek (i.e., processes of word-formation with particular attention paid to prefixation and suffixation);
- pronunciation of medical terms;
- differences between British and American English;
- medical abbreviations and acronyms;
- medical eponymy, synonymy and antonymy;
- medical register (lay terms versus specialised terms) (cf. Wakabayashi 1996).

The above components are essential in understanding medical issues. Attention should also be paid to sub-medical terminology defined by Brunt (1987) as neither highly specialised nor highly colloquial, which is normally adopted by patients during patient–doctor conversations and by physicians if they wish to be properly understood by their patients.

Florczak (2013) proposes a number of very useful exercises that can be successfully implemented during SI classes. Despite the fact that the efficiency of these exercises has not undergone any scientific analysis nor has it been confirmed empirically, they seem to be of great benefit to future interpreters as they cover a large spectrum of possibilities for future use (different types of exercises such as selective listening, single output, gap filling or sentence completion). Additionally, exercises proposed by Bartłomiejczyk (2015) are equally useful and constitute a source of a very rich material not only for SI but also for the consecutive mode.

Another factor to be considered in the teaching process is related to the selection of appropriate material. Internal medicine offers a broad spectrum of different STs and therefore seems the most appropriate field at the initial stage. Later on, other medical specialties should be introduced. These might include blocks such as neurologic and psychiatric disorders, endocrine and metabolic disorders or epidemiology and public health issues, since multidisciplinary studies are currently common in medicine too. Consequently, students may be provided with the tasks that can pose the greatest challenge to interpreters due to their overlapping with different medical specialties. In this respect oncology, genetics and radiology (including imaging studies) would be examples par excellence.

The selection of medical specialties cannot be random. It should be done in accordance with the level of difficulty and the curriculum at medical universities. Obviously, time limitation (4 semesters) may be the main obstacle in extending the number of specialties for interpreting since such a period of time does not allow for the inclusion of even a quarter of all medical specialties that formally exist in Poland (over 40). On the other hand, many of the specialties are partially incorporated due to the overlap (paediatric oncology is linked to paediatrics, immunology and genetics).

## 2. TEACHER'S ROLE AND THE QUALITY CRITERIA IN SI

The role of the teacher cannot be overestimated in the process of interpreter training. Conducting classes at a highly professional level is a prerequisite. Ideally, teaching medical interpreting should be conducted by a person having some medical background or at least extensively familiarised with medical issues, which is particularly significant in the case of medically-related questions posed by students themselves and connected with the materials provided for SI.

Additionally, among other significant features connected with this role, the following should be considered: appropriate methods of teaching, time management, proper selection of materials for particular classes

and, last but not least, personal involvement of the teacher in conducting the classes (cf. Karwacka-Campo 2008: 224). Ideally, teachers conducting classes in SI should be interpreters themselves. This would be beneficial due to the possibility of performing the analysis from two different perspectives: of a person who evaluates the simultaneous process and of an active interpreter, thus making the teacher more credible in the eyes of students as he follows the 'practise what you teach' procedure.

Aside from the above considerations, the teacher should also pay special attention to the stress factor, which is one of non-cognitive components of interpreter aptitude as distinguished by Chabasse (2009). Stress factors were discussed in detail by Korpál (2016). Various sources of stress can be observed starting from inadequate memory, apprehension due to inexperience, fear of misunderstanding the ST, of being misunderstood or being assessed (negatively) either by colleagues or by the teacher (Stoica 2008: 205). If stress occurs, certain methods of its decrease should be introduced. The physiological stress-related symptoms (increased heart rate and blood pressure or elevated cortisol level) may have a tremendously negative impact on the performance of SI. Therefore, certain stress-coping strategies should be discussed with students and implemented in the teaching process. Among these strategies, Korpál (2016: 310–311) distinguishes, e.g., isolation and focus on task as well as a supporting interpreter in a booth or sufficient rest. Additionally, to decrease tension and stress, classes should start with easier tasks or even jokes (as proposed by Stoica 2008: 205).

In the process of SI training, special attention should also be paid to the notion of student assessment using the quality criteria. No consensus has been reached yet as to how the quality in the field of interpreting should be defined (Tymoszuk 2016: 98). It is particularly difficult due to a number of different variables and perspectives involved in SI and a uniform definition of interpreting quality may even be impossible to find. The assessment must consider many variables, such as for whom, how and under what circumstances quality is investigated (Zwischenberger 2010: 128). Zwischenberger uses 11 output-related quality criteria for SI that are grouped in 3 main domains: content-related, form-related and delivery-related.

Content-related criteria include sense consistency with the original, logical cohesion and completeness; form-related criteria consist of correct terminology, correct grammar and appropriate style; finally, delivery-related criteria include fluency of delivery, proper intonation, pleasant voice, synchronicity and native accent (Zwischenberger 2010). The results of a survey conducted by Kopczyński (1994) among Polish users of interpreting services revealed that they considered detailed content and terminological precision to be the two top priorities and wrong terminology to be the most important irritant.

In the case of medical SI, correct terminology and completeness are of great importance or even the top priority, whereas proper intonation, pleasant voice, synchronicity, though important, are less significant. The assessment of interpreting is a complex process and hence the related decisions must be of both qualitative and quantitative nature (Kościałkowska-Okońska 2015: 308). Furthermore, interpreting is not a homogenous process, partly due to the different circumstances in which it takes place and the parties involved (mid- and high-level medical personnel, patient–doctor relationship). Therefore, the above elements must be considered during the course of interpreting and included in student evaluation.

The teacher's role may be viewed in terms of providing formative and summative assessment (Kościałkowska-Okońska 2015 after Sawyer 2004: 6). The aim of the former is to monitor student learning within certain time framework and provide ongoing feedback in order to improve student learning by means of the identification of student's strengths and weaknesses as well as certain target areas which require improvement. The goal of summative assessment is, in turn, to evaluate student's overall learning process at the end of a learning period (e.g. semester), which allows to provide a summary of the final achievements and a verification of the target(s). Special attention should be paid to the familiarity not only with words or terms but also the appropriate medical register. The quality criteria should be provided with details because their ever-increasing number may, in fact, result in a never-ending process of criteria formation (Kościałkowska-Okońska 2015).

It would be most optimal to assess student interpreting in two manners. Firstly, the assessment should be conducted by the teacher followed by a feedback from classmates. These two opinions (not necessarily coinciding) should be then confronted to provide the final feedback to a student. Kościałkowska-Okońska (2015: 308) stresses the importance of individualisation of the assessment model with the adopted key criteria.

The significance of the quality criteria varies depending on the setting of SI – conferences, seminars, lectures or workshops. The quality standards related to SI must always be evaluated in relation to a particular type of professional task. Therefore, quality should not be perceived ‘as an intrinsic feature but as a time-, context-, and culture-bound social construct which is continuously (re)negotiated’ (Zwischenberger 2010: 128).

### 3. COURSE LIMITATIONS

Due to the limited time-span (6 semesters), the number of hours may seem insufficient to fully grasp SI. No special post-course questionnaire has been distributed to the students of the University of Silesia (English Department) to assess *their* needs and *their* expectations related to such training. With student feedback, other components could be introduced to the course in the following academic years. The questionnaire is planned to be prepared and distributed among all students at the end of their course as the component of studies related to their expectations and satisfaction.

### CONCLUSIONS

Simultaneous interpretation is considered the most challenging type of interpreting. Furthermore, the field of medicine and its specialised terminology may account for the insufficient number of medical interpreters in the Polish market. Scepticism among students related to the falsely perceived lack of transparency of medical terms might be overcome by

providing them with a clear and tailor-made course of interpreting that covers medical terminology and essential strategies in SI. Such actions could reduce students' uncertainty related to the process of medical SI.

The course in medical interpreting at the University of Silesia is still in progress. It should be further developed and modified to meet the needs of the market as well as the needs of students. The increasing demand for medical (simultaneous) interpreting is one of the reasons that may encourage both students and teachers to conduct similar courses. The fact that some of the students did become medical translators or interpreters shows some promise for such courses. Special attention therefore should be paid to student training in terms of medical background and strategies ensuring successful interpreting.

#### References

- Al-Salman, S. and Al-Khanji, R. (2002). The Native Language Factor in Simultaneous Interpretation in an Arabic/English Context. *Meta*, 47(4), pp. 607–626.
- Barik, H. (1971). A Description of Various Types of Omissions, Additions and Errors Encountered in Simultaneous Interpretation. *Meta*, 15(1), pp. 199–210.
- Bartłomiejczyk, M. (2006). Strategies of Simultaneous Interpreting and Directionality. *Interpreting*, 8(2), pp. 149–174.
- Bartłomiejczyk, M. (2015). Wprowadzenie tłumaczenia symultanicznego. In: *Dydaktyka tłumaczenia ustnego*, eds. A. Chmiel and P. Janikowski. Katowice: Stowarzyszenie Inicjatyw Wydawniczych, pp. 207–226.
- Bialystok, E. (1990). *Communication Strategies: A Psychological Analysis of Second Language Use*. London: Blackwell.
- Bowen, D. and Bowen, M. (1984). *Steps to Consecutive Interpretation*. Washington: Pen and Booth.
- Brunt, R. (1987). 'My Waterworks are Playing me up Something Chronic': The Description of the English of Medicine and Some Didactic Implications. In: *Perspectives on Language in Performance*, eds. W. Lörcher and R. Schulze. Tübingen: Gunter Narr, pp. 434–440.
- Chabasse, C. (2009). *Gibt es eine Begabung für das Simultandolmetschen?: Erstellung eines Dolmetscheignungstests mit Schwerpunkt Simultandolmetschen*. Berlin: SAXA Verlag.

- Daró, V. and Fabbro, F. (1994). Verbal Memory During Simultaneous Interpretation: Effects of Phonological Interference. *Applied Linguistics*, 15(4), pp. 365–381.
- Dejéan Le Féal, K. (1997). Simultaneous Interpretation with ‘Training Wheels’. *Meta*, 42(4), pp. 616–621.
- Dejéan Le Féal, K. (1998). Non nova, sed nove. *The Interpreters’ Newsletter*, 8, pp. 41–49.
- Florczak, J. (2013). *Thumaczenia symultaniczne i konsekwentne. Teoria i praktyka*. Warszawa: Wydawnictwo C.H. Beck.
- Gaiba, F. (1998). *The Origins of Simultaneous Interpretation: The Nuremberg Trial*. Ottawa: University of Ottawa Press.
- Gile, D. (1995). *Basic Concepts and Models for Interpreter and Translator Training*. Amsterdam – Philadelphia: John Benjamins Publishing.
- Gillies, A. (2004). *Conference Interpreting: A New Students’ Companion. Thumaczenie ustne. Nowy poradnik dla studentów*. Kraków: Tertium.
- González Davies, M., Scott-Tennent, Ch. and Rodríguez Torras, F. (2001). Training in the Application of Translation Strategies for Undergraduate Scientific Translation Students. *Meta*, 46(4), pp. 737–744.
- Jones, R. (1998). *Conference Interpreting Explained*. Manchester: St Jerome.
- Kalina, S. (1992). Discourse Processing and Interpreting Strategies: An Approach to the Teaching of Interpreting. In: *Teaching Translation and Interpreting: Training, Talent and Experience*, eds. C. Dollerup and A. Loddegaard. Amsterdam – Philadelphia: John Benjamins, pp. 251–257.
- Karwacka-Campo, D. (2008). Trudności w nauczaniu specjalistycznego języka włoskiego. In: *Nowe perspektywy dydaktyki języków obcych*, ed. M. Jodłowiec. Kraków: Tertium, pp. 219–224.
- Kirchhoff, H. (2002). Simultaneous Interpreting: Interdependence of Variables in the Interpreting Process, Interpreting Models and Interpreting Strategies. In: *The Interpreting Studies Reader*, eds. F. Pöchhacker and M. Schlesinger. London – New York: Routledge, pp. 112–130.
- Kopczyński, A. (1994). Quality in Conference Interpreting: Some Pragmatic Problems. In: *Bridging the Gap: Empirical Research in Simultaneous Interpretation*, eds. S. Lambert and B. Moser-Mercer. Amsterdam – Philadelphia: John Benjamins, pp. 87–99.
- Korpala, P. (2016). Interpreting as a Stressful Activity: Physiological Measures of Stress in Simultaneous Interpreting. *Poznań Studies in Contemporary Linguistics*, 52(2), pp. 297–316.

- Kościałkowska-Okońska, E. (2015). Ocenianie. In: *Dydaktyka tłumaczenia ustnego*, eds. A. Chmiel and P. Janikowski. Katowice: Stowarzyszenie Inicjatyw Wydawniczych, pp. 289–310.
- Lederer, M. (1981). *La traduction simultanée. Expérience et théorie*. Paris-Caen: Minard Lettres Modernes.
- Liontou, K. (2011). Strategies in German-to-Greek Simultaneous Interpreting: A Corpus-Based Approach. *Gramma*, 19, pp. 37–56.
- Plusa, P. (2007). *Rozwijanie kompetencji przekładu i kształcenie tłumaczy*. Katowice: Wydawnictwo Uniwersytetu Śląskiego.
- Riccardi, A. (2005). On the Evolution of Interpreting Strategies in Simultaneous Interpreting. *Meta*, 50(2), pp. 753–767.
- Sawyer, D. (2004). *Fundamental Aspects of Interpreter Education: Curriculum and Assessment*. Amsterdam – Philadelphia: John Benjamins.
- Seeber, K. (2015). Simultaneous Interpreting. In: *The Routledge Handbook of Interpreting*, eds. H. Mikkelsen and R. Jourdenais. New York: Routledge, pp. 79–95.
- Seleskovitch, D. (1978). *Interpreting for International Conferences: Problems of Language and Communication*. Washington: Pen & Booth.
- Setton, R. (1999). *Simultaneous Interpretation: A Cognitive-Pragmatic Analysis*. Amsterdam – Philadelphia: John Benjamins Publishing.
- Stoica, A.-M. (2008). Teaching Simultaneous and Consecutive Interpretation: Techniques and Methods. *Language and Literature – European Landmarks of Identity*, 4(2), pp. 202–206.
- Tommola, J., Laine, M., Sunnari, M. and Rinne, J. (2000/2001). Images of Shadowing and Interpreting. *Interpreting*, 5(2), pp. 147–167.
- Tymoszuik, K. (2016). *Przetwarzanie tekstu w tłumaczeniu symultanicznym*. Lublin: Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej.
- Wakabayashi, J. (1996). Teaching Medical Translation. *Meta*, 41(3), pp. 356–365.
- Wilss, W. (1978). Syntactic Anticipation in German-English Simultaneous Interpreting. In: *Language, Interpretation and Communication*, eds. D. Gerver and W. Sinaiko. New York: Plenum, pp. 343–352.
- Xiangdong, L. (2013). Are Interpreting Strategies Teachable? Correlating Trainees' Strategy Use with Trainers' Training in the Consecutive Interpreting Classroom. *The Interpreters' Newsletter*, 18, pp. 105–128.
- Zwischenberger, C. (2010). Quality Criteria in Simultaneous Interpreting: An International vs. a National View. *The Interpreters' Newsletter*, 15, pp. 127–142.



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# MEDICAL TRANSLATION TRAINING: FROM A TRANSLATION STUDENT TO A MEDICAL TRANSLATION PROFESSIONAL

## INTRODUCTION

Medical translators need a broad range of skills to perform their task and produce a quality target text. Prescriptive and descriptive texts on medical translation provide some insight into the expectations which medical translators need to meet or, for that matter, what competences and tools a medical translator or interpreter needs and is expected to have acquired (O'Neil 1998; Reeves-Ellington 1998; Kassatkina 2005; Fischbach 2007; IMIA 2009). These include a good command of terminology, good command of the source and the target language, possibly linguistic or medical background\*, and – finally – the ability to produce high quality, accurate and understandable translation in which the target language is used in a natural manner.

This paper presents a medical translation course outline which reflects the generic diversity within the medical discourse and addresses the field-specific problems. The course is also skills-oriented and consistent with the PACTE\*\* (2003; 2005; 2008) model of translator sub-competences.

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\* The dispute over the medical qualifications of medical translators is discussed in several papers (e.g. O'Neil 1998) or in IMIA (2009) guidelines for translators.

\*\* *Procés d'Adquisició de la Competència Traductora i Avaluació.*

## 1. MEDICAL TRANSLATOR COMPETENCE

The range of competences which are desired in medical translation are, in fact, wider and can be mapped onto the PACTE (2003; 2005; 2008) model of translator sub-competences which covers the bilingual, extralinguistic, strategic and instrumental sub-competence, as well as knowledge about translation and psycho-physiological components. Table 1 presents a number of essential sub-competences in medical translation, such as proficiency in specialised medical language in a given language pair, background medical knowledge, compliance with appropriate standards and conventions, use of medical databases, repositories of texts, dictionaries, CAT tools, skilfulness in applying translation procedures etc.

Table 1. Medical translator sub-competences based on the PACTE model of translator sub-competences (PACTE 2003; 2005; 2008; Karwacka 2012)

Sub-competence (PACTE)	Description (PACTE)	Medical translation sub-competence
Bilingual sub-competence	procedural knowledge required to communicate in two languages	specialised medical language (S/T), including terms, acronyms; registers; doublets of lay and professional terms; controlled terminologies and classification
Extra-linguistic sub-competence	declarative; general world knowledge, domain-specific knowledge, bicultural etc.	background medical knowledge, bicultural competence: culture-specific concepts relevant to medical translation
Knowledge about translation	declarative knowledge of translation function and aspects of the profession	standards, conventions, procedures relevant to medical translation
Instrumental sub-competence	procedural; use of resources, information and communication technologies	use of medical databases, repositories of texts, dictionaries, CAT tools etc.

Sub-competence (PACTE)	Description (PACTE)	Medical translation sub-competence
Strategic sub-competence	procedural; ability to identify translation problems and apply procedures to solve them	apply translation procedures appropriately
Psycho-physiological components	memory, perception, attention, intellectual curiosity, perseverance, rigour, creativity, logical reasoning, analysis and synthesis, etc.	decision-making, thoroughness, honesty, punctuality etc.

Those expectations, however, do not seem to be reflected in the reality of the medical translation market. The analysis of a corpus of 30 texts and their translations revealed recurring problems in the following areas: incorrect use of multiword terms, problems with adequate use of BME (basic medical English) and FME (fundamental medical English) (cf. Salager-Meyer 1983), problems in managing polysemy, inadequate use of EBM (evidence-based medicine) language, insufficient readability (Karwacka 2016). Another analysis was conducted with the use of keylogged translation (Translog) and a retrospective interview with 15 participants. It indicated the following problem areas: recognising multiword terms, BME and FME use, polysemy, inadequately managing implied information in medical texts (Karwacka 2013). Similar observations are made by Walkiewicz and Kościółkowska-Okońska, other contributors to this volume, who analyse medical files in translation and Polish versions of PILs. That means that there is still room for improvement in the area of medical translator training.

## 2. MEDICAL TRANSLATOR TRAINING

The medical translation training programme presented in this paper was originally designed in 2008 (Karwacka 2012). The programme has been evolving since to address the needs of translation students more adequately and to accurately reflect the reality of the medical translation market.

The programme was originally based on the generic diversity of medical translation discourse, which seems to be the most justified approach (cf. Keresztes 2013). As students gained more expertise and confidence, they progressed to more complex and more specialised texts. Consequently, we started with texts designed for lay recipients and later worked with texts written by medical professionals for medical professionals. The programme is still genre-based – the introductory course covers the following texts: brochure, ICF, package insert, product characteristics, case history, discharge summary, imaging reports and scientific articles. The advanced course focuses on the expert–expert communication and – in the revised version of the course – mastering medical terminology. One of the new features of the course (introduced in 2016) is a glossary project, in which students collaborate as a group to compile a bilingual glossary of medical terms they encountered in translation assignments. The glossary is developed and verified by the whole group and the course supervisor. As a result, the students develop a tool they can use and expand later in their individual careers as medical translators.

I have recently asked course participants for feedback and information on the most challenging aspects of medical translation. The results indicate that a large part of students (or graduates) find the following tasks most useful: terminology exercises (66% respondents consider them very useful) and tasks focusing on practicing isolated translation problems (93% respondents consider them very useful) such as avoiding calques. That is why the focus on those two aspects has been an important factor in revising the course\*. What is more, most respond-

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\* The respondents were asked to mark how useful they consider the following task types (not useful, fairly useful, very useful): terminology exercises, translating texts

ents indicated that they struggle most with badly written and ambiguous texts (60% of respondent indicated that such tasks are difficult or very difficult) and with producing target texts which are *both* accurate and natural in terms of target language use (40% of respondents indicated that it is difficult or very difficult). That is why post-editing tasks are recommended in the course. They also indicated that terminology research and finding reliable sources was challenging (40% of respondent indicated that it is difficult or very difficult)\*. The full revised programme is presented in Table 2 with examples of tasks. The programme is genre-based and skills-oriented, and it is consistent with the PACTE model of translator sub-competences.

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at home and discussing them in class, timed translation of short excerpts in class, reviewing a peer's translation, watching videos or presentations on medical facts, practising how to solve specific translation problems, e.g. avoiding calques, enhancing readability.

\* The respondents were asked to indicate how difficult they find the following aspects of medical translation on the scale from 1 (easy) to 5 (very difficult): dealing with concepts and disciplines I do not know/understand, terminology research and finding reliable sources, adjusting style and register to the conventions applicable to a given text type, making sure that a text is translated accurately *and* sounds natural in the target language, dealing with ambiguous and badly-written texts, managing to submit assignments on time.

Table 2. Medical translation training course outline

Stage	Description/ Course contents	Examples of tasks	Focus on skills and sub-competences
Introduction	<p>characteristics of medical texts</p> <p>purpose of medical translation</p> <p>confidentiality in medical translation</p> <p>introduction to medical language</p> <p>translation strategies</p> <p>translation tools</p>	<p>group project: a report on the medical translation market – text types, problems, purpose and function of translation in the medical community</p> <p>Greek and Latin prefixes, suffixes and roots – analysis and exercises</p> <p>medical terminology – exercises</p> <p>analysis of translated texts: how do translators solve problems? What could be improved? Are the text translated accurately and do they sound natural in the target language?</p> <p>pairwork/groupwork: translating short excerpts of simple medical texts, discussing possible solutions to translation problems</p>	<p>medical English – mastering basic terminology, affixation</p> <p>knowing text types in medical translation</p> <p>identifying valuable resources for information-mining and fact checking</p> <p>awareness of standards, norms and conventions in medical translation</p> <p>knowledge of medical translation procedures and the field-specific jargon</p> <p>adequate use of translation shifts, avoiding calque, avoiding unjustified and unintended adaptation and paraphrase</p>

Stage	Description/ Course contents	Examples of tasks	Focus on skills and sub-competences
Patient–medical professional communication	<p>patient information form, brochure (informative texts for laypersons)</p> <p>informed consent form (ICF)</p> <p>patient information leaflet (PIL)</p>	<p>collecting a portfolio of sample consent forms</p> <p>discussion: recipient needs in the communication in healthcare settings</p> <p>terminology exercises: practicing the use of lay vs. professional terms (term doublets)</p> <p>translation of ICF excerpts</p> <p>readability tests</p> <p>pairwork: reviewing each other's translation for adapting texts to the recipient's needs and the target culture</p>	<p>mastering specialised and lay vocabulary</p> <p>expectations in medical translation for lay recipients</p> <p>expanding the students' command of registers in expert-lay communication</p> <p>information mining</p> <p>coherence and cohesion</p> <p>cultural concepts</p>

Stage	Description/ Course contents	Examples of tasks	Focus on skills and sub-competences
Expert–expert communication in the medical community	<p>drug registration – product characteristics and PIL</p> <p>medical files – discharge summary</p> <p>imaging test reports</p> <p>scientific papers</p>	<p>comparison of English and Polish PILs against product characteristics – critical analysis</p> <p>group project: research into drug registration process – find out what has to be done and what text types need to be translated</p> <p>translation of excerpts from pharmaceutical/drug registration texts</p> <p>translating names of institutions</p> <p>translating excerpts from discharge summaries</p> <p>pairwork: editing a partner's translation of a discharge summary</p> <p>translating excerpts from scientific articles</p>	<p>medical language – institutional terminology and jargon</p> <p>text types and functions</p> <p>intertextuality in medical translation</p> <p>developing language skills: terminology (systems approach, with particular focus on polysemic terms, anatomical orientation, eponymy)</p> <p>grammatical shifts in translation</p> <p>medical classifications and controlled terminologies</p> <p>information mining and fact-checking</p> <p>using adequate strategies to produce a publishable rendition of a research paper</p> <p>focus on medical background knowledge</p>



Stage	Description/ Course contents	Examples of tasks	Focus on skills and sub-competences
Quality management	quality management in medical translation (assurance, assessment, verification, translation, review, proofreading)	pairwork: editing a partner's translation of a scientific paper groupwork: find out what quality assurance models are applied in medical translation groupwork: translation project simulation of a medical translation project, where a project manager assigns roles and tasks: <ul style="list-style-type: none"> <li>- translation</li> <li>- review</li> <li>- proofreading</li> </ul> (consider backtranslation or parallel translation)	mastering medical language knowledge of norms and standards instrumental sub-competence psychophysiological sub-competence

## Examples of tasks

### Task 1. Terminology, translating texts for lay recipients\*

- a) Fill in the gaps.
- b) Translate the underlined fragments into Polish.
- c) What are these diseases called in Polish?
  - multiple sclerosis
  - diabetes
  - rheumatoid arthritis
  - myasthenia gravis

\_\_\_\_\_ means protection from disease and especially infectious disease. Cells and molecules involved in such protection constitute the \_\_\_\_\_ and the response to introduction of a foreign agent is known as the \_\_\_\_\_. Not all immune responses protect from disease; some foreign agents, such as the \_\_\_\_\_ found in house dust \_\_\_\_\_, cat dander or grass \_\_\_\_\_, cause disease as a consequence of inducing an immune response. Likewise some individuals mount immune responses to their own tissues as if they were foreign agents. Thus, the immune response can cause the \_\_\_\_\_ diseases common to man such as multiple sclerosis, diabetes, rheumatoid arthritis or myasthenia gravis. Most individuals do not suffer from such diseases because they have \_\_\_\_\_ towards their own (self) tissues.

immune system

pollen

tolerance

immune response

mite

allergens

immunity

autoimmune

developed

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\* Adapted from: (CPA 2009).

**Task 2. Terminology, translating texts for lay recipients\***

- a) Arrange the stages of the immune response in the correct order.

Some of the dead bacteria or their breakdown products are taken up by the tissue resident dendritic cells. The combined action of bacterial products and cytokines (from acute inflammation etc.) activate the tissue dendritic cells. This causes them to migrate to the local lymph node via lymph vessels.

You receive a cut.

Dendritic cells enter the node and display their 'wares'. T cells enter the node from the blood. Those which recognise the bacterial antigenic peptides displayed on the dendritic cells stop, activate, divide and differentiate; some later become memory T cells.

Bacteria enter the wound. Many are destroyed rapidly by complement and the phagocytes recruited through acute inflammation (innate immunity).

- b) Translate the final text into Polish.

**Task 3. Terminology, translating texts for expert recipients\*\***

- a) Look at these two texts. What is their type and function?  
b) Can you find pairs of equivalents in text A and B?  
c) Translate text A into Polish.  
d) Translate text B into English.

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\* Adapted from: (MLT 2008).

\*\* Adapted from: (WP abcZdrowie).

*Source Text A EN (sample)*

The left upper lobe 1.3 centimetre lung mass is moderately hypermetabolic with SUV value of 4.4. Malignant by PET criteria. There are 2 to 3 pre-vascular lymph nodes, which show increased fluorodeoxyglucose uptake. The larger pre-vascular lymph node does not show increased fluorodeoxyglucose uptake. There is no suggestion of left hilar adenopathy. Neck, abdomen and pelvis show physiologic fluorodeoxyglucose metabolism. The left kidney is atrophic. There are a few right renal cysts. Osseous uptake is unremarkable.

*Source Text B PL (sample)*

Fizjologiczny, symetryczny wychwyty 18F-FDG w korze mózgowej. KLATKA PIERSIOWA: Fizjologiczny wychwyty 18F-FDG. Węzły chłonne niepowiększone, nieaktywne metabolicznie. Płuca wolne od zmian ogniskowych. JAMA BRZUSZNA: Fizjologiczny wychwyty 18F-FDG. Śledziona niepowiększona o wym. 109x52 mm bez ognisk wzmożonego wychwyty 18F-FDG. Pojedyncze węzły chłonne po lewej stronie aorty brzusznej poniżej naczyń nerkowych o wym. do 12 mm bez wychwyty 18F-FDG.

## Useful resources

*Medical Translation Step by Step. Learning by Drafting* – a coursebook by Vicent Montalt Resurrecció and Maria Gonzáles Davies.

*Medical Terminology: Language for Healthcare* – a coursebook by Nina Thierer, Deborah Nelson, Judy K. Ward and La Tanya Young.

*Medical Terminology: A Body Systems Approach* – a coursebook by Barbara A. Gyls and Mary Ellen Wedding.

European Medicines Agency website: <https://www.ema.europa.eu/>.

SNOMED International's SNOMED CT browser: <http://browser.ihtsdotools.org>.

ICD browser: <http://apps.who.int/classifications/icd10/browse/2016/en>.

ICNP browser: <http://www.old.icn.ch/what-we-do/ICNP-Browser/>.

Human Anatomy and Disease in Interactive 3D: <https://human.biodigital.com/>.

## CONCLUSIONS

Medical translation is undoubtedly a diverse and complex field of translation. Thanks to increasing interest in medical translator competence and training, the task of preparing non-medical students to manage medical texts is feasible. The medical translation genre-based and skills-oriented course presented in this paper is designed to gradually introduce translation students into the field of medical translation. The first stage of the course involves dealing with texts written by medical professionals for patients – lay recipients. Since non-medical students also belong to that category, this stage has a few aims, including offering basic elements of medical translation and medical language and preparing students to gradually gain expertise in the field as they progress through the course. The next stage involves translating texts written by medical professionals for medical professionals: a variety of text types which pose a variety of translation problems. Finally, the last stage is in fact a brief introduction to quality assurance in medical translation. This approach seems to be an efficient pathway to gaining expertise in medical translation.

## References

- CPA. (2009). The Immune System: Organs and Cells. *Clinical Pediatric Asthma*. Available at: <https://pediatricasthma.wordpress.com/2009/05/24/the-immune-system-organs-and-cells/> (accessed 23 November 2018).
- Fischbach, H. (2007). Interview with Henry Fischbach by Cristina Márquez Arroyo. *Panacea*, 8(25), pp. 69–76. Available at: [http://medtrad.org/panacea/IndiceGeneral/n25\\_semblanzas-marquez.pdf](http://medtrad.org/panacea/IndiceGeneral/n25_semblanzas-marquez.pdf) (accessed 12 July 2018).
- IMIA. (2009). *Guide on Medical Translation*. International Medical Interpreters Association. Available at: <http://www.imiaweb.org/uploads/pages/438.pdf> (accessed 11 August 2018).
- Jensen, M.N. and Zethsen, K.K. (2012). Translation of Patient Information Leaflets: Trained Translators and Pharmacists-Cum-Translators: A Comparison. In: *Translation and Knowledge Mediation in Medical and Health Settings (Linguistica Antverpiensia New Series – Themes in Translation Studies, 11)*, eds. V. Montalt-Resurrecció and M. Shuttleworth. Brussels: *Academic & Scientific Publishers*, pp. 31–50.

- Karwacka, W. (2012). Rola przekładu w świecie medycyny. Kształcenie tłumaczy tekstów medycznych. In: *Rola tłumacza i przekładu w epoce wielokulturowości i globalizacji (Studia o Przekładzie, 34)*, ed. P. Wilczek and M. Ganczar. Katowice: "Śląsk" Wydawnictwo Naukowe – Stowarzyszenie Inicjatyw Wydawniczych.
- Karwacka, W. (2013). Constructing Translation Research with the Use of Key-stroke Logging: A Case Study. *Forum Filologiczne Ateneum*, 1(1), pp. 93–111.
- Karwacka, W. (2016). *Przekład tekstów medycznych. Normy, standardy i problemy*. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego.
- Kassatkina, I. (2005). Avoiding Linguistic Landmines: Translating Informed Consent Forms Accurately. *Journal of Clinical Research Best Practices*, 1(10). Available at: [http://firstclinical.com/journal/2005/0510\\_Translation.pdf](http://firstclinical.com/journal/2005/0510_Translation.pdf) (accessed 15 July 2018).
- Keresztes, C. (2013). Genre-Based Teaching of Medical Translation. *JAHHR*, 4(7), pp. 535–543.
- MLT. (2008). A VERY Simplified Overview of an Immune Response. *Medical Lab Technology*. Available at: <http://medlabsc.blogspot.com/2008/09/very-simplified-overview-of-immune.html> (accessed 23 November 2018).
- Montalt Resurrecció, V. and González Davies, M. (2007). *Medical Translation Step by Step*. Manchester – Kinderhook: St. Jerome Publishing.
- O'Neil, M. (1998). Who Makes a Better Translator: The Medically Knowledgeable Linguist or the Linguistically Knowledgeable Medical Professional? A Physician's Perspective. In: *Translation and Medicine*, ed. H. Fischbach. Amsterdam – Philadelphia: Benjamins.
- PACTE. (2003). Building a Translation Competence Model. In: *Triangulating Translation: Perspectives in Process Oriented Research*, ed. F. Alves. Amsterdam – Philadelphia, John Benjamins, pp. 43–66.
- PACTE. (2005). Investigating Translation Competence: Conceptual and Methodological Issues. *Meta*, 50(2), pp. 609–619.
- PACTE. (2008). First Results of a Translation Competence Experiment: 'Knowledge of Translation' and 'Efficacy of the Translation Process'. In: *Translator and Interpreter Training: Issues, Methods and Debates*, ed. J. Kearns. New York: Continuum.
- Reeves-Ellington, B. (1998). The Pragmatics of Medical Translation: A Strategy for Cooperative Advantage. In: *Translation and Medicine*, ed. H. Fischbach. Amsterdam – Philadelphia: Benjamins, pp. 105–116.
- Salager-Meyer, F. (1983). The Lexis of Fundamental Medical English: Classificatory Framework and Rhetorical Function (A Statistical Approach). *Reading in a Foreign Language*, 1(1), pp. 54–64.
- WP abcZdrowie. (n.d.). Zdrowie i zdrowy styl życia. Available at: <https://portal.abczdrowie.pl> (accessed 7 January 2019).

# ABSTRACTS

## Various Aspects of Medical English Terminology

Bożena Dżuganová

Terminology is a linguistic discipline which studies, analyses and describes a specialised area of the lexicon. Medical terminology is one of the oldest specialised 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 two completely different phenomena can generally be observed: (1) a precisely worked-out and internationally standardised anatomical nomenclature and (2) a quickly developing non-standardised terminology of individual clinical branches, characterised by a certain terminological chaos. The internationally standardised medical terminology has 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, morphological, and didactic aspects.

Keywords: English medical terminology, etymology, morphology, synonymy, polysemy

## Terminology Mapping: CSIOZ Recommendation, ICNP® and SNOMED CT

Barbara Librowska, Paulina Szydłowska-Pawlak,  
Małgorzata Greber, Dorota Kilańska

The aim of the project was to map the nursing history card included in the Recommendation of the Council for e-Health in Nursing at the Centre for Healthcare Information Systems on the International Classification of Nursing Practice

ICNP® reference terminology. Our aim was to implement the ICNP® version as the standard of electronic health records.

Keywords: ICNP®, SNOMED, terminology mapping, nursing terminology

### **Collocations, Equivalence and Untranslatability as Selected Critical Aspects in Medical Translation**

**Arkadiusz Badziński**

Medical translation requires not only familiarity with medical language but also a thorough knowledge of the source and target texts, which are the initial prerequisites. Other critical aspects are also involved, of which collocations, equivalence and untranslatability form a triad that is of great importance and significantly affects the quality of the translation process of specialised medical texts. The notion of collocations is a universal linguistic phenomenon – no language is devoid of collocations which are an outstanding feature of any (specialised) language and should thus be of particular interest to translators. The aim of the paper is to discuss the above concepts bearing in mind that poor translation not only distorts the comprehension of medical aspects but also prevents further dissemination of medical knowledge.

Keywords: collocations, equivalence, untranslatability, medical translation

### **Translation of Medical Texts from Discourse Perspective**

**Barbara Walkiewicz**

The aim of this paper is to present medical text translation from the discourse perspective. An analysis was performed on four French translations of a hospital discharge summary from the point of view of strategies and techniques used by translators so as to extend the relationship between the first-level speaker and addressee to the second-level addressee, while preserving both the first-level discourse functions (informative) and second-level discourse functions (representational and communicative). The results of the analyses show little awareness of discourse implications of translation, which led to the interpretations and translations of texts that could be characterised as flat, devoid of awareness of the role that particular verbal structures play in the three dimensions of the subject-situational context. Most of the translates did not achieve analogous



relationships between first- and second-level subjects. Neither was the object of the discourse, verbalised at the internal-circuit level, rendered according to the scenario designed for target medical communication. The authors of the translations demonstrated low discourse competence, which produced unjustified traces of interventions of the translator as the second-level communicating subject, which led to imitation of surface features of the first-level internal circuit, and, consequently, to a serious deficiency of communicative efficacy in the second-level circuit.

Keywords: discourse, translation, medical texts, hospital discharge summary

**Relevance of Formal and Cultural Variations in Text Genres  
for Medical Translation: Medical Brochures, Web Pages of Hospitals,  
Patient Information Leaflets and Informed Consents**

**Goretti Faya-Ornia**

Text genres present fixed features (particularly in the medical environment) which make the target readers recognise and identify that particular genre. These features may, however, vary among cultures. Translators should know the features of the text genres they have to translate and be aware of the variations of that genre in the cultures involved, so that their target texts can comply with target readers' expectations. This work briefly comments on the variations occurring in different medical text genres: medical brochures, web pages of hospitals, patient information leaflets and informed consents. The contrastive analyses are performed mainly between the British and the Spanish culture and language, as these are the author's working languages. However, in the case of medical brochures and web pages of hospitals, the cultures of America and Germany are also briefly commented on.

Keywords: formal variations, cultural variations, variations in text genres, changes in text genres, medical translation, medical brochures, web pages of hospitals, patient information leaflets, informed consents, contrastive analysis

### **Translating Patient Information Leaflets: Expectations of Users and the Reality**

**Ewa Kościalkowska-Okońska**

The primary purpose of the language of medical texts is communication, both at the scientific (doctor–specialist or expert–expert communication) and universal level (e.g. doctor–patient communication). Due to the diversity of texts and various groups of end-users, the translator of medical texts has to find an effective way to communicate with text receivers, to consider their needs, requirements and expectations. The purpose of this article is to analyse the language used in medicinal information materials (Patient Information Leaflets) targeted at patients, with special emphasis placed on the differences that result from the needs and expectations of the users.

**Keywords:** text communication, medical language, translation of medical texts, translator, users

### **Teaching Medical Simultaneous Interpreting: From Theory to Practice**

**Arkadiusz Badziński**

Medicine is developing at an enormous pace, which entails the need for translation and interpretation of the most recent discoveries in this field. Consequently, medical simultaneous interpreting is used at conferences, meetings or workshops and is often conducted by interpreters who are not physicians by profession. Therefore, in order to provide top quality interpreting, students from translation departments should be properly educated. The aim of the paper is to present a system of student training with attention paid to simultaneous interpreting and medical nomenclature to meet the demand of the market in the ever-changing medical settings. The role of the teacher and the quality criteria are also discussed in the process of teaching medical simultaneous interpreting. The proposed system includes theoretical background and practical issues. It also shows some implications for further studies on the education of medical interpreters.

**Keywords:** medical simultaneous interpreting, teaching simultaneous interpreting, student interpreting training

### **Medical Translation Training: From a Translation Student to a Medical Translation Professional**

**Wioleta Karwacka**

The medical translation genre-based and skills-oriented course presented in this paper is designed to gradually introduce translation students into the field of medical translation. The first stage of the course involves dealing with texts written by medical professionals for patients – lay recipients. Since non-medical students also belong to that category, this stage has a few aims, including offering basic elements of medical translation and medical language and preparing students to gradually gain expertise in the field as they progress through the course. The next stage involves translating texts written by medical professionals for medical professionals: a variety of text types which pose a variety of translation problems. Finally, the last stage is a brief introduction to quality assurance in medical translation. This approach seems to be an efficient pathway to gaining expertise in medical translation.

**Keywords:** medical translation, medical translator, medical translator competence, medical translator training

