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THE PROBLEM OF TRANSLATING MEDICAL ABBREVIATIONS ACROSS DIFFERENT LANGUAGES

Abstract: *medical translation is a highly specialized field where precision is a matter of life and health. Among the most challenging elements are acronyms and abbreviations. These short forms save time and space in clinical documentation but often become serious obstacles in cross-language communication. This article reveals the following key problems in translating medical abbreviations: multiple meanings of a single abbreviated form, variability in spelling, the danger of illegible handwriting, sound-based acronyms and pseudo-blends that can be mistaken for another word or medical term, terminological shifts between languages where a full term or a different structure replaces the English acronym, inversion of word order in Romance languages that changes the sequence of letters in the acronym, as well as dialectal differences within the same language that require separate adaptation.*

Keywords: *medical abbreviations, translation problems, multiple meanings, terminological shifts, Roman languages.*

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ПРОБЛЕМА ПЕРЕВОДА МЕДИЦИНСКИХ АББРЕВИАТУР С ОДНОГО ЯЗЫКА НА ДРУГОЙ

***Аннотация:** медицинский перевод – это узкоспециализированная область, в которой точность является вопросом жизни и здоровья. К числу наиболее сложных элементов относятся акронимы и аббревиатуры. Эти краткие формы экономят время и место в клинической документации, но нередко становятся серьёзным препятствием в межъязыковой коммуникации. Одна и та же аббревиатура может иметь несколько значений; её написание может варьироваться; рукописный текст может быть неверно истолкован; и даже когда значение ясно, в языке перевода может использоваться совершенно другой акроним или не использоваться никакого акронима вообще.*

В статье раскрываются следующие ключевые проблемы перевода медицинских аббревиатур: многозначность одной сокращённой формы, вариативность написания, опасность неразборчивого почерка, звуковые акронимы и псевдослияния, которые могут быть ошибочно приняты за другое слово или медицинский термин, терминологические сдвиги между языками, при которых полный термин или иная структура заменяет английский акроним, инверсия порядка слов в романских языках, меняющая последовательность букв в акрониме, а также диалектные различия в пределах одного языка, требующие отдельной адаптации.

***Ключевые слова:** медицинские аббревиатуры, акронимы, проблемы перевода, многозначность, ошибочная интерпретация рукописного текста, звуковые акронимы, терминологические сдвиги, инверсия, романские языки, британский и американский варианты английского языка, графические сокращения, лексические сокращения, синтаксические сокращения, транслитерация,*

транскрипция, межъязыковая коммуникация, медицинская терминология, безопасность пациентов, проблемы перевода.

1. Introduction.

Medical abbreviations serve as indispensable shorthand in clinical practice, enabling healthcare professionals to communicate complex information with speed and efficiency. Yet this very economy of language conceals a web of ambiguities that poses serious risks—particularly when medical texts cross linguistic boundaries. A single string of letters may carry multiple, unrelated meanings; the same concept may appear in varying typographical forms; and handwritten notes can transform routine prescriptions into dangerous puzzles. These challenges are compounded dramatically in translation, where sound-based acronyms, structural inversions in Romance languages, and divergent terminology between British and American English introduce additional layers of complexity.

2. The Core Problems of Medical Abbreviations.

Medical abbreviations are deeply embedded in clinical communication, yet their very design – compressing complex concepts into brief letter strings – creates inherent vulnerabilities. These vulnerabilities manifest in three principal ways that endanger patient safety and challenge translators alike.

2.1. Multiple meanings of a single abbreviated form.

In critical care, a substantial number of acronyms and initialisms carry more than one clinical interpretation, creating a fertile ground for ambiguity and potential medical error. The same abbreviated form may refer to distinct physiological signals, anatomical structures, laboratory values, or treatment modalities depending on context. For example, «BS» primarily denotes *breath sounds* in the intensive care unit but can also be read as *bowel sounds* or *blood sugar*. «C/O» typically means *complains of*, yet occasionally stands for *care of*. «CP» is almost universally *chest pain*, but it might represent *cerebral palsy* or *care plan*. «CVP» (central venous pressure) may be misinterpreted as *cardiovascular profile* or *central venous port*. «ESRD» primarily indicates *end-stage renal disease*, though it can erroneously suggest *end-stage respiratory disease*. «ETT» is the standard notation for *endotracheal tube*, but it also appears as

exercise tolerance test. «HF» stands for *heart failure*, yet it is used for *high-flow oxygen* or *hemofiltration*. «ICU» is universally understood as *intensive care unit*; however, in some settings it may be misread as *intermediate care unit* or *isolation care unit*.

Further ambiguity arises with less common or easily confounded abbreviations. «IU» (international unit) is often misread as «IV» (intravenous) or even as the number 10. «LFT» primarily refers to *liver function test*, but could be mistaken for *lung function test*. «MI» is the classic abbreviation for *myocardial infarction*, though alternative meanings include *mitral insufficiency* or *mental illness*. «MS» usually stands for *morphine sulfate*, yet it also denotes *multiple sclerosis* or *mitral stenosis*. The Latin abbreviation «NPO» (nil per os – nothing by mouth) may occasionally be misinterpreted as *no prior orders*. «OD» means *right eye* (oculus dexter), whereas in other contexts it signals *overdose*. «PAC» (pulmonary artery catheter) can be confused with *premature atrial contraction*. «PCA» (patient-controlled analgesia) sometimes denotes *posterior cerebral artery*. «PE» primarily indicates *pulmonary embolism*, but it is also used for *physical examination* or *pleural effusion*. «PN» is commonly *parenteral nutrition*, yet alternative readings include *peripheral neuropathy* or *postnatal*. «PR» (per rectum) can be misinterpreted as *pulse rate* or *public relations*. «PT» (prothrombin time) is frequently expanded as *physical therapy* or simply *patient*. «PTT» (partial thromboplastin time) may be confused with *physical therapy technician*. «PVC» (premature ventricular contraction) can also stand for *peripheral venous catheter*.

Finally, Latin dosing abbreviations remain a persistent source of error. «qd» (quaque die – once daily) is often misread as «qid» (four times daily). «qh» (quaque hora – every hour) is confused with «qd» or «qid». «qid» itself is frequently mistaken for «qd» or «qh». The term «RA» (room air) may be interpreted as *rheumatoid arthritis* or *right atrium*. Collectively, these examples underscore that a single abbreviated form can carry multiple plausible clinical meanings, necessitating explicit standardisation, context-sensitive interpretation, and, where possible, avoidance of ambiguous short forms in high-stakes critical care documentation.

2.2. Misinterpretation of Handwriting / Ambiguities.

Illegible handwriting and ambiguous abbreviations are major contributors to medication errors. This section summarizes commonly misinterpreted notations, dose designations, and drug name abbreviations identified in the literature and clinical practice (see summary in Table format, but presented here as narrative).

2.3. Dose designation ambiguities.

Writing the drug name and dose without space (e.g., Inderal40 mg) may be misread as Inderal 140 mg; similarly, Tegretol300 mg has been read as 1300 mg. Running the numerical dose and unit together (e.g., 10mg) can cause the «m» to appear as a zero or two zeros, risking 10- to 100-fold overdoses.

2.4. Drug name abbreviation errors.

Drug name abbreviations are another frequent source of misinterpretation. «APAP» (acetaminophen) may not be recognised. «ARA A» (vidarabine) is confused with cytarabine (ARA C). «AZT» (zidovudine) is mistaken for azathioprine or aztrenonam. «CPZ» (Compazine, prochlorperazine) is confused with chlorpromazine. «DPT» (Demerol-Phenergan-Thorazine) can be misinterpreted as diphtheria-pertussis-tetanus vaccine. «DTO» (diluted tincture of opium or deodorized tincture of opium, Paregoric) is mistaken for stronger tincture of opium. «HCl» (hydrochloric acid or hydrochloride) may be read as potassium chloride because «H» looks like «K». «HCT» (hydrocortisone) is confused with hydrochlorothiazide, and «HCTZ» (hydrochlorothiazide) has been mistaken for hydrocortisone (e.g., «HCT250 mg» read as hydrocortisone). «MgSO₄» (magnesium sulphate) is mistaken for morphine sulphate, and conversely «MS» or «MS04» (morphine sulphate) is misread as magnesium sulphate. «MTX» (methotrexate) is confused with mitoxantrone. «NoAC» (novel/new oral anticoagulant) is perilously close to «no anticoagulant». «PCA» (procainamide) is mistaken for patient-controlled analgesia. «PTU» (propylthiouracil) is confused with mercaptopurine. «T3» (Tylenol with codeine No. 3) has been misread as liothyronine. «TAC» (triamcinolone) is misinterpreted as tetracaine, Adrenalin, cocaine.

These examples underscore the critical need for standardised, unambiguous handwriting practices and the avoidance of dangerous abbreviations to improve patient safety.

3. *Terminology shifts between languages.*

When translating medical texts from English into other languages, a translator frequently encounters not merely lexical substitution but a fundamental restructuring of terminological systems. One of the most striking manifestations of this phenomenon is the terminology shift – the abandonment of the source-language acronym in favour of a full term or a differently structured abbreviation in the target language. These shifts are driven by differences in word-formation patterns, grammatical structures, cultural traditions of clinical documentation, and even the phonological acceptability of foreign abbreviations.

The English acronym CAD is ubiquitous in both spoken and written clinical communication. When translated into French, Spanish, or Italian, the full term derived from Latin roots is often preferred: *cardiopathie* (Fr.), *cardiopatía* (Sp.), *cardiopatía* (It.). In some contexts, a local acronym may exist (e.g., *cardiopathie ischémique* → CI), but in general-audience translations or informal clinical discourse, the full form dominates.

The English acronym CBC denotes a standard laboratory test. Many European languages have adopted the term *hemogram* (from Greek *haima* «blood» and *gramma* «record»): French *hémogramme*, Spanish *hemograma*, German *Hämogramm*, Russian гемограмма. Notably, these languages rarely use a letter-based acronym analogous to CBC. This shift reflects a preference for transparent, morphologically motivated terms over arbitrary abbreviations.

3.1. *Different Number of Elements in the Acronym.*

Grammatical and lexical features of the target language may cause an acronym to consist of a different number of letters or components compared to the English original. This creates difficulties when aligning terms in parallel texts or performing machine translation.

The English acronym AIV has three letters. The full French term *pontage de l'artère interventriculaire antérieure* requires grammatical words (articles, prepositions), but these are omitted in the abbreviation. The result is PIVA (*pontage interventriculaire antérieur*) – also three letters but with a different sequence. More importantly, the number of elements may change:

- English: AIV (3 letters);
- French: PIVA (3 letters, different order);
- Spanish: bypass de la arteria interventricular anterior could yield BAIA (4 letters) or BAIA (4).

The English acronym EGD has three letters. French uses FOGD (*fibroscopie œso-gastro-duodénale*) – four letters, because the initial *F* for *fibroscopie* (the method) is added. In Russian, the equivalent acronym is ЭГДС (*ezofagogastroduodenoskopiya*), five letters, incorporating the suffix for «scopy». In German, it is ÖGD (*Ösophago-Gastro-Duodenoskopie*), three letters but with an umlaut. This demonstrates how the technical toolkit of a language (fibroscopy, -scopy suffixes) reshapes abbreviation length.

3.2 Complete Replacement of the Acronym While Preserving Meaning.

In some cases, the English acronym is not merely adapted but replaced by a completely different one, built from a target-language term that has a different internal form. This is especially common where languages prefer descriptive constructions or have established historical names.

The English acronym MS (multiple sclerosis) becomes SEP in French (*sclérose en plaques*) and also SEP in Spanish (*esclerosis en placas*). The English acronym uses the initial letters of multiple sclerosis (M and S). The French/Spanish acronym uses S from *sclérose/esclerosis*, E from the preposition *en*, and P from *plaques* (Fr.) / *placas* (Sp.). Thus, not a single letter matches the English original. This is a classic example of a complete terminological shift with no form preservation. A translator cannot simply borrow «MS»; they must either spell out the full term or replace it with SEP.

The English acronym RBBB has four letters. Spanish uses BRD (*bloqueo de rama derecha*) – three letters. The difference arises because Spanish omits the word «bundle» (*signalled by rama «branch»*), and the abbreviation ignores the preposition *de*. In Portuguese, similar abbreviations include BRD or BDRE (*bloqueio de ramo direito*); in French, BBD (*bloc de branche droit*). Thus, the same clinical concept receives acronyms of different lengths and letter sets across languages.

The English acronym UTI has three letters. French uses IU (infection urinaire) – two letters, because urinaire alone specifies location without an explicit «tract». Spanish similarly uses IU (*infección urinaria*) alongside ITU (*infección del tracto urinario*). Crucially, in French clinical practice IU is standard and unambiguous. However, in English IU stands for international unit. This homonymy across languages creates a significant risk when working with bilingual texts or exchanging medical documents internationally.

5. *British vs. American English Variations.*

British and American English have consistent differences in spelling and terminology. In medical translation, these differences become critically important when they affect abbreviations – especially those built from the first letters of words. The same condition or state may be represented by different abbreviations depending on whether the text is intended for a British or an American reader.

Spelling Differences at the Beginning of Words. British English often uses the digraphs *oe* or *ae* where American English uses simply *e* or *a*. Since an abbreviation usually takes the first letter of a word, this difference creates different acronyms for the same concept.

In British English, gastro-oesophageal reflux disease is abbreviated as GORD, while in American English gastro-esophageal reflux disease becomes GERD. Similarly, oestrogen-replacement therapy is ORT in British English, whereas American English uses ERT for estrogen-replacement therapy. A British lower extremity oedema gives LEO, but the American lower extremity edema gives LEE. Finally, uncertain aetiology in British English is UA, while uncertain etiology in American English is UE.

Differences in Terminology. Beyond spelling, the UK and the US use different words for the same medical realities, which also leads to mismatched abbreviations. For example, the British term Accident & Emergency is abbreviated as A&E, while the American equivalent is Emergency Room (ER) or sometimes Emergency Department (ED). Another British term is Out-of-Area Treatments (OAT), which refers to treatment provided to a patient outside the catchment area of their local health authority; the United States has no such concept and no corresponding abbreviation. Similarly, the

Working-Time Directive (WTD) – an EU directive on working hours that applied in the UK before Brexit – has no American equivalent. Finally, the UK food safety regulator is the Food Standards Agency (FSA), whereas in the US the Food and Drug Administration (FDA) oversees both food and drugs. These differences require careful adaptation when translating medical or regulatory documents across the two dialects.

Conclusion.

Medical abbreviations are indispensable tools for efficient clinical communication, but they also represent one of the most hazardous areas in cross-language medical translation. As this article has demonstrated, the problems are multifaceted: a single abbreviation may carry multiple meanings (e.g., *OD*), identical strings may appear in different typographical forms, illegible handwriting can lead to fatal confusion, and sound-based acronyms (e.g., *CABG* pronounced «cabbage») create traps even for experienced translators. When texts move across languages, additional layers of difficulty emerge – terminological shifts, inversion of word order in Romance languages (e.g., *MRI* → *IRM*), and dialectal divergences between British and American English (e.g., *GORD* vs. *GERD*).

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