Translating Medical Terminology in the Subtitling of Medical Dramas

Karoli, Mia

J.J. Strossmayer University of Osijek

Faculty of Humanities and Social Sciences

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Mia Karoli

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Master's Thesis

Supervisor: Dr. Goran Schmidt, Associate Professor

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Lucia Karoli, 0122233758

Ime i prezime studenta, JMBAG

Abstract

Every translation comes with challenges, but that is especially true when it comes to interlingual subtitling. Subtitling, as one of the main types of audiovisual translation, has the added difficulty of having to adhere to time and space restrictions. The text of the subtitles also has to be synchronized with the image and the sound as precisely as possible. Because of that, translators are often forced to use different strategies to ensure the quality of the subtitles. That is even more important when translating medical terminology and fast-paced medical drama series. Medicine uses lingua franca, which was formerly Latin, but is now English. As a result, a lot of the internationally used medical terminology is in Latin and English, with new terminology often consisting of acronyms and compounds. In this thesis, around 200 examples of translations of medical terminology in the subtitles of the American medical drama series *Grey's Anatomy* were analysed to determine which translation strategies were used the most and the least when subtitling. This analysis was based on the typology proposed by Pedersen (2007: 130-152) and further developed by Lindell (2010: 8). The strategies are: full translation, omission, retention, specification (subordination and explicitation (addition and completion)), and generalization (superordination, paraphrase and implicitation).

Keywords: *Grey's Anatomy*, subtitling, translation strategies, medical terminology

Sažetak

Svaki prijevod dolazi s izazovima, ali to je osobito istinito kada je riječ o prevođenju titlova. Titlovanje, kao jedna od glavnih vrsta audiovizualnog prijevoda, dodatno je otežano jer se prevoditelji moraju pridržavati vremenskih i prostornih ograničenja. Titlovi također moraju biti što točnije usklađeni sa slikom i zvukom. Zbog toga su prevoditelji često prisiljeni koristiti različite strategije kako bi titlovi bili kvalitetni. To je još važnije kod prevođenja medicinske terminologije u medicinskim dramskim serijama s brzim tempom. Lingua franca, kojim se koristi medicina, prije je bio latinski, a sada je engleski. Kao rezultat toga, mnogo međunarodno korištene medicinske terminologije je na latinskom i engleskom, a nova terminologija često se sastoji od akronima i složenica. U ovom diplomskom radu analizirano je 200 primjera prijevoda medicinske terminologije u titlovima američke medicinske dramske serije *Uvod u anatomiju* kako bi se utvrdilo koje su strategije prevođenja najviše, a koje najmanje korištene pri titlovanju. Ova se analiza temeljila na klasifikaciji koju je predložio Pedersen (2007: 130-152), a koju je dodatno razradila Lindell (2010: 8). Strategije su: službeni prijevod, izostavljanje, zadržavanje, specificiranje (podređivanje i ekspliciranje (dodavanje i dopunjavanje)) i generaliziranje (nadređivanje, parafraziranje i impliciranje).

Ključne riječi: *Uvod u anatomiju*, titlovanje, strategije prevođenja, medicinska terminologija

Contents

1. Introduction

This thesis is based on the analysis of the translations of medical terminology in the Croatian subtitles of the medical drama series *Grey's Anatomy*. Medical dramas are series focused on a medical setting, such as a hospital, health professionals and health conditions. Aside from the professional setting, they also showcase the personal lives of characters to maintain the necessary level of drama. Besides personal lives, medical drama series often exaggerate the medical elements in the show. Diagnoses and health interventions are dramatized, and some shows even focus exclusively on doctors and assign them the work nurses usually do to allow for more screen time. Something most medical drama series have in common are the dramatic scenes of emergency interventions and surgeries. In these scenes, the characters tend to talk fast, give orders and talk at the same time or over each other. This is an important aspect of the genre that can make subtitling even harder. Before discussing the intricacies of subtitling medical terminology, it is important to present the theoretical background of subtitling and medical terminology.

First and foremost, the rest of the first chapter is about the series this thesis is based on, *Grey's Anatomy*. It provides a brief overview of the show and its plot. Then it discusses the accuracy of the show and the usage of medical terminology in the script.

The second chapter gives a short insight into what subtitling is, what its conditions and constraints are, and what strategies are usually used in subtitling.

The third chapter provides the definition of medical terminology, its characteristics and what types of medical terminology exist. It then lists and explains a set of proposed strategies that can be used to translate medical terminology, especially when dealing with the constraints of subtitling.

The fourth chapter focuses on the presentation and the analysis of examples of medical terminology translations in the Croatian subtitles of *Grey's Anatomy.* The study was conducted based on five seasons of the show, both older and more recent seasons. The examples were analysed according to the strategy used to translate the term or sentence. Finally, the chapter also includes the results of the study.

1.1. About Grey's Anatomy

Grey's Anatomy is an American medical drama series created by Shonda Rhimes. It first aired on ABC in 2005 and is still ongoing after 20 seasons. The title of the series is an allusion to *Gray's Anatomy*, a classic human anatomy textbook. The series focuses on the personal and professional lives of surgical interns, residents, and attendings at a fictional hospital, known throughout the series as Seattle Grace Hospital, Seattle Grace Mercy West Hospital, and Grey Sloan Memorial Hospital. Each episode usually begins with a voice-over from the main character, Meredith Grey, foreshadowing the theme of the episode. Each season typically represents one year of surgical residency at a teaching hospital, with each year putting the residents at a higher level in the surgical field.

In an interview for PureWow, Dr. Kailey Remien and Dr. Gail Saltz talked about the medical accuracy of the show. Dr. Remien confirmed that "Grey's does a good job of showing the transition from student to attending. As a surgical intern, you then become a resident and residency (including intern year) is typically five years. Some programs may be longer if they require a certain length of research. After residency, if a doctor wishes to specialize, they then go to fellowship which can be anywhere from one to three more years. After fellowship (or residency if no fellowship was done) you are then, finally, an attending." Dr. Remien also pointed out that the majority of the cases are medically accurate, but that's only because the show doesn't go into very much detail: "when they discuss actual medicine, it can be sound, but they quickly stray." Dr. Saltz agreed with Dr. Remien and claimed that, even though most cases are based on real diagnoses and procedures, some aspects are often dramatized for television.

According to Shondaland, to ensure that the show is as accurate as possible and still entertaining, real surgical residents join the writers every season. While courses of treatment and outcomes are often exaggerated for entertainment purposes, they ensure that correct medical terminology is used.

2. Subtitling

According to some authors, there are 10 different types of audiovisual translation (AV), but the main three are dubbing, voice-over and translation (Diaz Cintas and Remael 2014: 8). As this paper focuses on subtitling, that is the only type that will be discussed.

Diaz Cintas and Remael (2007: 8) define subtitles as "a translation practice that consists of presenting a written text, generally on the lower part of the screen, that endeavours to recount the original dialogue of the speakers, as well as the discursive elements that appear in the image (letters, inserts, graffiti, inscriptions, placards, and the like,) and the information that is contained on the soundtrack (songs, voices off)".

There are three main components that make up all subtitled programmes: the spoken word, the image and the subtitles. The basic characteristics of the audiovisual medium are determined by "the interaction of these three components, along with the viewer's ability to read both the images and the written text at a particular speed, and the actual size of the screen" (Diaz Cintas and Remael 2007: 9). Subtitles have to appear "in synchrony with the image and dialogue, provide a semantically adequate account of the SL dialogue, and remain displayed on screen long enough for the viewers to be able to read them" (Diaz Cintas and Remael 2007: 9).

From the linguistic perspective, there are three types of subtitles: intralingual, interlingual and bilingual (Diaz Cintas and Remael 2007: 14). Intralingual subtitles stay within the same language and are mostly used as a disability aid, a learning tool or for advertising (Diaz Cintas and Remael 2007: 14-17). On the other hand, interlingual subtitles imply translation from a source language (SL) to a target language (TL) (Diaz Cintas and Remael 2007: 17). Lastly, bilingual subtitles show translations in two different languages at the same time. They are sometimes used in geographical areas which have two spoken languages, such as Belgium, Finland and Jordan (Diaz Cintas and Remael 2007: 18).

2.1. Subtitle constraints

Audiovisual programmes use both image and sound. Because of that, subtitling is "constrained by the respect it owes to synchrony in these new translational parameters of image and sound (subtitles should not contradict what the characters are doing on screen), and time (i.e. the delivery of the translated message should coincide with that of the original speech)"

(Diaz Cintas and Remael 2014: 9). Subtitles also entail "a change of mode from oral to written and resort frequently to the omission of lexical items from the original" (Diaz Cintas and Remael 2014: 9). When it comes to space, the size of the screen is limited, and the target text must accommodate to it. That means that subtitles usually have between 32 and 41 characters per line and a maximum of two lines. As for the time, the length of the subtitles is usually anywhere between two and seven seconds.

To deal with these constraints, "AV translators should effectively translate the source text (ST) into the target text (TT) as well as ingeniously choose suitable words and sentences to assure that the subtitles are the same or shorter than the audio length or visual speed" (Suranto, Wijaya, 2018: 206). To overcome the temporal and spatial limitations, and to keep the subtitles short, text reduction is often involved. Text reduction eliminates grammar and lexical items presented in "word order, incomplete sentences, and rhetorical questions" (Chiaro, 2007: 63).

Taking those constraints into consideration, there are three reasons for text reduction:

> 1) Viewers/listeners can absorb speech more quickly than they can read, so subtitles must give them enough time to register and understand what is written at the bottom of the screen.
>
> 2) Viewers must also watch the action on screen and listen to the soundtrack, so they must be given sufficient time to combine reading with watching and listening.
>
> 3) Subtitles are limited to a maximum of two lines. How much text they contain depends on the time available, the subtitling reading speed applied, and the speed at which the ST is actually pronounced. (Diaz Cintas and Remael 2014: 144)

2.2. Strategies used in subtitling

There are many different strategies used to translate subtitles. Translators have to get creative to deliver a quality translation that fits into the restrictive subtitling parameters, which led to many proposed sets of strategies that could be used to achieve that. One typology that is often mentioned is the one proposed by Henrik Gottlieb. Gottlieb (1994: 24) proposes a set of ten strategies: expansion, paraphrase, transfer, imitation, transcription, dislocation, condensation, decimation, deletion, and resignation. He briefly explained each of the strategies, which can be seen the table below.

Table 1: Gottlieb's subtitling strategies (1992: 166)

Type of strategy	**Character of translation**
1) Expansion	Expanded expression, adequate rendering (culture-specific references etc.)
2) Paraphrase	Altered expression, adequate rendering (non-visualized language-specific items)
3) Transfer	Full expression, adequate rendering ("neutral" discourse = slow tempo)
4) Imitation	Identical expression, equivalent rendering (proper nouns, international greetings etc.)
5) Transcription	Anomalous expression (non-standard speech etc.)
6) Dislocation	Differing expression, adjusted content (musical or visualized language-specific phenomena)
7) Condensation	Condensed expression, concise rendering (normal speech)
8) Decimation	Abridged expression, reduced content (fast speech of some importance)
9) Deletion	Omitted expression, no verbal content (fast speech of less importance)
10) Resignation	Deviant expression, distorted content („untranslatable" elements)

Out of all these strategies, perhaps the one that is most commonly used in subtitling is deletion. It is a legitimate translation strategy applied because of the restriction of the medium (Pedersen 2008: 104).

According to Baker (1992: 40), omission may sound drastic, but if "the meaning conveyed by a particular item or expression is not vital enough to the development of the text to justify distracting the reader with lengthy explanations, translators can and often do simply omit translating the word or expression in question".

3. Subtitling medical terminology

Before discussing what strategies are used in translating medical terminology for subtitles, the concept of medical terminology should be explained.

3.1. Medical terminology

Medicine uses lingua franca, which has now become English. Before English, the conventions of scientific and medical writings were shaped by Greek and Latin (Džuganová 2019: 130). However, new information and discoveries are mostly published in English, making it the new lingua franca: "Just as Latin emerged after the Renaissance beside the regional European languages as the unifying language of the healing arts, so has English now assumed a leading role as the international language of medicine" (Baethge 2008: 37). Nowadays, a shift can be seen in the language of medicine, and the way modern international medical terminology is created, from a Latin and Greek influence to an English influence (Džuganová 2019: 133).

Medical terminology, one of the world's oldest specialized terminologies, is "a linguistic discipline, which studies, analyses and describes a specialised area of the lexicon" (Džuganová 2019: 131). Medical language, used in professional communication by medical experts, is:

> "characterised by wide use of specialized vocabulary that comprises several layers: technical vocabulary, i.e. Latin and English medical terms used in anatomical descriptions, scientific papers (e.g. acne vulgaris; tetanus; opisthotonos; diarrhoea); semi-technical vocabulary, i.e. language used in communication among doctors (e.g. acne; skin eruption; trismus); non-technical (colloquial) vocabulary, i.e. medical English sometimes used by doctors in communication with patients without medical education (pimples; red spots; rash; lockjaw; the runs)" (Džuganová 2019: 131).

The existence of different types of terminology, technical, semi-technical and colloquial, contributes to various synonyms. In terminology, synonyms "denote words or word combinations which differ orthographically and phonetically but express equal scientific concepts within a certain microsystem" (ibid). The use of synonyms depends on the context. Some terms are suitable for communication with patients, while others are referred in scientific writing. For example, terms like blood clotting and swelling are often used when talking to patients, while their synonyms, coagulation and oedema, are preferred in scientific writing and talking to other medical professionals (Džuganová 2019: 132).

When it comes to creating new scientific terminology, there are several methods that are used, such as: acronyms, analogies, blends, metaphors and, usually, compounds (Raad 1989: 128). Because this new terminology is often composed of words borrowed from English, doctors and scientists who speak other languages now have to choose to either directly import these English terms or to translate them into their own languages (Džuganová 2019: 133).

According to Džuganová (2019: 131). there are seven different types of terms that can be distinguished within the English terminological system according to their origin:

> non-assimilated Latin terms *(abdomen, appendix, dorsum, foetus, locus, nucleus, vena, uterus)*, non-assimilated Greek terms *(asthma, carcinoma, diabetes, emphysema, myeloma, osteoporosis, pneumonia, prophylaxis, sarcoma, trauma)*; Latinized Greek terms *(bronchus* from *Gr. bronchos; colon* from *Gr. kolon; bacterium* from *Gr. bakterion; embolus* from *Gr. embolos)*; assimilated Latin terms *(abuse, acid, gestation, muscle, intervention, ovary, pregnancy, pulse)*; assimilated Greek terms *(laparoscopy, lymphadenopathy, episode)*; terms with multiple assimilation – from Greek into Latin, from Latin into Old French, from Old French into English *(spamos – spasmus – spasme – spasm)*; hybrid Greek/Latin terms with English affixes *(nucleic, analgetic, spinal, crucial, premature, perinatal)*, etc."

There are different opinions on what counts as a medical term and how those terms should be categorized. For example, Hoffmannová and Müllerová (2000, cited in Nushtaeva and Kasperė 2021: 98) distinguish five categories of medical terms: "diseases and their symptoms, methods of examination, surgical interventions, medical specialities and hospital departments". Some think this classification can be too ambiguous, considering that symptom, for example, can be subjective and should not be deemed as terms. Černy (2008: 41), therefore, proposes a less subjective categorization of medical terms: diseases and illnesses (e.g., laryngitis), medications (e.g., aspirin), medical tools (e.g., otoscope) and procedures and methods (e.g., HRT). Nushtaeva and Kasperė (2021: 98), based on the previous categorizations, establish their own. The eight categories are: "(1) diseases, signs, symptoms and injuries; (2) medications; (3) medical tools; (4) procedures, treatments and actions; (5) medical abbreviations; (6) healthcare occupations; (7) human body parts; (8) common terms in medical context" (Nushtaeva and Kasperė 2021: 99).

3. 2. Strategies used in the subtitling of medical terminology

Medical drama series are often very fast-paced and have action-packed scenes. There can be non-stop dialogue with people speaking over each other. That means that translators are often even more limited with space and time to properly translate the medical terms. To properly execute that task, one should educate themselves on the topic they are translating. Not only should the translator understand the basics of what is being talked about, they should be able to translate it in a way that the audience will understand. That means that some terminology is often paraphrased, explained, simplified or omitted.

Translators must identify or sometimes even create new equivalents of various medical terms and "know minor differences in words and their meanings between the source and target languages". (Nushtaeva and Kasperė 2021: 100)

Pedersen (2007: 130-152) proposes a new set of translation strategies, which can be applied when translating medical terminology. The strategies are: retention, specification, direct translation, generalization, substitution, omission, and official equivalence. These strategies, further developed by Lindell (2010:8), are illustrated below.

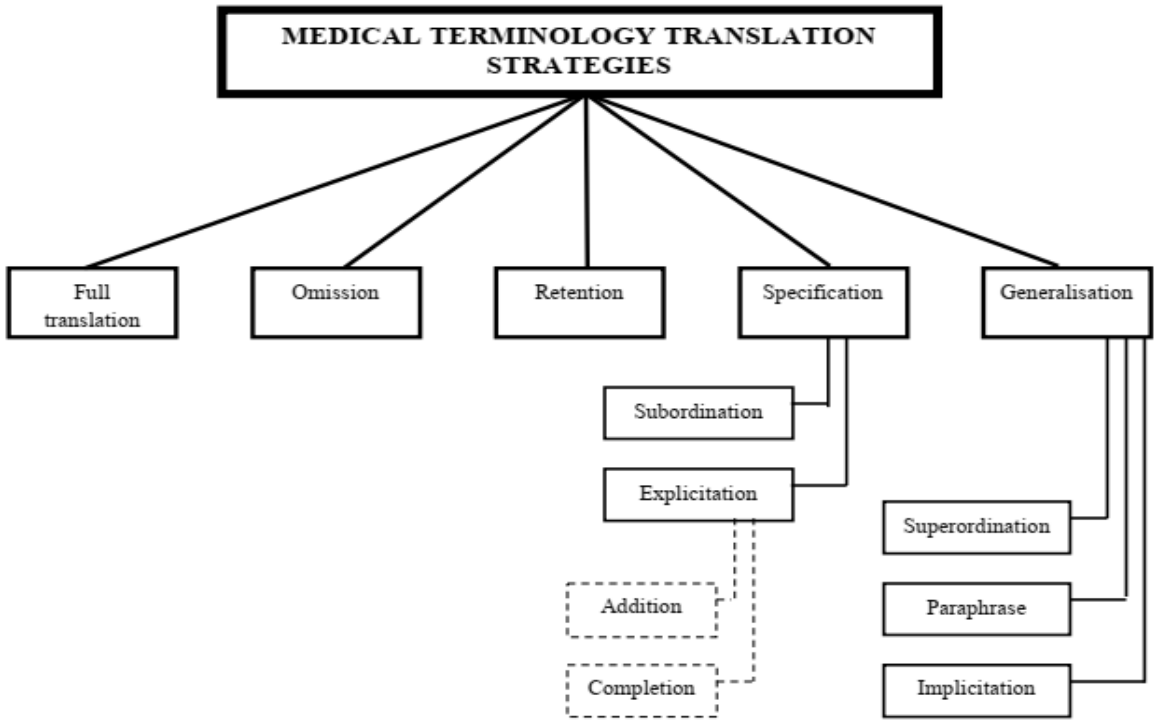

Figure 1: Illustration of Pedersen's translation strategies

Pedersen's **full translation,** according to Lindell (2010:8), implies "as full semantic correspondence between ST term and TT term as is linguistically possible". It is a strategy similar to 'direct translation', implying that the semantic load was not altered by the transfer. However, while direct translation involves some level of decision-making for the translator, the implicitation of full translation is that there already exists a TL (target language) term corresponding to the SL (source language) term (Lindell 2010:8). Therefore, Pedersen considers that the strategy providing the best description of his full translation is that of official equivalence, "which is not so much a strategy, as an equivalent with a very special status" (Pedersen 2007: 130).

Omission is technically a translation strategy where there is no actual translation. It replaces the ST term with nothing, it "involves doing nothing as opposed to doing something" (Pedersen 2007: 148). On the one hand, before simply omitting a term, alternative strategies should be tested. On the other hand, omission is a strategy that is often unavoidable due to subtitling constraints and the amount of ST that has to be condensed when being translated into the TT (Lindell 2010: 9).

Retention implies retaining the ST term in the TT, without it changing in any way. Thus, just like in omission, there is technically no translation in retention. Lindell (Lindell 2010: 9) describes Pedersen's retention as "the most common strategy for rendering ECRs and, furthermore, as the most source-oriented strategy, since it allows a source culture (SC) element to enter the TT".

When using **specification**, the ST term retains its original form while additional information about it is provided, making the translation more specific. As such, specification also does not, technically, involve any translation (Pedersen 2007: 131). In her study, Lindell (2010: 10) adds **explicitation**, a new subcategory of specification. Explicitation is described as "an additive strategy which disambiguates the ST term for the TL audience" (Lindell 2010: 10). It is achieved by **completion** or **addition**. Completion involves adding information that is present in the ST medical term but may not be obvious or well-known. An example of that would be writing out full forms of acronyms or abbreviations. Addition, however, involves adding information that is not part of the term itself, but a part of its connotations and sense. Moreover, Lindell's explicitation, as opposed to Pedersen's specification, does not imply that the ST medical term is not translated in the TT. Whether or not the ST term is translated in the TT, it is 'completed' or 'added' on to. Aside from explicitation, another subcategory of specification is **subordination**. Lindell (2010: 10) states that "the present definition of specification has been

made to further comprise translations where the ST term – by the use of hyponymy or meronymy – is rendered as something more specific in the TT". In short, subordination involves using a term subordinate to the ST term.

Lastly, **generalization** entails "replacing an ST term referring to something specific by a TL term referring to something more general" (Ibid: 11). According to Pedersen, this can be achieved by using multiple strategies. The first one is **superordination**, a strategy opposite to subordination, where the ST term is replaced with a superordinate term in the TL (Pedersen 2007: 137). The second strategy is **paraphrasing**, i.e. replacing the ST term, phrase or sentence with their less specific TL synonym. Even though the ST term is removed by doing this, the meaning and relevant connotations are supposed to remain the same. Lindell (2010: 11) adds one more subcategory of generalization – **implicitation**. Implicitation involves "the process of making the explicit less so, most commonly by rendering an ST term written in full as an acronym or an abbreviation" (ibid). Essentially, implicitation is a strategy opposite to completion.

4. Case study of *Grey's Anatomy*

The goal of this study is to attempt to determine which strategies are used the most to translate different types of medical terminology in the Croatian subtitles of the American medical drama *Grey's Anatomy.* The medical terminology that will be further analysed was collected from 73 episodes over 5 seasons of *Grey's Anatomy* (seasons 8, 9, 10, 19, and 20) airing on Croatian Star Life Channel as *Uvod u anatomiju.* There is no information available about the names of translators, but the subtitles were done by the translation company "Mediatranslations". Seasons 8-10 originally aired from 2011 to 2014, while seasons 19 and 20 aired from 2022 to 2024. This selection was made purposely to discover if any terminology was translated differently or if the frequency in which the translation strategies were used has changed in newer seasons more than 10 years after the older seasons were released.

The examples of translated medical terminology will be shown and analysed based on Pedersen's (2007: 130-152) categorization, which was further broken down by Lindell (). For some categories, like full translation and retention, examples will only be shown. On the other hand, several examples form the rest of the categories will be analysed, while the remaining ones will be shown after. This will be done to allow further data analysis to determine which categories are most and least frequently used in the translation of medical drama subtitles.

4.1. Full translation

Since full translation is a quite straightforward translation strategy, its examples do not require analysis. The examples of ST medical terms translated into their TL equivalents will be shown in the table below.

Table 2: Examples of full translation

Terminology	**Translation**	**Episode**	**Timestamp**
resident	specijalizant	S08E01	00:12:41-00:12:44
chest tube	torakalni dren	S08E01	00:14:20-00:14:23
tension pneumothorax	tenzijski pneumotoraks	S08E01	00:17:33-00:17:35

primary survey	inicijalni pregled	S08E04	00:07:57-00:07:59
teaching hospital	sveučilišna bolnica	S08E15	00:08:30-00:08:31
OB	opstetričar	S08E15	00:14:52-00:14:54
laceration	porezotina	S08E18	00:08:53-00:08:55
Whipple	Whippleov zahvat	S08E18	00:36:31-00:36:33
fluoro	fluoroskop	S08E21	00:13:59-00:14:01
appy	apendektomija	S09E01	00:08:45-00:08:48
X-fix	vanjski fiksator	S09E02	00:06:50-00:06:52
adhesions	adhezije	S09E09	00:08:32-00:08:35
crit	hematokrit	S09E13	00:22:25-00:22:27
hematoma	hematom	S09E15	00:18:45-00:18:47
echo	ehokardiogram	S09E19	00:35:05-00:35:07
staph	stafilokok	S09E22	00:31:34-00:31:36
CT angio	CT-angiografija	S09E23	00:12:57-00:12:59
platelets	trombociti	S09E24	00:00:17-00:00:19
placental abruption	abrupcija posteljice	S09E24	00:17:04-00:17:06
red blood cells	eritrociti	S09E24	00:21:06-00:21:10
Apgars	Apgarov indeks	S09E24	00:31:51-00:31:52
lidocaine	lidokain	S10E01	00:08:23-00:08:25
V-tach	ventrikularna tahikardija	S10E01	00:15:11-00:15:14
splint	longeta	S10E03	00:09:33-00:09:37
tonsils	mandule	S10E04	00:00:06-00:00:10
white count	leukociti	S10E04	00:11:16-00:11:18

pericardial window	fenestracija perikarda	S10E04	00:22:45-00:22:48
anastomosis	anastomoza	S10E07	00:34:59-00:35:01
saline	fiziološka otopina	S10E08	00:29:20-00:29:22
gastro-j	gastrojejunostomija	S10E10	00:19:20-00:19:22
bypass	premosnica	S10E11	00:17:18-00:17:20
ventricle	klijetka	S10E12	00:38:09-00:38:11
chole	kolecistektomija	S10E12	00:01:39-00:01:41
pericardium	osrčje	S10E12	00:34:39-00:34:43
Byler's disease	Bylerova bolest.	S10E15	00:01:49-00:01:54
pulmonary edema	plućni edem	S10E15	00:25:09-00:25:14
arthrogryposis	artrogripoza	S10E15	00:11:56-00:11:59
mitral valve	mitralni zalistak	S10E15	00:13:51-00:13:57
gurney	nosila	S10E15	00:19:46-00:19:48
severe combined immunodeficiency syndrome	teška kombinirana imunodeficijencija	S10E18	00:03:44-00:03:46
fellowship	subspecijalizacija	S10E18	00:24:03-00:24:06
Babcock	Babcock hvatalica	S10E18	00:25:44-00:25:46
pancreatitis	pankreatitis	S19E06	00:16:17-00:16:20
pseudoaneurysm	pseudoaneurizma	S19E06	00:16:17-00:16:20
CAT scan	CT	S19E19	00:20:56-00:20:59
abdominal compartment syndrome	sindrom abdominalnog kompartmenta	S20E03	00:29:44-00:29:46
malpractice	nesavjesno liječenje	S20E05	00:20:38-00:20:42

4.2. Omission

Omission is a strategy that is often resorted to in subtitling. That is even more true when it comes to translating medical drama shows. Long and multiple diagnoses and descriptions of procedures are often described in a shot amount of time, limiting the possibilities of translations that would fit into subtitles.

Example 1

ST: Jared Cole, suffered Byler's disease since birth, complains of increasing jaundice, edema, frequent fevers...

TT: Jared Cole, od rođenja ima Bylerovu bolest. Žutica, edemi…

Back translation: Jared Cole, has had Byler's disease since birth. Jaundice, edema...

Season 10, episode 15 (00:01:49-00:01:54)

In this example, a doctor is presenting a patient's case to other colleagues. That is usually done by introducing the patient, sharing their medical history, current symptoms and the reason for hospitalization. That information can be seen in the ST example. In the TT, the patient's medical history is translated, but not all of the symptoms or their severity are. The translations completely omits 'frequent fevers', only listing jaundice (žutica) and edema (edemi) as symptoms. Furthermore, it is omitted that the jaundice is increasing, only the presence of it is conveyed in the TT.

Example 2

ST: Uh, is his diaphragm working? Can he breathe on his own?

TT: Može li samostalno disati?

Back translation: Can he breathe on his own?

Season 10, Episode 17 (00:02:24-00:02:28)

Only one of the sentences in this example was translated, the other was completely omitted. The medical term in the omitted sentence is 'diaphragm'. Diaphragm is a muscle separating the thoracic and abdominal cavities. It is the most important muscle that helps with breathing. When

the diaphragm is not working properly, it is hard to control breathing. So, when someone asks if the diaphragm is working, they are essentially asking if the person can breathe independently. Considering that both sentences convey a similar message, it is reasonable to omit one of them to reduce the number of characters in the subtitle. Between the two sentences, the second one is simpler and more viewer-friendly, which is probably the reason for choosing to translate it.

Example 3

ST: What... What if I use a hilar clamp to temporarily stop the bleeding and do a wedge resection?

TT: A ako privremeno zaustavim krvarenje i izvršim resekciju?

Back translation: What if I temporarily stop the bleeding and do a resection?

Season 19, Episode 11 (00:21:25-00:21:32)

The translation omits the term ‘hilar clamp’ completely as well as part of the term ‘wedge resection’. Hilar clamp is a surgical tool used to reduce or temporarily stop the bleeding. Instead of translating both the name of the surgical tool and its purpose, only its purpose (stopping the bleeding) was translated. The omission does not have a big impact on the message that is conveyed and is an easy way to save space. The second omission in this example is the ‘wedge’ part of ‘wedge resection’. Resection is a procedure used to remove tissue or an organ. Wedge resection is used to remove a triangular, or wedge-shaped, piece of tissue. It can be argued that translating the term as ‘resection’ (resekcija) instead of ‘wedge resection’ can be categorized as omission, superordination or even paraphrase. However, analysing it from the perspective of omission, one of the parts of the term was omitted. That would mean that ‘resection’ is simply the shortened version of ‘wedge resection’, only omitting half of its name. It should also be noted that, while it is not a medical term, there is omission of the repeated ‘what’ at the beginning of the sentence. All of these changes were most likely done to reduce the number of characters and stay under the limit, while keeping the message as intact as possible.

Table 3: Additional examples of omission without analysis

Terminology	Translation	Episode	Timestamp
Code blue	/	S08E04	00:12:51-00:12:53
UNOS	/	S08E19	00:17:44-00:17:46
Crash cart	/	S09E02	00:40:06-00:40:08
It's a burst fracture at C-6.	Prijelom šestoga kralješka	S10E12	00:05:40-00:05:43
Were you able to decompress the cord? Is he paralyzed?	Jesi li spriječila paralizu?	S10E12	00:19:07-00:19:10
His mitral valve blew. I'm gonna go fix it.	Moram popraviti zalistak.	S10E15	00:25:09-00:25:14
Once I place the chest tube, we'll rush him up to CT. -Right. Agree. And then to the OR, depending on his chest tube output.	Intubiram prsni koš i vodimo ga na CT. -Zatim na operaciju.	S19E11	00:12:20-00:12:25

4.3. Retention

Since there is no translation per se in retention, there is no need to analyse each example individually. Therefore, just like full translation, the examples will be shown in the table below.

Table 4: Examples of retention

Terminology	Translation	Episode	Timestamp
MRI	MRI	S08E04	00:11:15-00:11:17
shunt	shunt	S08E05	00:23:28-00:23:30
TAVI	TAVI	S08E06	00:19:48-00:19:51

CABG	CABG	S08E07	00:03:51-00:03:54
PTH	PTH	S08E22	00:02:51-00:02:55
LCIS	LCIS	S08E22	00:33:40-00:33:42
Port-CABG	Port-CABG	S09E01	00:02:44-00:02:46
VATS	VATS	S09E01	00:02:20-00:02:22
CPK	CPK	S09E13	00:21:41-00:21:43
EEG	EEG	S09E22	00:14:42-00:24:44
in utero	*in utero*	S10E06	00:09:39-00:09:42
AVM	AVM	S10E06	00:11:07-00:11:08
situs inversus	*situs inversus*	S10E07	00:08:19-00:08:22
EMG	EMG	S10E08	00:15:36-00:15:38
EF	EF	S10E08	00:31:49-00:31:53
graft	graft	S10E10	00:17:40-00:17:42
Ventricle	ventrikul	S10E12	00:34:44-00:34:47
fibula	fibula	S10E15	00:30:25-00:30:28
tibia	tibia	S10E15	00:30:25-00:30:28
fetus in fetu	*fetus-in-fetu.*	S10E16	00:07:13-00:07:15
risus sardonicus	*risus sardonicusa*	S10E18	00:06:10-00:06:18
pacemaker	*pacemaker*	S10E20	00:23:22-00:23:25
LVAD	LVAD	S10E20	00:23:22-00:23:25
BEAR	BEAR	S19E08	00:06:08-00:06:12
Ivor Lewis procedure	zahvat Ivor Lewis	S19E09	00:04:24-00:04:26
CT	CT	S19E11	00:12:20-00:12:25

GIA stapler	GIA klamerica	S19E06	00:27:30-00:27:32
cauda equina syndrome	sindrom *cauda equina*	S20E03	00:16:34-00:16:38
REBOA	REBOA	S20E03	00:19:55-00:19:59
AVRT	AVRT	S20E05	00:06:32-00:06:36
ICU	ICU	S20E06	00:03:46-00:03:48
MVC	MVC	S20E06	00:05:24-00:05:27
cryo	cryo	S20E06	00:20:05-00:20:07
fluoro	fluoro	S20E06	00:22:14-00:22:16
met	met	S20E06	00:27:00-00:27:03
NICU	NICU	S20E06	00:38:13-00:38:15
GCS	GCS	S20E07	00:04:48-00:04:51
LOC	LOC	S20E07	00:04:51-00:04:54
OB	OB	S20E07	00:05:57-00:05:59
IV	IV	S20E07	00:11:04-00:11:07
OR	OR	S20E07	00:22:58-00:22:00
MTP	MTP	S20E07	00:24:47-00:24:49
EC fistula	EC fistula	S20E08	00:06:01-00:06:05
TPA	TPA	S20E08	00:10:19-00:10:24
Metz	Metz	S20E08	00:15:10-00:15:13
TPN	TPN	S20E08	00:21:27-00:21:31
SFA	SFA	S20E08	00:26:41-00:26:43
PACU	PACU	S20E08	00:29:20-00:29:23
CPR	CPR	S20E08	00:35:47-00:35:51

MRN	MRN	S20E09	00:16:35-00:16:37
NIH	NIH	S20E10	00:30:32-00:30:34

Most of the terminology that has been retained is made up of abbreviations, acronyms and Latin terminology. A lot of the acronyms are used internationally but there are quite a few that are only used in English and were still left untranslated (e.g. CPR). It is also interesting to note that retained terms are sometimes written in italics in subtitles, though most of those are terms in Latin.

4.4. Specification

This section will focus on showing examples of two subcategories of specification – subordination and explicitation. It will also focus on two subcategories of explicitation – addition and completion.

4.4.1. Subordination

Only one example of subordination was found during research. That would suggest that subordination is the least-used translation strategy in the subtitling of medical drama shows. It does make sense for that to be true given that this strategy involves translating SL terminology into subordinate TL terminology, which is more specific and often longer. Using longer terminology makes no sense while trying to stay under the character limit when a translator is subtitling. However, as can be seen by the example below, there are sometimes exceptions to that logic.

Example:

ST: IV fluids

TT: fiziološka otopina

Back translation: saline

Season 19, Episode 17 (00:06:19-00:06:25)

IV fluids, or intravenous fluids, are liquids specially formulated to be injected into a vein to treat dehydration. There are several different types, depending on what molecules they contain (salt, sugar, albumin etc.). Saline ('fiziološka otopina') is a mixure of water and salt, making it one of the most common types of IV fluids. As saline is one of the types of IV fluids, it means that the term 'saline' is subordinate to the term 'IV fluids'. It can be presumed that the translator used the subordinate term under the assumption that one of the most common IV fluids, the one that viewers would recognize and know the best, was being referred to.

4.4.2. Explicitation

As subcategories of explicitation, both addition and completion will be discussed separately. Several examples will be analysed, while the rest will only be listed.

Example 1 of ADDITION:

ST: HIPAA

TT: zaštita podataka

Back translation: information protection

Season 8, Episode 19 (00:14:09-00:14:11)

HIPAA is an acronym for 'Health Insurance Portability and Accountability Act' of 1996. It's a law most health care providers must follow preventing them from disclosing private health information without the patient's consent. Instead of leaving the acronym as is, or even attempting to translate it, the translator opted to convey the purpose of the law: protection of patient information. They added information that is part of the term's connotations.

Example 2 of ADDITION

ST: hemoptysis

TT: iskašljavao je krv

Back translation: he was coughing up blood

Season 8, Episode 9 (00:22:16-00:22:18)

Hemoptysis is the discharge of blood from the respiratory tract through the mouth. It is the technical term for when a person is coughing up blood. Instead of using the Croatian term 'hemoptiza', the translator used a short explanation of the term. The choice to add information was probably made to explain the term to a casual viewer who would not understand what hemoptysis is, given that 'coughing up blood', the explanation of the term, is more commonly used in everyday conversations.

Example 3 of ADDITION

ST: lap chole

TT: vađenje žučnog mjehura

Back translation: gallbladder removal

Season 9, Episode 1 (00:08:55-00:08:59)

Lap chole, or laparoscopic cholecystectomy in its full form, is a surgery performed to remove a gallbladder. The Croatian equivalent of the term is 'kolecistektomija' or, more precisely, 'laparoskopska kolecistektomija'. Instead of using full translation of the surgery's name, the translator briefly described what the purpose of the surgery is. Once again, this was probably done to make it easier for viewers who are not medical professionals to understand.

Table 5: Additional examples of addition without analysis

Terminology	**Translation**	**Episode**	**Timestamp**
bilateral fasciotomy	otvoriti [pacijenta]	S08E01	00:18:43-00:18:45
hypotensive	ima nizak tlak	S08E02	00:07:18-00:07:20
crash cart	oprema za oživljavanje	S09E05	00:36:17-00:36:19
cell saver machine	aparat za autotransfuziju	S09E13	00:15:28-00:15:30
crash cart	aparat za oživljavanje	S09E14	00:19:36-00:19:38
crash cart	oprema za reanimaciju	S10E08	00:27:09-00:27:10

crash cart	pribor za reanimaciju	S10E12	00:30:43-00:30:46
mandibular O.R.I.F.	fiksacija donje čeljusti	S10E19	00:18:47-00:18:51
UNOS list	transplantacijska lista	S19E11	00:16:06-00:16:10
He's bradycardic.	Srce kuca sporije.	S19E12	00:23:12-00:23:15
She has JVD.	Vratna žila joj je proširena.	S19E14	00:19:22-00:19:26
hemorrhagic shock	šok zbog gubitka krvi	S20E01	00:20:32-00:20:35

Example 1 of COMPLETION:

ST: C6

TT: šesti vratni kralježak

Back translation: sixth cervical vertebra

Season 8, Episode 4 (00:13:04-00:13:06)

When referring to the spine or, more specifically, the vertebrae, acronyms are often used in English. The letter, in this case ‘C’, refers to one of the five regions of the spinal column, while the number represents a specific vertebra in each region. While often used in official documents in Croatian, it is not commonly used in spoken language. Writing out the full form of the term is a much more viewer-friendly option.

Example 2 of COMPLETION

ST: ABG

TT: plinovi u arterijskoj krvi

Back translation: arterial blood gas

Season 9, Episode 8 (00:28:00-00:28:03)

As can be seen in back translation, ‘ABG’ stands for ‘arterial blood gas'. It refers to the measured levels of oxygen and carbon dioxide in a person’s blood, which was taken from an artery. To presumably make it easier for the audience to understand, the full phrase was

translated in the subtitles rather than retaining the ST term or attempting to translate the acronym.

Example 3 of COMPLETION

ST: Uh, let's run a CBC, CMP, urinalysis, and give a bolus of IV fluids.

TT: Napravimo krvnu sliku, sveobuhvatnu metaboličku ploču, analizu urina i dajmo joj fiziološku tekućinu.

Back translation: Let's do a blood count, comprehensive metabolic panel, urinalysis and give her saline.

Season 19, Episode 17 (00:06:19-00:06:25)

Despite there being four medical terms in the example sentence, only the first two are important in the context of completion specifically. 'CBC' stands for complete blood count. Besides translating the full phrase that the acronym stands for, as was done in this example, the translator could have used the equivalent Croatian acronym 'KKS' (kompletna krvna slika). 'CMP', on the other hand, stands for 'comprehensive metabolic panel'. Even though CMP can be translated as 'sveobuhvatna metabolička ploča' ili 'sveobuhvatni metabolički panel', the ST acronym is usually retained in scientific texts and medical documents. It is quite interesting that the full phrases of both acronyms were translated in an already lengthy sentence. An explanation for that might be that the translator wanted to avoid using acronyms for only one or two of the terms, instead opting for a more uniform translation of all terminology.

Table 6: Additional examples of completion without analysis

Terminology	**Translation**	**Episode**	**Timestamp**
NG tube	nazogastrična sonda	S08E09	00:14:56-00:14:58
V.H.L	Hipper	S08E09	00:00:37-00:00:39
E.T. tube	endotrahealna cijev	S08E09	00:29:06-00:29:09
L.R.	Ringerova otopina	S08E11	00:10:25-00:10:27

FFP	plazma	S08E12	00:13:31-00:13:33
PDA	otvoreni arterijski duktus	S08E15	00:40:27-00:40:29
CHF	kongestivno zatajenje srca	S08E16	00:15:02-00:15:04
LOC	gubitak svijesti	S08E20	00:03:05-00:03:08
PTH	paratiroidni hormon	S08E22	00:02:44-00:02:47
LCIS	lobularni karcinom *in situ*	S08E22	00:33:40-00:33:42
EPO	eritropoetin	S09E13	00:21:50-00:21:52
CDC	Centar za kontrolu bolesti	S09E21	00:01:36-00:01:38
CVP	središnji venski tlak	S10E01	00:18:23-00:18:25
EF	ejekcijska frakcija	S10E03	00:20:29-00:20:31
CPAP	kontinuirani pozitivni tlak	S10E04	00:02:35-00:02:29
SVC	gornja šuplja vena	S10E07	00:15:18-00:15:20
M.I.	infarkt miokarda	S10E12	00:30:43-00:30:46
HLHS	hipoplastično lijevo srce	S10E16	00:06:20-00:06:24
IVC	donja šuplja vena	S10E17	00:00:46-00:00:48
DNI	ne želi intubiranje	S20E01	00:00:12-00:00:14
SMA	spinalna mišićna atrofija	S20E01	00:19:42-00:19:46

4.5. Generalization

Superordination, paraphrase and implicitation will all be discussed separately as subcategories of generalization. Like with the other strategies, several examples will be analysed, while the rest will only be listed.

4.5.1. Superordination

Example 1

ST: 0 silk (or zero silk)

TT: konac

Back translation: suture

Season 9, episode 5 (00:24:47-00:24:49)

Different materials and sizes of sutures are used in closing wounds and during surgery. 0 silk is a type of surgical suture, a natural, non-absorbable suture. Instead of translating the specific suture type that appears in the ST, the translator chose to use its superordinate term ‘konac’ or ‘suture’. This solution makes the process of translation easier and the experience of viewers better. A small detail, like the type of suture that is used, does not impact the overall message of the sentence and the scene.

Example 2:

ST: laceration

TT: rana

Back translation: wound

Season 8, Episode 4 (00:07:59-00:08:01)

Laceration, colloquially known as a cut, is a type of skin wound. That would make ‘laceration’ a subordinate term to the superordinate term ‘wound’. Considering both terms are well known and easily understandable to a regular person, the length of the translation was presumably the reason for using this strategy. The Croatian equivalent of ‘laceration’ is ‘posjekotina’, while the equivalent of ‘wound’ is ‘rana’. If space is causing a problem, then using the shorter superordinate term makes perfect sense.

Example 3:

ST: lap chole

TT: zahvat

Back translation: procedure

Season 10, Episode 7 (00:02:30-00:22:34)

As stated earlier, lap chole is an abbreviation for laparoscopic cholecystectomy. It is a surgical procedure to remove the gallbladder. The Croatian equivalent of the term, 'laparoskopska kolecistektomija', is just as lengthy as the ST term. In addition to being long, the term can be difficult to read in a short amount of time, especially for those not already familiar with it. Those two reasons can easily cause difficulties for subtitling. Choosing to use the shorter and simpler superordinate term is a logical solution for the translation. Once again, it makes it easier for the translator to stay under the character limit, while also making it easier for the viewer to read quicky and to understand it.

Table 7: Additional examples of superordination without analysis

Terminology	**Translation**	**Episode**	**Timestamp**
NICU	intenzivna	S08E10	00:05:42-00:05:44
PICU	intenzivna	S08E11	00:26:37-00:26:39
O neg	vrećica krvi	S08E21	00:05:59-00:06:01
ET tube	intubacijska cijev	S08E21	00:25:58-00:26:00
JRA	artritis	S09E03	00:28:04-00:28:07
PDA	žila	S09E04	00:07:57-00:07:59
Bovie	kauter	S09E09	00:15:27-00:15:29
3-0 prolene	konac	S09E19	00:11:46-00:11:48
Ligaclip	klema	S09E22	00:07:36-00:07:38
Metzenbaum	škare	S09E22	00:19:53-00:19:54
Kelly clamp	stezaljka	S10E01	00:27:48-00:27:50
4-0 prolene	konac	S10E04	00:27:17-00:27:19
CPB	premosnica	S10E05	00:31:30-00:31:33

Cardiac ICU	intenzivna	S10E05	00:34:49-00:34:51
lap chole	zahvat	S10E07	00:02:30-00:22:34
scar revision	operacija	S10E15	00:07:13-00:07:17
PCA infarct	infarkt	S10E20	00:31:28-00:31:31
an attending	nadređeni	S19E01	00:15:57-00:15:59
IVC	vena	S19E13	00:10:19-00:10:13
an attending	liječnik	S20E01	00:36:24-00:36:26
SMA	arterija	S20E10	00:37:18-00:37:22

4.5.2. Paraphrase

Example 1

ST: epi

TT: adrenalin

Back translation: adrenaline

Season 8, Episode 9 (00:31:03-00:31:05)

Epi, or epinephrine, is a medication and a hormone. As a medication, like in this example, it is used to treat conditions such as asthma, anaphylaxis and cardiac arrest. Its other name, adrenaline, is usually better known to general public. That is probably why the translator chose to use ‘adrenalin’ instead of ‘epi’ or ‘epinefrin’. Even though there is Croatian equivalent of the term, a simpler, more well-known version of it was used.

Example 2

ST: She's gonna wind up on the transplant list.

TT: Trebat će novo srce.

Back translation: She’s going to need a new heart.

Season 10, Episode 18 (00:31:31-00:31:34)

To be on the transplant list means that a person is waiting to receive a donor organ. The patient in this scenario is in the hospital for heart issues so it is logical to assume that the new organ she would need is a heart. Therefore, saying that someone is going to need a new heart is a simpler and shorter way of saying that a person will wind up on the transplant list for that organ. To paraphrase "završit će na listi za transplantaciju" into "trebat će novo srce" is a good decision if a translator wants to keep the subtitles short and simple.

Example 3:

ST: I'll hold his head to keep the cervical spine in a neutral position.

TT: Držim glavu da vrat stoji neutralno.

Back translation: I'm holding the head so that the neck stays neutral.

Season 19, Episode 6 (00:14:52-00:14:55)

Cervical spine is the name for the neck region of the spinal column. The terms 'cervical spine' and 'neck' are often colloquially used as synonyms. While the term 'neck' is less specific, it does convey the general message of this sentence. The person's hands would be stabilizing the same body part regardless of which term is used in the translation. That means that there would be no discrepancy between what the viewer is reading and seeing on the screen. Little changes like this one are harmless in the grand scheme of things, they don't change the overall meaning of the sentence. Once again, this is a great strategy to use if the translator wants to keep the translation simple and short enough to fit into the subtitles.

Table 8: Additional examples of paraphrase without analysis

Terminology	**Translation**	**Episode**	**Timestamp**
OR	sala	S08E02	00:01:07-00:01:09
Neck tenderness	ozljeda vrata	S08E04	00:08:51-00:08:53
5 of haloperidol I. M.	injekcija haloperidola	S08E04	00:22:33-00:22:36

CBC	krvna slika	S08E08	00:06:56-00:07:00
He flatlined	srce mu je stalo	S08E11	00:15:37-00:15:39
Cranial vault reconstruction	reconstrukcija lubanje	S08E08	00:40:45-00:40:48
Compressions	masaža srca	S08E14	00:27:39-00:27:41
intramedullary nailing	šipka	S09E02	00:33:01-00:33:03
IVIG	imunoglobin	S09E19	00:33:58-00:34:00
Anastomosis	spajanje žila	S09E21	00:12:08-00:12:12
Physical therapy	fizikalna	S09E21	00:24:27-00.24:28
TIA	napadaj	S09E22	00:27:31-00:27:33
Withdrawal of care	isključivanje aparata	S09E23	00:05:39-00:05:41
Chest tube	dren	S10E04	00:11:55-00:11:56
Move it more laterally.	Više bočno.	S10E12	00:17:04-00:17:06
He has a DNR.	Potpisao je da ga se ne oživljava.	S10E13	00:25:51-00:25:53
[…] needs an abdominal exam to rule out appendicitis.	[…] treba pregled za apendicitis.	S10E22	00:11:22-00:11:25
Tear to the left ACL due to football injury.	Sportska ozljeda križnog ligamenta.	S19E08	00:06:01-00:06:05
intubation tray	tubus	S20E01	00:00:14-00:00:16
went into v fib	pala je u arest	S20E01	00:02:39-00:02:40
anaesthesia	narkoza	S20E05	00:27:38-00:27:42
crash cart	kolica	S20E06	00:21:41-00:21:45
chest compressions	masaža srca	S20E10	00:20:07-00:20:09

4.5.3. Implicitation

Discussed below are the only two instances of implicitation that were found during research.

Example 1

ST: ultrasound

TT: UZV

Season 20, Episode 4 (00:03:55-00:03:58)

In this example of implicitation, the full form ST term was translated into TT using a TL acronym. The full form in Croatian is 'ultrazvuk', but the acronym 'UZV' is commonly used and easy to recognize. The most likely reason for using the acronym instead of the full form of the phrase is its length. Choosing shorter possibilities is often necessary while subtitling.

Example 2

ST: echo

TT: EKG

Season 20, episode 5 (00:14:18-00:14:21)

Echo is the often-used shorter version of the term 'echocardiogram', also known as cardiac ultrasound. Its Croatian equivalent is 'ehokardiogram'. The official Croatian acronym, which was used in this example, is 'EKG'. The acronym is common and well-known, maybe even more recognizable than the full term. Once again, that makes using the acronym the perfect solution for limiting the number of characters and still providing quality translation.

4.6. Examples of different translations of the same terminology

There is a lot of terminology that is often repeated but is not always translated the same. Those terms are often the ones that do not have an official equivalent in the TL. They are often translated by using different variations of paraphrases or superordinate terms. Some examples can be seen in the continuation.

Table 9: Different translations of the term resident

Translation	Season and episode	Timestamp
specijalizant	S08E01	00:12:41-00:12:44
stažist	S10E10	00:07:14-00:07:16

Surgical residents are doctors who have completed medical school and are training in a surgical speciality. There is an equivalent term in Croatian, the term 'specijalizant/specijalizantica'. That would mean that only one of the two terms in the examples, the first one, is correct.

Table 10: Different translations of the term intern

Translation	Season and episode	Timestamp
stažist	S08E03	00:05:43-00:05:47
pripravnik	S20E07	00.01:18-00:01:20

Surgical interns are residents in their first year of training. Croatian terminology does not have separate terms for interns and residents and they could both be translated as 'specijalizant'. The above examples, 'stažist' and 'pripravnik', can both be connected to 'pripravnički staž'. While that would technically be called an internship, it is not the same as a surgical internship, but rather a shorter period of training after medical school, but before a residency. That would mean that neither of the two examples is a correct translation of the term 'intern' as it is used in the show. However, if the translator has to accentuate the difference between interns and residents, the best alternative to using 'specijalizant' would be 'stažist'.

Table 11: Different translations of the term attending

Translation	Season and episode	Timestamp
ordinarijus	S10E08	00:02:15-00:02:17

specijalist	S10E12	00:32:25-00:32:27
nadređeni	S19E01	00:15:57-00:15:59
viši specijalist	S19E05	00:34:19-00:34:21
liječnik	S20E01	00:36:24-00:36:26
specijalizant	S20E04	00:14:19-00:14:21

Attendings are surgeons who have completed all training. They are fully qualified to do surgeries without supervision and are the ones in charge. Typically, a doctor in the US becomes a surgical attending after completing five years of residency. The first example, 'ordinarijus' is a legitimate translation of the ST term, but it is very rarely used. The back translation of 'viši specijalist' would be 'senior specialist', which is not the same position as an attending. Then there is 'specijalizant', which is actually the Croatian term for a resident, as can be seen above. The next two terms, 'nadređeni' (superior) and 'liječnik' (doctor) can actually be used as a result of translation strategies. Using 'nadređeni' would fall under paraphrase, while using 'liječnik' would fall under superordination. Lastly, there is the term 'specijalist'. It is the closest possible translation from English to Croatian of the term 'attending' and arguably the best option.

Table 12: Different translations of the term crash cart

Translation	**Back translation**	**Episode**	**Timestamp**
/	/	S09E02	00:40:06-00:40:08
oprema za oživljavanje	resuscitation equipment	S09E05	00:36:17-00:36:19
aparat za oživljavanje	resuscitation machine	S09E14	00:19:36-00:19:38
oprema za reanimaciju	resuscitation equipment	S10E08	00:27:09-00:27:10
pribor za reanimaciju	resuscitation supplies	S10E12	00:30:43-00:30:46
kolica	cart	S20E06	00:21:41-00:21:45

A crash cart is a mobile cart that stores emergency supplies and medical equipment that is used for resuscitation. In the above examples, it was translated using several different strategies. The

first is omission, it simply was not mentioned at all. The second strategy is paraphrasing 'crash cart' into just 'cart'. Lastly, the most commonly used strategy in this particular example is addition. The term was translated in four similar ways, using a combination of synonyms for resuscitation and equipment. Instead of attempting a literal translation, the translators added information about the purpose of the ST term 'crash cart'. As there is not a fixed term for 'crash cart' in Croatian, all of these translations should be correct. Besides omission, all of the examples convey the message to the viewer.

4.7. Examples of same translations of different terminology

As can be seen in the table below, there are cases where different terminology was translated the same, mostly because they share a superordinate term.

Table 13: Identical translation of different terms

Terminology	**Translation**	**Episode**	**Timestamp**
NICU	intenzivna	S08E10	00:05:42-00:05:44
PICU	intenzivna	S08E11	00:26:37-00:26:39
ICU	intenzivna	S08E14	00:17:31-00:17:33
Cardiac ICU	intenzivna	S10E05	00:34:49-00:34:51
CCU	intenzivna njega	S09E05	00:16:36-00:16:38
ICU	intenzivna njega	S09E05	00:23:31-00:23:33
NICU	intenzivna skrb	S20E10	00:07:45-00:07:47

An ICU, or an intensive care unit, is a special hospital ward that provides care for patients with severe or life-threatening conditions. There are different types of ICUs: NICU (neonatal ICU), PICU (pediatric ICU), CCU (cardiac ICU), etc. The table above shows that all these different types of ICUs were translated as some form of 'intensive care' ('intenzivna', 'intenzivna njega' and 'intenzivna skrb'). That means they were translated using the superordination strategy. As with many other examples, using the shorter superordinate term is often a matter of length and simplicity.

4.8. Incorrect translations and proposed corrections

As medical terminology can be complex to translate, mistakes can happen. That can be due to a lack of knowledge and research or due to using machine translation without quality checking. Below are some examples of incorrect translations, along with proposed corrections.

Example 1

ST: scrub in

TT: pročistiti

Back translation: to clean out

Season 20, Episode 8 (00:03:33-00:03:35)

To scrub in means to prepare oneself for surgery. That is done by washing hands and forearms using antiseptic soap and a brush for at least two minutes. The TT term in this example has no connotations with washing parts of the body. The Croatian term for 'scrubbing in' is 'kirurško pranje ruku' or 'surgical handwashing'. Since that can be hard to incorporate into the syntax of the text, subtitling strategies would have to be used to translate this term. The most straightforward strategy would be paraphrase. 'Kirurško pranje ruku' (surgical handwashing) could simply be paraphrased into 'pranje ruku' (handwashing).

Example 2

ST: CBC

TT: KBC

Back translation: Clinical Hospital Centre

Season 20, Episode 7 (00:25:19-00:25:24)

The ST acronym 'CBC' stands for 'complete blood count', a blood test used to look at a person's overall health. The fully equivalent Croatian term is 'kompletna krvna slika', while its acronym is 'KKS'. It is quite possible that the translator did not know or research the meaning of the ST term, mistaking it for an acronym representing the term hospital (KBC). This mistake, that easily could have been avoided with little research, completely changes the meaning of the sentence.

Table 14: Additional examples with corrections, but without analysis

Terminology	Translation	Correction	Episode	Timestamp
RDS	respiracijski distresni sindrom	respiratorni distres sindrom	S08E15	00:19:52-00:19:54
CDH	PDH	kongenitalna dijafragmalna hernija / KDH	S09E08	00:07:14-00:07:15
pancreatic pseudocyst	gušteračna pseudocista	pseudocista gušterače	S10E06	00:33:08-00:33:12
orbital compartment syndrome	sindrom zatvorenog prostora	orbitalni "compartment" sindrom	S10E22	00:13:10-00:13:13
2-0 prolene	20 ml prolina	konac	S19E11	00:31:27-00:31:30
lap pads	laparatomija	gaze	S19E12	00:04:58-00:04:60
scrub nurse	kirurška medicinska sestra	sestra instrumentarka	S20E04	00:11:04-00:11:06
labs	laboratoriji	nalazi	S20E06	00:08:56-00:08:57
A-line	A linija	intraarterijska kanila / kanila	S20E06	00:13:07-00:13:09
med school	medicinska škola	medicinski fakultet	S20E06	00:32:12-00:32:14
lap pads	jastučići za krilo	gaze	S20E07	00:18:29-00:18:31
ex lap	ex krug	laparotomija / eksplorativna laparotomija	S20E07	00:18:26-00:18:28
irrigation	navodnjavanje	ispiranje	S20E08	00:26:52-00:26:54

4.9. Results

In this paper, there are exactly 200 examples of translations of medical terminology in the subtitles of the medical drama series Grey's Anatomy. The examples were taken from five seasons, three older seasons (seasons 8, 9 and 10) and two newer seasons (seasons 19 and 20). The number of examples in each of the nine analysed translation strategies was added up to determine which strategies are used the most and which strategies are used the least. The results are displayed in charts in the figures below, showing the percentages for each of the nine strategies. When analysing the results, it became clear that there was a noticeable difference in the frequency in which certain strategies were used to translate medical terminology in older versus newer seasons of the show. To attempt to determine if there is a plausible explanation for that, it was important to analyse the data for older seasons and newer seasons separately. The first data analysis includes all of the examples from all seasons mentioned above. The second and third data analysis focus on older and newer seasons respectively.

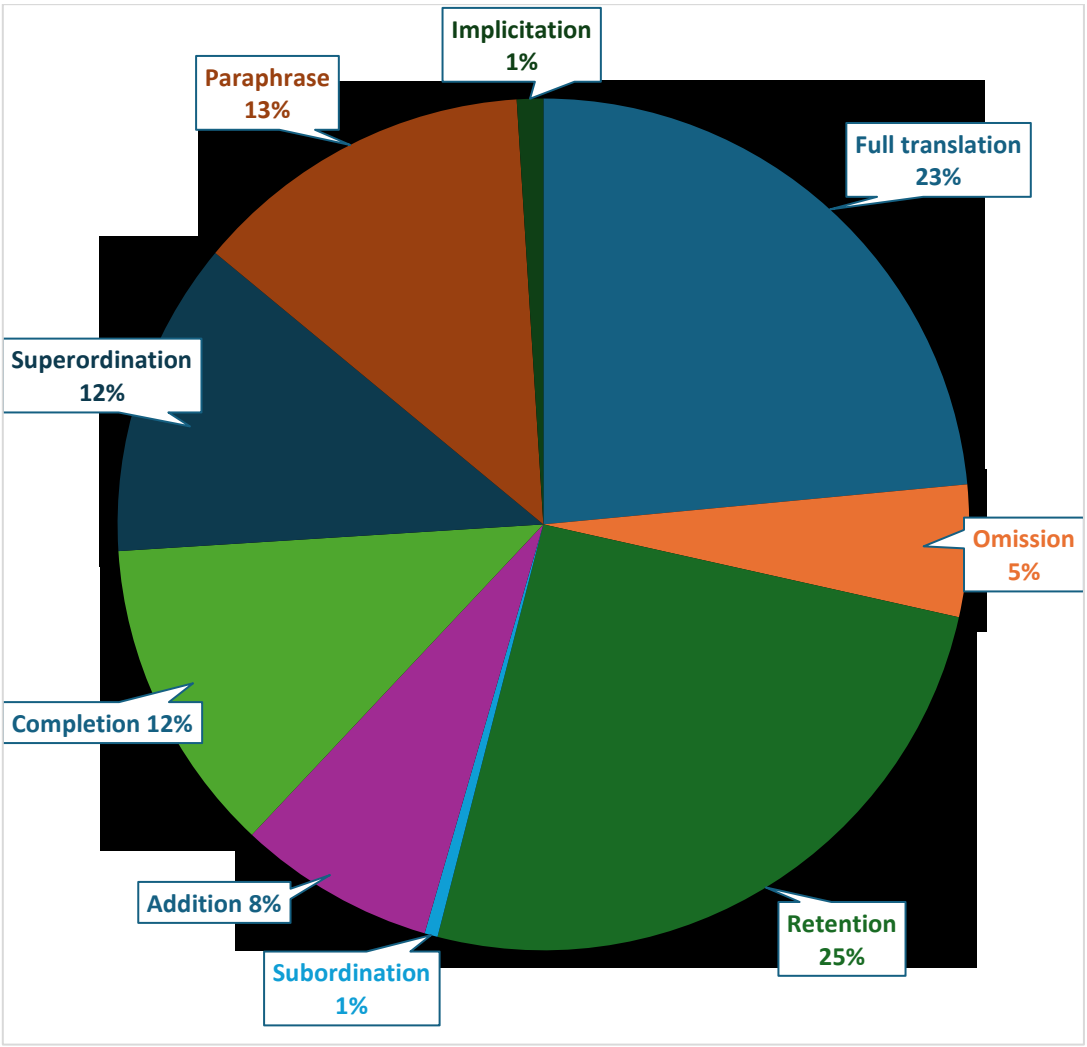

Figure 2: Translation strategy percentages in the subtitles of Grey's Anatomy

Out of the nine strategies, two are clearly the most used. There were 51 examples of retention (25%) and 47 examples of full translation (23%). These two strategies were used on almost half of the examples of translation. The numbers of the examples of the remaining strategies are as follows: 26 examples of paraphrase (13%), 24 examples of superordination (12%), 24 examples of completion (12%), 15 examples of addition (8%), 10 examples of omission (5%), 2 examples of implicitation (1%), and 1 example of subordination (1%).

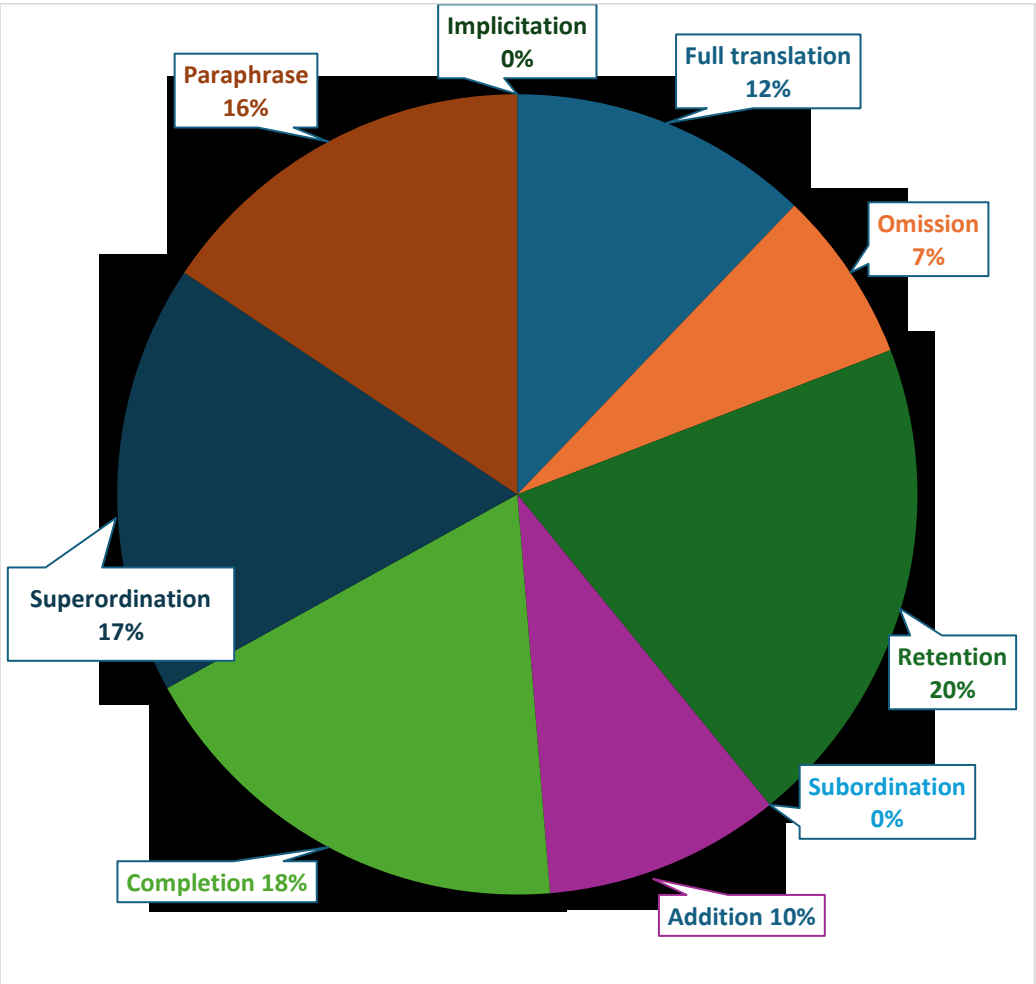

Figure 3: Translation strategy percentages in seasons 8, 9 and 10 of Grey's Anatomy

The following data is based on 115 examples from seasons 8, 9 and 10. There are no big differences between consecutive percentages in older seasons. Two of the strategies, subordination and implicitation, have no examples in older seasons. The numbers of the examples of the remaining strategies are as follows: 23 examples of retention (20%), 21 examples of completion (18%), 20 examples of superordination (17%), 18 examples of paraphrase (16%), 14 examples of full translation (12%), 11 examples of addition (10%), and 8 examples of omission (7%).

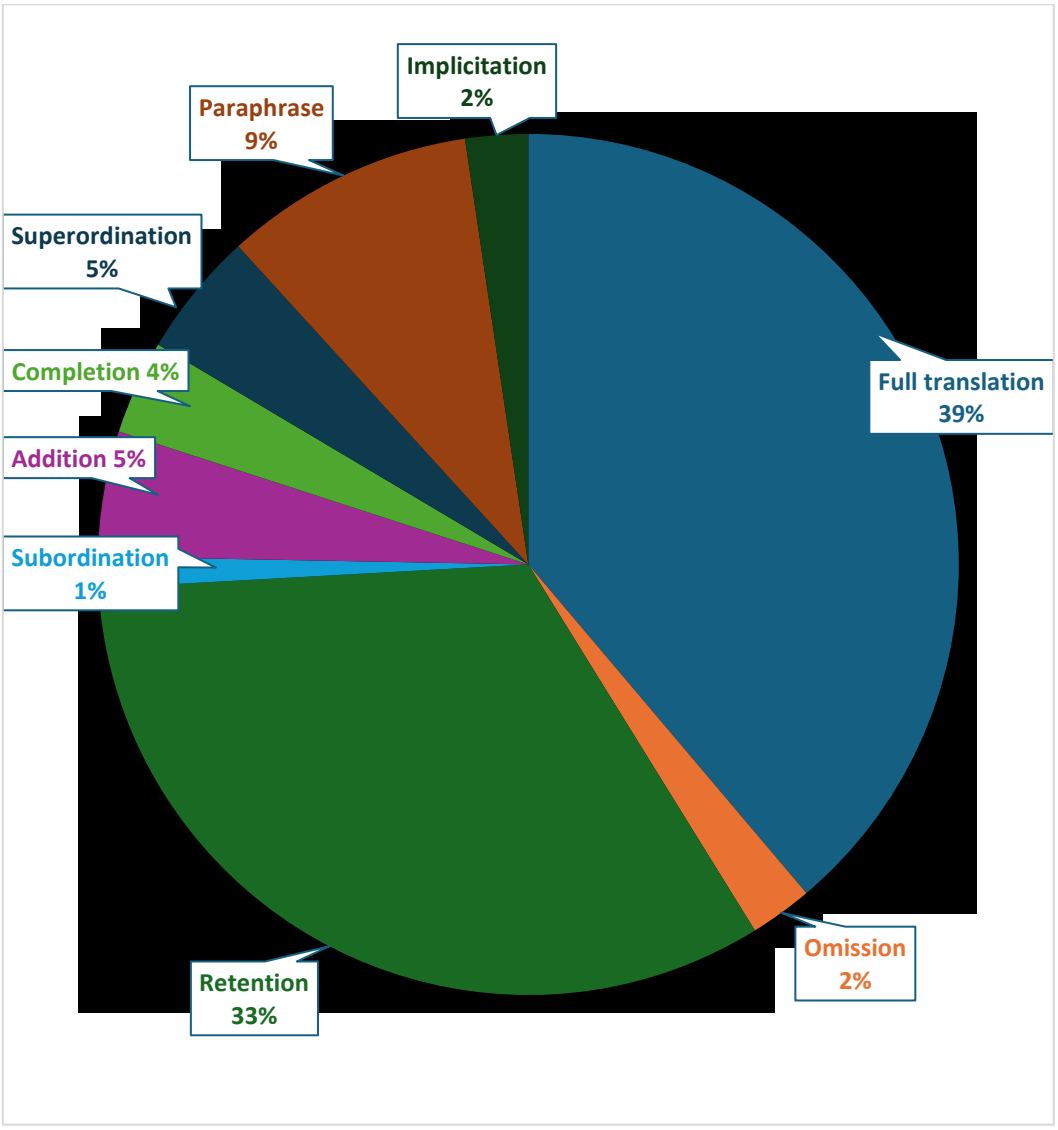

Figure 4: Translation strategy percentages in seasons 19 and 20 of Grey's Anatomy

The following data is based on 85 examples from seasons 19 and 20. As can be seen in the figure above, two of the strategies were used on over 70% of all examples. The numbers of the examples of the strategies are as follows: 33 examples of full translation (39%), 28 examples of retention (33%), 8 examples of paraphrase (9%), 4 examples of superordination (5%), 4 examples of addition (5%), 3 examples of completion (4%), 2 examples of omission (2%), 2 examples of implicitation (2%), and 1 example of subordination (1%).

5. Conclusion

The main goal of this study was to determine which strategies were used the most and the least to translate medical terminology in the subtitles of medical drama series. Since the study was only done on select seasons of one TV show, *Grey's Anatomy*, it should not be presumed that the results of the study would be the same for all other similar TV shows. However, considering a lot of Croatian subtitles for similar shows are done by the same translation company, it can be presumed that results would have at least some overlap. It would be interesting to see how much the results would differ when analysing subtitles translated by other translation companies with different policies and practices.

The results of this study were analysed from three different perspectives: the overall percentages the strategies were used in, as well as a separate analysis of both older and newer seasons. Retention (25%) and full translation (23%) were the two most-used strategies over all the analysed seasons. The remaining strategies were used in the following order: paraphrase (13%), superordination (12%), completion (12%), addition (8%), omission (5%), implicitation (1%), subordination (1%). The most-used strategies in older seasons were retention, completion, superordination and paraphrase, while the most-used strategies in newer seasons were full translation and retention. The strategies that were used the least in all scenarios were subordination, implicitation and, surprisingly, omission. Interesting observations can be made about these results.

Considering the strategies that were used to translate medical terminology the most in older versus newer seasons, there is a clear divide between the type of preferred strategies. Three of the four strategies that were used the most in older seasons (completion, superordination and paraphrase) all require considerable knowledge, research and creativity. That also means more work is required for the translator who must be skilled and experienced to deliver a quality translation. On the other hand, the preferred strategies in newer seasons (full translation and retention) do not require any creativity in translating medical terminology. These strategies are straightforward and the chances of incorrect translations should, in theory, be reduced. These strategies are more useful to new and inexperienced translators, or those who do not have the necessary knowledge of a specific field.

There are several possible reasons for these changes in translation strategies. One of them is that translation companies will often hire people who are not the best translators but are willing

to work for a lower pay. Considering their low pay, the goal is to make the job as easy and fast as possible. This leads to the next reason for the change in strategies – the more recent development of machine translation. Machine translation has vastly improved in the past decade, it has become more precise and reliable, making it possible for it to influence the difference between translations from 2012 and those from 2022. The strategies used the most in translating recent seasons, full translation and retention, produce similar translations that one would get using machine translation. From that, it can be assumed that translators are relying more on machine translation nowadays, rather than on their creativity. Theoretically, if done with proper post-editing, relying solely on machine translation makes it possible for less experienced translators to do the job faster and for less money. For the purpose of making more profit, this scenario could be appealing to translation companies. Naturally, that leads to changes in the use of translation strategies. The theory that translators and translation companies rely more and more heavily on machine translation, particularly when translating medical terminology, is worth following up on. It would be interesting to see if further research confirms or disproves this theory.

This paper also showed examples of the same terminology translated in different ways, as well as examples of different terminology translated into the same TL term. The former were mainly medical terms without official equivalent terms translated by paraphrasing or superordination. The latter were separate medical terms that share the same superordinate term, making all those examples of superordination. Interestingly, most of these examples were found in older seasons. There is a possibility that machine translation has played a role in this as well, making it possible for the terminology to be translated the same more often. Depending on the context, that can be both a good thing and a bad thing. If there is no thorough post-editing, this can easily lead to incorrect translations, especially due to plenty of homonyms and acronyms with different meanings. Translating medical terminology unprepared and unwilling to do research, especially when subtitling, can lead to mistakes in translation. The most common causes for mistakes shown in this paper were literal translation and low-quality machine translation without any quality checking or editing. Suggestions of alternative translations were given for those examples.

In conclusion, translating medical terminology in subtitles still requires a fair bit of knowledge, independence and creativity. Despite the development of machine translation, translators should not rely solely on it, especially when dealing with something as complex and particular as medical terminology. Fact-checking and quality control should always be part of the process.

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