Author’s response to reviews

Title: THE USE OF LATIN TERMINOLOGY IN MEDICAL CASE REPORTS: QUANTITATIVE, STRUCTURAL AND THEMATIC ANALYSIS

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Author’s response to reviews:

We would like to express our deep appreciation to the Reviewers for providing valuable and seminal observations and recommendations.

The responses to the Reviewers' comments (by number) are as follows:

Reviewer #1:
1. - Background should be orientated about the relevance of the article (lines 32-34; 47-73):

Approximately 95% of English terms are borrowed from or created on the basis of Latin and latinized Greek [4]. Therefore, the English medical terminology cannot be “reasonably mastered without the knowledge of basic Latin” [5].

Within the framework of medical discourse, virtually all genres are largely based on Latin and latinized Greek terminology. Every medical research is built on the principles of ab ovo (“from the very beginning”, literary “from the egg”), ab incunabulis (literary “from the cradle”) and ad fontes (“back to the sources”), which provide the intergenerational continuity of medical science. Indeed, all areas of theoretical and practical medicine (biology, anatomy, physiology, pathology, pharmacology, clinical sciences etc.) and nomenclature corpora (taxonomy, International Non-proprietary Names, etc.) are deeply rooted in the ancient nominative traditions. In this context, Latin occupies the firmest position in the anatomical vocabulary. Studies in Latin and Latin translations from Ancient Greek [6] “were the foundation of scientific thinking that was born in the boards of first universities” and still “remain relevant in the current official anatomical terminology” [7]. De humani corporis fabrica libri septem (“On the Fabric of the Human Body in Seven Books”, 1543) by Andreas Vesalius not only contributed to the formation of anatomy as a separate academic subject [8], but also contained the data of pharmacological interest, for
example, the mention of digitalis, which is still used to treat heart failure. Pathology ranks second to the prevalence of Latin terminology: apart from Latin terms, clinical medicine displays more intensive expressions of national languages [5].

Hence, it is natural that both original research (primary articles) and review articles (literature reviews, systematic reviews, and meta-analyses) extensively use Latin terms. Within the structure of primary research literature, it is also necessary to distinguish such an important genre as medical case report (MCR). In fact, MCRs are of interest due to the fact that this genre presents a detailed report of diseases, the symptoms and their localization, management and prognosis. That is to say, each MCR represents and integrates several medical domains and activities (description of anatomical structures and physiological conditions, laboratory studies and experiments, diagnosis and treatment, etc.) at the same time. Therefore, it is relevant to determine to what extent the Latin terms are spread and how they are used in the contemporary MCRs as exemplified by Journal of Medical Case Reports. In such a way, this research will provide medical professionals with appropriate terminological arsenal to be ready to deal with the genre of MCRs.

2. -What is the relevance of Latin terms in methods of studies and experiments, or anatomy description? (lines 278-298):

In our opinion, Latin terminology is well preserved in the names for methods of studies and experiments, because it is neutral (favoring no particular national language), constant and internationally accepted. Furthermore, it is necessary to observe that this group of terms is dominated by two-word expressions, which enable the authors to render their message accurately and concisely.

One cannot overestimate the role of Latin in anatomical nomenclature, “whose international version remains Latin in the full extent” [5]. Among the advantages of Latin in anatomy, one should mention terminological continuity and constancy [5], which date back to early human history. In fact, the first anatomical descriptions were written by Hippocrates, Aristotle and Galen, and subsequently improved by Vesalius, Fabricius and Harvey [22]. For instance, the names of muscles have not changed since their introduction by Vesalius in 1543 [23]. Thus, Latin anatomical terminology provides a rich and well-established stock of vocabulary which releases modern researchers from the necessity of “reinventing the wheel”.

Moreover, it is highly important to use Latin correctly. Indeed, the use of correct Latin terms reflects the author’s excellence and scholarly accomplishments. It is also essential for “the rigor, stability, and universality of the nomenclature” [24]. The problems of correct use of Latin terms in medical research have repeatedly attracted scholars’ attention. For instance, P.E. Neumann has extensively studied these issues in anatomy [24; 25; 26; 27; 28]. It is necessary to instruct students as to the potential spelling errors which may occur when using Latin terminology, for
example, in the subject-verb agreement in number or when pluralizing such terms as septum, dorsum, labium, etc.

3. - What is the relevance of include latin terms in "indications to treatment"? (lines 304-307):

Latin terms in the names for indication to treatment (such as PRN – pro re nata, t.i.d. – ter in die, etc.) are widely used in the modern clinical settings all over the world. This is due to the fact that these terms are over-national, stable and internationally understood. Furthermore, such terms are effective and concise tools of conveying the author’s message as quickly as possible.

4. - Why latin terms are so relevant in "Academic language"? (lines 308-320):

Latin has a unique status as the fundamental principle of scientific style and academic language. Mastering the basics of Latin has survived from ancient times as a continuous tradition and an effective means of capturing, reflecting and disseminating the scholarly knowledge. In fact, such scientific genres as thesis, monograph, article, report, polemic presentation, and textbook were written in Latin until as late as the 19th century. Unlike many ancient languages which are now forgotten, Latin became the language of science with a clearly focused international communicative status, particularly in medicine, and “went far beyond the territory occupied by its speakers in ancient times” [8]. Throughout the history of mankind, Latin performed the epistemological function and served as a means of “accumulation, reception, transmission and popularization of achievements in various areas of medical science” [8]. Nowadays, the use of Latin academic expressions is a strong tradition in the scholarly communities. In other words, Latin maintains the position of lingua franca among educated people, regardless of their nationality. Besides this respect for tradition, these terms enable authors to express succinctly and laconically.

5. - Why latin terms are so relevant in "pathological conditions"? Why still we use eponyms? (lines 321-335):

The pathophysiology nomenclature is rooted in the ancient Greek tradition, which subsequently underwent latinization. For instance, such terms as “arthritis”, “carcinoma”, “cholera”, “emphysema”, “erythema”, “herpes”, “kyphosis”, “nephritis”, “pleuritis”, “typhus” and many others were first described in Corpus Hippocraticum (the 5th–4th centuries BC) and are still used today. Among the names for pathological conditions, one should also mention eponyms, such as facies Hippocratica, succussio Hippocratis, unguis Hippocraticus etc., which are also internationally used and understood. In our opinion, such eponymic terms disclose the evolution of medical research and practice; provide continuity of scientific knowledge and contribute to the
formation of terminological competence of medical students [29]. Furthermore, eponyms “bring colour to medicine, embed medical traditions and culture to our history” [30]. Thus, Latin clinical terminology is the result of centuries-old history of world medicine development, which provides a neutral ground for medical professionals from different countries. Moreover, Latin and latinized Greek are the productive tools for coining new terms. For instance, the term “appendicitis” was used for the first time in 1886 in American Journal of Medical Science. Hence, the ability of building new compound words also indicates the viability of this terminological corpus.

6. - What is the relevance of one/two/three words Latin terms (lines 349-365):

One can observe that the undeniable advantage of one-word Latin terms, as in the example with mane, is their conciseness, which is essential for MCRs as a genre [32]. Likewise, two-word Latin terms, such as in vitro, ex vitro, in vivo, ex vivo, in situ, etc., and abbreviations enable the transfer of maximum amount of necessary information using the minimum linguistic tools.

In modern MCRs, three-word Latin terms, e.g., abductor digiti minimi, levator palpebrae superioris, etc., are largely represented by anatomical notions. This feature results from the well-developed system of anatomical terminology which was meticulously arranged and organized by the ancient Romans. Hence, it is essential for medical professionals to be aware of correct forms of nominative plurals, genitive singular and plural, Latin adjectives, etc., in order to avoid misspelling in medical writing.

The use of “hybrid” (English-Latin) word phrases in MCRs indicates that Latin and English in the modern medical terminology reside in a state of natural symbiosis. We strongly agree with E. Marecková et al. [5] that on the one hand, Latin has found its “continuation” in English and thus managed to retain “its unique standing” and, on the other hand, the spread of English medical terminology all over the world was largely facilitated by its Latin origins.

7. - More references from Pubmed, Scopus, Google Scholar on the topic were completed (increased from 19 to 43 positions).

8. - An additional table list of challenging Latin terms has been added (lines 300-302).
Reviewer #2:

1) The implementation plan in discussion has been elaborated (lines 418-444):

The results of this research will be integrated in the curriculum of Ukrainian Medical Stomatological Academy with the aim of improving the writing proficiency among undergraduate students. The implementation plan comprises the following steps:

I. Curriculum planning and design:

(1) Defining the curriculum objectives, instructional strategies;

(2) Identifying the stakeholders;

(3) Analyzing the students’ needs and staff resources;

(4) Reviewing the existing curricula and available instruction resources;

(5) Developing and expanding the co-curricular resources: re-edition of educational literature, developed by the authors of this paper: Latin-Ukrainian Thesaurus of Clinical Terms [9], English for Professional Use: Dentistry [39], with additional units and sections on Latin terms and expressions which are used in MCRs most frequently; publication of Medical English for Academic and Teaching Purposes (by Lysanets Yu., Bieliaieva O., Melaschenko M.: currently in press), focused on improving the writing skills in MCRs and development of teaching staff;

(6) Align the submodule with the existing curricula of academic subjects “Latin and Medical Terminology” and “English for Specific Purposes” which Ukrainian students learn during the 1st and 2nd years of study.

II. Project management:

(1) Integrating the results of the research with the existing curriculum in Ukraine through adding an extracurricular submodule on “Latin for Academic Purposes” to medical training course;

(2) Monitoring the project: analyzing short, mid-term and end-of-year outcomes (collecting samples of student writing to measure progress);

(3) Quality control by questionnaire surveys of students;

(4) Reviewing the results and troubleshooting;

(5) Evaluating and communicating the results with the stakeholders.
III. Incorporating best practices: developing the comprehensive National Guidelines for using Latin in MCRs for further dissemination.

2) As to the tendencies of current replacement of Latin by English (lines 366-383; 395-409):

Several studies [5; 6; 8] addressed the issue of replacement of Latin by English. It is our opinion that, despite the spread of the English language nowadays, Latin firmly maintains its important and relevant position in the modern world. First of all, Latin is unbound in terms of territory: it possesses a unique status of a globally neutral vehicle of medical communication, and thus its use gives respect to other national languages. It should be remembered that the official languages of the United Nations are the six languages, used for written documents and meetings of the UN. In other words, Latin terms are not only international, but even “supra-national”. Latin terminology is unambiguous, laconic, concise and easy in pronunciation. Furthermore, the knowledge of Latin etymologies promotes correct English spelling and understanding of medical terminology. Moreover, through studying Latin, a person gains an understanding of the mechanisms and structure of any other language [33]. In addition, for representatives of Slavic nations, Latin virtually becomes a key to Western civilization, since it is incorporated in most European languages. Hence, by means of learning Latin, English medical terminology becomes transparent and understandable for the Slavs. It should be noted that most of Latin and latinized Greek terms have been used for over 2000 years. As a result, the use of Latin provides the intellectual and terminological continuity of Western medicine that is rooted in the ancient times. It is also necessary to bear in mind that the original of Magna Charta Universitatum Europaeum (1986) was written in Latin to celebrate and encourage the deepest values of European University traditions.

Recent researches [34] focused on the relevance of Latin in the modern curricula at universities. E. Marecková et al. refer to the Neo-Latin adage “Invia est in medicina via sine lingua Latina” (“The way without Latin is impassable in medicine”) [5], and advocate the need for teaching Latin terminology at medical faculties. The scholars contend that it is essential to provide students “with a functional instruction on precise and linguistically correct usage of the terminological apparatus” [5]. K. Rein (2004) conducted survey among students in Estonia. In fact, more than a half of respondents answered that Latin continues to maintain its position “as the international language of medicine” [34]. S.B. Smith et al. [35] provided the scientific evidence that students’ awareness of Greek and Latin etymologies improves academic performance when learning medical terminology. T.D. Turmezei [36] asserts that understanding the anatomical etymologies enhances the training process and reinforces memorizing. Likewise, S. Stephens and B.J. Moxham [37] contend that medical students should acquire basic understanding of and “have some formal or informal instruction in classical Greek and Latin”, as
they pertain to medical terminologies. In our previous research [31; 38] we also observed that
instruction in medical terminology promotes the development of core competencies of a future
doctor.