

## **METONYMY IN ENGLISH MEDICAL TERMINOLOGY**

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### **Problem definition and its association with scientific and practical tasks.**

The word-stock of language is an open and continually changing phenomenon and its units constantly acquire new meanings. The same holds true for professional lexicon, and medical terminology makes no exception. Development of science and technology over the last century stimulated the emergence of new branches in clinical medicine, the invention of new diagnostic devices and methods, as well as the discovery of new diseases. It is only natural that the appearance of new phenomena suggests the formation of new terms. Generally speaking, vocabulary spreads in several possible ways: 1) morphological way (compounding, derivation, etc.); 2) syntactic way (forming collocations and word combinations); 3) linguistic borrowing from other languages; 4) semantic way (metaphoric and metonymic transfer of the previous meaning) [9]. It is common knowledge that most anatomical and clinical terms used in medicine today are Latin or Latinized Greek words, the origin of which can be traced back to the 5th century BC [9]. However, metonymic transfer of the previous meaning also holds a prominent place in the process of medical terminology development.

**Analysis of recent research papers on the subject.** Currently, numerous research works have raised the question of metonymical processes in language and in terminologies in particular [1; 2; 3; 4; 7; 8; 10]. However, the metonymical shift of meanings in English medical terminology has not yet been the subject of special analysis which constitutes the scientific novelty of research. The study of metonymical transposition in medicine is important for standardization and unification of medical terminology which renders the research relevant.

**The aim of the article.** The study of term-formation mechanisms is an essential part of mastering a foreign language at higher medical educational

establishments; it expands expertise and professional outlook of future doctors. Metonymy reveals the cognitive algorithms of term-formation and thus promotes better understanding of terminological units and facilitates their memorizing. Therefore, the aim of the research is to analyze the basic categories of medical terms created by metonymical transfer, as well as to determine the functions of metonymy in medical discourse.

**The principal data of the study.** Secondary nomination is one of the ways of term-formation [6]. It implies the use of already available linguistic units in performing new nominative functions. The linguistic sign (term) is the result of secondary nomination in terminology [5]. Metonymy is the type of secondary nomination which often becomes the means of naming new medical concepts. Metonymy is the transfer of names based on the adjacency of objects or phenomena, their contiguity, involvement in a situation where the two phenomena are in some way related to each other [13]. The pioneers of cognitive linguistics George Lakoff and Mark Johnson argue that “like metaphors, metonymic concepts structure not just our language but our thoughts, attitudes, and actions <...> And, like metaphoric concepts, metonymic concepts are grounded in our experience” [13].

First of all, it is necessary to determine the function of metonymy in medical discourse. Notwithstanding the fact that when compared to metaphor, metonymy is less widespread in medicine, this trope still holds an important place within the framework of medical discourse. As a matter of fact, the researchers contend that the principal role of metonymy consists in the formation of polysemy – i.e., terminological ambiguity, by which a term has multiple meanings [10]. Lexical polysemy can be defined as the ability of a single word to refer to different objects and phenomena of reality [10]. Let us consider a few examples of polysemy in medicine:

*treat* – 1) “to care for or deal with medically or surgically” (“to *treat* a disease”); 2) “to act upon with some agent, especially to improve or alter” (“adhesive patches, *treated* with a number of common allergic chemicals”);

*medicine* – 1) “the science and art dealing with the maintenance of health and the prevention, alleviation, or cure of disease” (“*Medicine* has existed for thousands of years, during most of which it was an art”); 2) “a substance or preparation used in treating disease” (“*medicines* are classified into various groups on the basis of pharmacological properties”).

Thus, one can easily observe that polysemy is a linguistic process at work in specialized languages, and medical terminology is no exception. The undesirability of polysemy in terminology is somewhat exaggerated, since the term is not usually used out of context which always eliminates the ambiguous interpretation. Polysemous terms are indicative of the linguistic resources saving and productive use of existing units. That is to say, the polysemy of terms is a manifestation of the natural laws of a language.

As a matter of fact, polysemy is rooted in the metonymical transfer of meanings [10]. D. Lotte was the first to develop the theory of metonymy in terminology [2]. The researcher identified several types of such transfer depending on the category of concepts, involved in the transposition: “the property or process – the quantitative indicator”; “the subject – the unit of measurement”; “the property – the subject”; “the process – the condition”; “the property – the subject”; “the material – the product”; “the whole – the part” [2]. Indeed, metonymy is a productive source of terminological polysemy. Let us consider the polysemous term “inflammation” which can refer to a physiological function, a condition, a process or an area of an organ, depending on the context. These different meanings can be detected in the following contextual situations: “Inflammation segregates external agents”; “The inflammation has a diameter of 5 cm”; “The inflammation has changed its shape”; “The inflammation evolved during three weeks”; “The inflammation is severe” [10].

As one can easily observe, the main feature of polysemous lexeme “inflammation” is that its multiple meanings are systematically interrelated. As a matter of fact, the categories of the related senses for “inflammation” form a restricted set: the process and the outcome. Another example of polysemy in medicine is the word “neoplasm” which activates the concept of abnormal structure

and the concept of neoplastic process (that necessarily produces an abnormal structure) [10]. As a matter of fact, such polysemy is based on the metonymical transposition “the process – the product of this process”. In other words, polysemy is largely based on metonymical transpositions of meanings. Hence, the text-producing potential of metonymy cannot be overemphasized.

George Lakoff and Mark Johnson assert that “metonymic concepts are part of the ordinary, everyday way we think and act as well as talk <...> Just like metaphors, metonymies are not random or arbitrary occurrences, to be treated as isolated instances. Metonymic concepts are systematic in the same way that metaphoric concepts are” [13]. As a matter of fact, the researchers contend that metonymy possesses a significant internal coherence: “the grounding of metonymic concepts is in general more obvious than is the case with metaphoric concepts, since it usually involves direct physical or causal associations” [13]. Thus, the systematic nature of metonymy in medicine can be revealed by means of detecting the principal models of metonymical transposition.

The corpus of analyzed terminological units enables us to determine a well-shaped set of transposition models used for metonymical transfer in English medical discourse. The examined terminological material displays the following transposition models:

1) **the process – the subject:** *anesthesia* – “total or partial loss of sensation” (“The patient was given an injection to induce anesthesia”) [14] and “a drug, administered for medical or surgical purposes, that induces partial or total loss of sensation and may be topical, local, regional, or general, depending on the method of administration and area of the body affected” (“Patients were given local anesthesia preceding biopsy”; “During surgery, the anesthesia specialist also will continue to give anesthesia to keep you free of pain”) [14].

2) **the subject – the process:** *mask* – “gauze bandage on the nose and mouth to protect against infection” (“Adult face mask for inhalational induction in a child with maxillofacial injury”) [14] / “cosmetic procedure” (“Effects of a cellulose mask synthesized by a bacterium on facial skin characteristics and user satisfaction”) [14];

*bath* – “a container filled with water, or the washing of something in water or other liquid” / “immersion of body or its parts in water or other medium for therapeutic purposes”; “treatment with air or sun” (“medicinal baths modify the pain intensity, improve well-being and sleep”) [14].

3) **the process – the result of the process:** *aggravation* – “action of aggravating” (“Aggravation of relapsing polychondritis due to the infection and its manifestation on a nasal tip graft”) [14] / “stage of the disease” (“Seizure aggravation – evidence that oxcarbazepine requires monitoring”) [14]; *intoxication* – “action of poisoning” (“First step in intoxication process: molecules cross membranes and get into the blood circulation”) [14] / “a painful condition caused by the action of toxic substances in the body” (“Probing the modulation of acute ethanol intoxication by pharmacological manipulation of the NMDAR glycine coagonist site”) [14].

4) **the process – the surgery:** *amputation*: “the loss of a limb, etc. through trauma”/ “surgical removal of all or part of a limb, etc.” (“The role of amputation as an outcome measure in cellular therapy for critical limb ischemia: implications for clinical trial design”) [14].

5) **the process – the quantitative indicator:** *inhale* – “filling the lungs with air during breathing” (“During periods of respiratory distress, a greater number of inhales may be needed to deliver an adequate dose to the distal airways”) [14] / “the first phase of the respiratory process” (“From a treatment planning perspective, end-of-inhale (EOI) phase might be preferred”) [14]; *swallowing* – “one-time movement of the muscles of the throat when swallowing” (“Adaptation of swallowing hyo-laryngeal kinematics is distinct in oral vs. pharyngeal sensory processing”) [14] / “volume of one swallowing movement” (“Clinical measurement of swallowing in health and in neurogenic dysphagia”) [14].

6) **the material – the subject:** *bolus* – “sort of clay which was formerly used for manufacturing pills” / “a large pill”; “the administration of a drug, medication or other substance in the form of a single, large dose” (“Successful alteplase bolus administration for a presumed massive pulmonary embolism during cardiopulmonary resuscitation”) [14].

7) **the organ – the part of the organ:** *sacrum* – “lower back” (“Imaging features of primary and secondary malignant tumours of the sacrum”) [14] / “a triangular-shaped bone at the bottom of the spine” (“Anteriorly displaced transverse fractures of the sacrum in adolescents”) [14].

8) **the method – the means:** *rinse* – “the act by which something is rinsed” (“You are encouraged to rinse your mouth right after using an asthma inhaler”) [14] / “solution, infusion or decoction for rinsing” (“Can carbohydrate mouth rinse improve performance during exercise?”; “Oral antimicrobial rinse to reduce mycobacterial culture contamination among tuberculosis suspects in Uganda”) [14].

9) **the means – the sign of disease:** *neologism* – “new words, phrases, idioms” / “in psychiatry: a pathological word formation” (“The use of words that have meaning only to the person who uses them (neologism) is considered normal in children, but in adults it can be a symptom of psychopathy or a thought disorder, indicative of a psychotic mental illness, such as schizophrenia”) [14].

10) **the property – the quantitative indicator:** *morbidity* – “a tendency of being morbid” (“Lumbar puncture, if improperly performed, may be followed by a significant morbidity”) [14] / “the rate of disease or proportion of diseased persons in a given locality, nation, etc.” (“Food allergy and increased asthma morbidity in a school-based inner-city asthma study”) [14].

11) **the quantitative indicator – the disease:** *insufficiency* – “fewer than required” (“Food insufficiency among HIV-infected crack-cocaine users in Atlanta and Miami”) [14] / “organ dysfunction, which does not provide physiological needs” (“Pancreatic exocrine insufficiency represents a condition related to pancreatic and extrapancreatic disease”) [14].

12) **the condition – the quantitative indicator:** *maturity* – “a state of organism which reached its full development” (“Neonatal morbidity after documented fetal lung maturity in late preterm and early term infants”) [14] / “high degree of development and perfection” (“Differentiating between hospitals according to the “maturity” of quality improvement systems: a new classification scheme in a sample of European hospitals”) [14];

13) **the disease – the consequence of the disease:** *Polish plait* – “A medical condition resulting from deficient hair care in which the uncombed hair becomes irreversibly entangled” (“Polish plait is an uncommon condition that occurs due to sudden and complete matting of scalp hair leading to the formation of elongated stiff mass of hair that looks similar to dreadlocks”) [14] / “a matted mass of hair” (“A 54-yr-old woman, on azathioprine for interstitial lung disease, developed pancytopenia and presented with sudden onset of extensive hair loss from the scalp followed overnight by appearance of elongated broad mass of uncombable matted hair which had the typical appearance of Polish plait”) [14].

Metonymy may also trigger the formation of terminological word-combinations, consisting of the basic name and the specifier, which indicates the location, attributes or a person involved to the emergence of this realia. In some cases, the mechanisms of metaphorization and metonymization are closely interrelated. For instance, the following lexical units are formed on the basis of both metonymization and metaphorization: *spring conjunctivitis* – “a recurrent, bilateral, and self-limiting inflammation of conjunctiva, having a periodic seasonal incidence”; *river blindness* – “a disease caused by infection with the parasitic worm *Onchocerca volvulus* which lives near rivers”; *Mongolian spots* – “dark-bluish or mulberry-colored spots on the lower back, observed in newborn infants, most commonly in Asians”; *tropical sprue* (“a disorder that occurs in warmer climates, often associated with enteric infection and nutritional deficiency”).

For terminological word-combinations in medicine, the following metonymical transpositions are relevant:

1) **the organ – the organ deformation:** *Naegele pelvis* (“the obliquely ovate pelvis, for the first time observed by Franz Karl Naegele in 1803”). Yet another example of this model is *Wildermuth’s auricle* (“an ear in which the antihelix is large and the helix bent downward, described for the first time by German neurologist Hermann A. Wildermuth”).

2) **the organ – the disease:** *Madura foot* (“a chronic infection involving the subcutaneous tissue, skin and contiguous bone”) stems from the name of Indian city

Madura where the disease was first described by British physicians in 1846. Another example of this metonymical transposition is the term *tennis elbow* (“severe pain in the elbow joint”) which spread after it was first described in 1882 by Dr. Morris upon the case study of a tennis player.

**Research findings and challenges in the examined area.** Metonymical nomination in terminology occurs on the basis of associative links through contiguity and interdependence, when two objects belong to the same group of phenomena, the concepts of the same order, related by temporal, spatial, or causal connections. Metonymy has been investigated as a factor in the formation and development of English medical terminology. It has been determined that metonymical transfer is an effective mechanism of medical term-formation which plays an important role in enhancing medical lexicon. Metonymical transfer has a significant text-producing potential of forming one-word and multi-word terms in medicine. The most productive models of metonymical transpositions in medical discourse have been determined and analyzed: “the process – the subject”; “the process – the result of the process”; “the material – the subject” and so on. Furthermore, one can observe metonymical transpositions which are specific for medical discourse: “the process – the surgery”; “the organ – the part of the organ”; “the disease – the consequence of the disease”; “the organ – the disease”; “the organ – the organ deformation”, etc.

The study of metonymical transpositions in medical terminology makes it possible to structure the terms motivated by metonymy, distinguish the models of metonymical nomination, as well as to find out the specific features of nomination of new concepts in medicine. The performed research reveals the fact that metonymical units can be found at different levels of medical discourse: they signify physiological phenomena, pathological processes and methods of treatment. The study has shown that metonymy is primarily a mechanism of regular polysemy in medical discourse. The productive functioning of metonymy in medicine demonstrates that medical discourse is an open system which is subject to natural lexical and semantic processes of the English language.



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## **Реферат**

### **МЕТОНІМІЯ В АНГЛІЙСЬКІЙ МЕДИЧНІЙ ТЕРМІНОЛОГІЇ**

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**Ключові слова:** *метонімія, термін, термінотворення, полісемія, медичний дискурс.*

*У статті розглянуто механізми метонімічної транспозиції в англійській медичній термінології. Матеріал дослідження – корпус наукових статей, внесених до електронної бази даних медичних публікацій “PubMed”. Метонімія передбачає зіставлення предметів за ознакою суміжності, за умови певних часових, просторових, причинно-наслідкових зв'язків між явищами. Проаналізовано основні категорії медичних термінів, сформованих на основі метонімічного зрушення значень. Визначено основні функції та текстотвірний потенціал метонімії у медичному дискурсі. Розглянуто основні контекстуальні ситуації, у межах яких функціонують метонімізовані термінологічні одиниці. У результаті дослідження виявлено, що внаслідок метонімічного зрушення*

*відбувається поява нових значень медичних термінів – термінологічна полісемія. Поряд із загальноживними моделями метонімічної транспозиції (“the process – the subject”; “the process – the result of the process”; “the material – the subject” і т.д.) в англомовному медичному дискурсі функціонують специфічні моделі, характерні лише для медичної термінології: “the process – the surgery”; “the organ – the part of the organ”; “the disease – the consequence of the disease”; “the organ – the disease”; “the organ – the organ deformation”.*

## **Реферат**

### **МЕТОНИМИЯ В АНГЛИЙСКОЙ МЕДИЦИНСКОЙ ТЕРМИНОЛОГИИ**

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**Ключевые слова:** *метонимия, термин, терминообразование, полисемия, медицинский дискурс.*

*В статье рассмотрены механизмы метонимической транспозиции в английской медицинской терминологии. Материал исследования – корпус научных статей, внесенных в электронную базу данных медицинских публикаций “PubMed”. Метонимия предполагает сопоставление предметов по признаку смежности, при наличии определенных временных, пространственных, причинно-следственных связей между явлениями. Проанализированы основные категории медицинских терминов, сформированных на основе метонимического сдвига значений. Определены основные функции и текстообразующий потенциал метонимии в медицинском дискурсе. Рассмотрены основные контекстуальные ситуации, в рамках которых функционируют метонимизованные терминологические единицы. Исследование показало, что в результате метонимического сдвига возникают новые значения медицинских терминов – терминологическая полисемия. Наряду с общеиспользуемыми моделями метонимической транспозиции (“the process – the subject”; “the process – the result of the process”; “the material – the*

*subject” и т.д.) в англоязычном медицинском дискурсе функционируют специфические модели, характерные исключительно для медицинской терминологии: “the process – the surgery”; “the organ – the part of the organ”; “the disease – the consequence of the disease”; “the organ – the disease”; “the organ – the organ deformation”.*

## **Summary**

### **METONYMY IN ENGLISH MEDICAL TERMINOLOGY**

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**Keywords:** *metonymy, term, term-formation, polysemy, medical discourse.*

*The article considers the mechanisms of metonymical transposition in English medical terminology. Material of the research is the corpus of scholarly articles listed in the electronic database of medical publications “PubMed”. Metonymy involves the comparison of subjects on the basis of their contiguity, presence of certain time, spatial or causal relationships. The basic categories of medical terms created by metonymical transfer of meanings have been analyzed. The functions and text-producing potential of metonymy in medical discourse have been determined. The main contextual situations within which the metonymized terminological units function have been considered. The study has found that metonymical transposition results in the emergence of multiple meanings of medical terms – terminological polysemy. Medical terminology displays several productive models of metonymical transfer: “the process – the subject”; “the process – the result of the process”; “the material – the subject” and so on. Along with common cases of metonymical transposition, specific models, characteristic only of medical terminology are observed: “the process – the surgery”; “the organ – the part of the organ”; “the disease – the consequence of the disease”; “the organ – the disease”; “the organ – the organ deformation”.*