The importance of accurate medical translation in the context of the COVID-19 pandemic

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Abstract: By mediating medical knowledge and information across languages, translation plays a crucial role in sustaining and promoting public health. The COVID-19 pandemic made the importance of medical translation more apparent than ever. Translation helped maintain a flow of timely and accurate information across borders as well as supporting researchers' efforts in disseminating findings on treatment and vaccine development. Due to the life-threatening potential of language errors, accuracy and precision are key elements in medical translation. The consequences of translation mistakes are magnified during a pandemic as these can have global health repercussions. In this light, this paper uses the translation of a peer-reviewed medical article dealing with treatment approaches for cancer patients affected by SARS-CoV-2 to highlight some helpful strategies and techniques that can be deployed when transferring medical language from English to Italian.

1   Introduction: the importance of medical translation

As discourse around health and well-being relies on languages for its spread and transmission (Susam-Saraeva and Spišiaková, 2021), medical translation plays a pivotal role in sustaining and improving human life. Translation in the medical field has a twofold function. On the one hand, it makes healthcare services accessible to ethnic and linguistic minorities. With immigration being such a widespread phenomenon in today's society, health translation is mainly prompted by the necessity of providing medical assistance to expatriates and refugees. This kind of translation is generally performed by public service interpreters and expert medical translators. Interpreters ensure oral communication between healthcare providers and patients speaking another language is not hindered by linguistic barriers. Translators are in charge of translating written information, mainly including patient fact sheets, medical histories, package leaflets and consent forms (Karwacka, 2015, p. 273). On the other hand, as a form of knowledge mediation, translation fosters the dissemination of research results and new discoveries to the scientific community. Situations that generate the demand for peer-to-peer medical communication include, among others, the registration of medicines and clinical trials, the use of medical devices, the application of new pharmacological products as well as the publication of research papers, medical student textbooks and conference proceedings (ibid., p. 272; Karwacka, 2014, p. 19).

During the pandemic, the importance of medical translation became more apparent than ever. In the fast-evolving scenario of the COVID-19 emergency, translation kept the population constantly updated on virus transmission and preventive measures by allowing the circulation of timely information in several languages. Terms and concepts which were once exclusively used in the medical area became widespread on print and social media and this impelled the compilation of glossaries providing accurate translation of specialised terminology (Pendleton-Woods, 2021). Translations of COVID-19 PSAs, protocols and workplace safety plans were equally made available on an international scale to control and prevent infections. The development of treatment options in response to the rapid spread of the virus also urged the necessity of disseminating research findings and clinical trials across borders. In this light, translation was key to ensuring that the scientific and medical communities worldwide

were kept informed about therapeutic and vaccine advances. Moreover, in an unprecedented global health crisis, international cooperation was necessary to cater for the growing demand for sanitary equipment. Consequently, the import and export of medical goods and devices made translation of technical manuals and instructions highly requested as well (ibid.).

Considering the importance of divulging COVID-19-related information during the pandemic, with reference to the examples extracted from the translation of a peer-reviewed medical publication, this paper outlines some challenges inherent in relaying medical discourse across linguistic barriers.

2 Consequences of inaccurate medical translation

In order for data and information to be effectively conveyed, correctness and accuracy in medical translation need to be prioritised. Notwithstanding the serious or even fatal clinical consequences that potential errors in health translation may trigger, evidence shows that the incidence of mistakes is quite high (Karwacka, 2014, pp. 20-21). Problems were for example reported in the translation of a series of package leaflets carried out by pharmacies in New York across the six different languages spoken by the local linguistic communities (Capuano, 2013, p. 121). These were mainly translated using machine translation, with predictable errors in dosage and instructions. Misunderstandings were particularly caused by a mix of English and Spanish words. For instance, the English expression "once a day" was rendered as "eleven a day" because "once" has the meaning of "eleven" in Spanish. Similarly, *boca* (meaning "mouth" in Spanish) was misspelt as *poca* (meaning "little" in Spanish) and this led consumers to the erroneous assumption that the drug in question had to be taken in small quantities instead of being taken orally. The above example also shows the dangerous consequences that can arise from blind confidence in machine translation. Despite being time-saving and cost-effective, its unsatisfactory level of accuracy is a clear demonstration that technology cannot act as a substitute for human intervention, especially when probable mistakes may have a health-threatening potential.

The importance of recruiting professional language mediators is also highlighted by the following case, which occurred in France between 2004 and 2005. At a hospital

near Epinal, several prostate cancer patients died or were seriously affected due to overdoses of radiation (Steiert and Steiert, 2011, p. 27). The software for the radiation equipment included user manuals in English only. Instead of hiring qualified translators, the hospital's administration relied on bilingual personnel members to translate instructions and use the device.

Another serious incident was the erroneous implantation of knee endoprostheses at a German hospital in 2007 (ibid.). There are two different types of knee prosthesis, for use with or without cement (Fakler et al., 2007, p. 1). The original package of the femoral component was labelled in English and stated the prosthesis was "non-modular cemented" (ibid.). This was mistakenly rendered as zementfrei, (not requiring cement) (Steiert and Steiert, 2011, p. 27). As a result of this flawed translation, 47 prostheses were implanted incorrectly, with serious implications for patients' health. Although, as was noted, the mistake in question was due to both the language factor and a problem of internal control mechanisms (Fakler et al., 2007, p. 2), this adverse event clearly exemplifies the disastrous effects of linguistic errors in medical texts.

Apart from jeopardising human life, inaccuracy in written medical documentation may have economic and legal repercussions including financial damage for pharmaceutical companies, denied authorisation to medication, liability risks due to improper use of medical devices and ineffectiveness of studies and clinical trials. It follows that technical accuracy is a key factor determining the success of a medical translation as unmotivated substitutions, omissions and content reinterpretations may generate severe complications for both patients and text producers (Why Medical Translation Demands 100% Accuracy, 2017). A good medical translation should also be measured against standards of readability. Patients may not follow treatment plans and instructions if these lack clarity (Karwacka, 2014, p. 22). As well as this, the reliability of research findings and the author's reputation (ibid., p. 20) may be seriously undermined if the document does not conform to appropriate style and layout conventions. For this reason, it is important for medical texts to be localised, namely to be adapted to the specific requirements of target readers and consumers in terms of linguistic, cultural and educational needs (Why Medical Translation Demands 100% Accuracy, 2017).

The outcomes of language inaccuracy become amplified in times of pandemic as these can have far-reaching effects. During an epidemic, when each individual can become a carrier of the virus, failure to correctly convey instructions on quarantine rules, disease transmission and symptom onset can expose people to increased risk of contagion, with consequences expanding on society as a whole (Piller et al., 2020, p. 506). Furthermore, taking into account the crucial role played by scientific and medical translation in knowledge mediation, language errors in clinical trials and research studies might cause serious trouble in gathering data and disseminating findings as well as generating delays in treatment development and vaccine distribution.

3 The translation of a medical article: challenges and technical aspects

3.1 Methodology

This paper uses the translation of a peer-reviewed medical publication dealing with COVID-19 as a case study to outline some strategies and techniques that can be adopted to ensure accuracy when relaying health-related content from English into Italian. This study consists of two parts: the translation of the article and a contrastive analysis between the original text and the translated version.

The translation in question was done as part of my Master's translation project at the University of Aberdeen. The text selected for the translation, "COVID-19 and Cancer: a Comprehensive Review", was originally published in English in PubMed in May 2020 and reviews a series of clinical trials and approaches to cancer patients affected by SARS-CoV-2. The translation was carried out considering a number of interplaying factors, in particular the specific features of scholarly medical publications (in terms of both form and content), the kind of audience these texts are aimed at and their intended function. Being a medical paper destined for a peer-reviewed journal, the source text is characterised by an academic register and the technical use of specialised terminology. The purpose of the translation was twofold: on the one hand, it aimed at transferring medical nomenclature correctly; on the other hand, the intent was to adapt the text to the linguistic conventions of the Italian language in the scientific text typology. In so doing, great emphasis was given to target readers' expectations in terms of form and

style. The submission of the final product was preceded by an accurate self-review and editing process to assess correctness of information as well as terminological and grammatical precision.

The analysis was conducted by selecting a number of syntactical and lexical units from the source text which, due to linguistic asymmetries between English and Italian, pose problems in translation. The selected data are divided into two broad categories: grammatical issues (taking into account syntax and complex nominal phrases) and lexical choices (with specific reference to the use of specialised terminology, acronyms and abbreviations). Existing literature has highlighted a general trend in medical writing: while English scientific texts show a tendency towards "simplification", Italian ones are marked by "complexity" in terms of syntax, register and lexical choices (Viezzi, 1992). As it will be shown in the examples below, the findings of the present study validate this theory. Considering the small size of the data scrutinised, this paper does not purport to devise generalisations as to the effectiveness of the strategies here proposed in any type of medical language transference. It rather sets to provide an understanding of some of the difficulties inherent in the translation of medical discourse and an overview of possible methods and solutions.

For the sake of clarity, the following examples are accompanied by a back translation, namely the retranslation of the content in the target language (Italian) back to its source language (English) in literal terms. The abbreviations "SL" and "TL" are used to refer to "source language" and "target language" respectively. Similarly, "ST" and "TT" are employed as contracted forms of "source text" and "target text".

3.2   Grammatical issues

Due to structural differences between English and Italian, literal rendering was rejected in favour of a process of syntax restructuring. Indeed, preparing a medical translation which sounds natural and readable in the TL often entails a number of unavoidable grammatical and syntactical adaptations. Consequently, while the ST is characterised by simple and concise sentences, the TT often makes use of longer and more articulated syntactical structures.

One of the distinctive features of medical language is heavy pre-modification. The presence of strings of adjectives premodifying a noun poses a real challenge for the translator since these structures do not naturally occur in the TL. In general, Italian tends to be more analytical than English, so that "the relations between the elements in a compound expression tend to be marked explicitly through syntax (generally prepositions)" (Hervey et al., 2005, p. 62). An example of that relates to the complex noun phrase "critically ill, mechanically ventilated COVID-19 patients", where the head noun, "patients", is premodified by "COVID-19", "critically ill" and "mechanically ventilated". In this case, "COVID-19 patients" can be easily translated as *pazienti con COVID-19* (literally meaning "patients with COVID-19"). As for "critically ill", an adequate solution could be *gravemente malati* (meaning "seriously ill"), which comes close to a literal rendering. However, since Italian medical texts tend to use a high register even when English employs common vocabulary (Viezzi, 1992), expressions like *pazienti di COVID-19 in gravi condizioni* or *pazienti di COVID-19 di grado severo* (meaning "COVID-19 patients in serious conditions" and "patients with serious level of COVID-19") sounded more appropriate. "Mechanically ventilated" makes reference to the employment of mechanical ventilation as one of the treatments used in COVID-19 patients with severe disease, so that *sottoposti a ventilazione meccanica* (meaning "treated with mechanical ventilation") could be an adequate solution in the TL. In so doing, ST premodifiers have been changed into prepositional phrases used in postmodifying position, a strategy commonly employed in English-to-Italian translation: *pazienti con COVID-19 di grado severo sottoposti a ventilazione meccanica*.

Medical writing in Italian displays a tendency towards the use of impersonal forms (ibid., p. 53) that conform to the neutral and objective tone of the informative subject matter. One of the translation strategies used to attain impersonalisation in the TT is nominalisation. This denotes "the use of a nominal expression which, in the same language or another, could be replaced by an expression not containing a noun" (Hervey et al., 2005, p. 154). For example, the nominal form *con diagnosi di COVID-19* (literally meaning "with diagnosis of COVID-19") replaces the use of the verbal adjective "diagnosed" in the ST phrase "diagnosed with COVID-19". Similarly, in the expression *malattia in rapida progressione* (translating the English "rapidly progressing disease"), "progressing" (which is a premodifier of "disease" in the ST) is changed into a noun,

progressione (meaning "progression"), and is premodified by the adjective *rapida* (meaning "rapid" and translating the adverb "rapidly"). This results in a different structure in the TL where the head noun *malattia* ("disease") is postmodified by a prepositional phrase, *in rapida progressione,* literally meaning "in rapid progression".

In the translated version, impersonal verbs are often used in place of the active or passive voice according to a technique referred to as "modulation" (Munday, 2001, p. 58). Table 1 shows a few examples where the impersonal form *è necessario* translates the active verb "entails" and the passive one "are needed" respectively.

Table 1 – Examples of impersonal forms used in the Italian translation of the article.

Source text	Target text	Back translation
Diagnosis of COVID-19 often **entails** ruling out other common respiratory viral infection (RVI) etiologies.	Per poter effettuare una diagnosi di COVID-19 **è necessario** escludere le cause eziologiche di altre comuni infezioni virali respiratorie.	In order to make a diagnosis of COVID-19, **it is necessary** to exclude the etiologic causes of other common respiratory viral infections.
Prospective studies **are needed** prior to LMWH use in clinical practice.	**È necessario** svolgere degli studi prospettici prima di poter procedere con l'utilizzo delle EBPM nella prassi clinica.	**It is necessary** to carry out prospective studies before using LMWH in clinical practice.

3.3   Lexical choices

The rendering of specialised terminology was supported by the use of scientific dictionaries, glossaries and reliable online sources. The translation process was preceded by a certain degree of preliminary research focussing on the medical issues described in the review. This is because, alongside in-depth linguistic expertise, translators in the medical area require a clear understanding of the procedures and subject matters mentioned in the ST. Additionally, according to a well-established practice in medical translation, the project was initiated by compiling a glossary of the major ST terms alongside the respective TL equivalents.

A term that may be the source of ambiguity in the original text is "decoction". This is used in relation to "Qingfei paidu", a traditional Chinese medicine compound used to

treat COVID-19 patients. The term is polysemous since it can refer to both the substance and the procedure of extraction (Merriam-Webster Dictionary, n.d.). In Italian these are respectively called *decotto* e *decozione* (Garzanti Linguistica, n.d.). Since the term is used to refer to a specific medical preparation, in this case, the appropriate rendering would be *decotto*. It seems, however, that the two terms are sometimes used indistinctly in the Italian language. The use of a footnote might have been useful to illustrate the difference in nomenclature and explain why the translator opted for *decotto* instead of *decozione*. Para-textual elements, such as notes, can be a helpful tool to clarify ambiguous meanings in the ST and motivate translation choices in relation to specific lexical items. However, in this translation, the use of footnotes was rejected on the ground that these might have been easily confused with the several table and figure captions accompanying the verbal content of the review, thereby undermining clarity of information.

Acronyms and abbreviations represent another typical feature of medical language. It is necessary to make a distinction in nomenclature. "Acronym" can be understood as "a word created from a string of one to several capitalised initial letters or syllables", whereas abbreviation refers to "a shortened form of a word or phrase" (Kuzmina et al., 2015, p. 550). In long medical texts, where the same term can appear several times, the anaphoric use of acronyms and abbreviations creates textual cohesion and avoids redundancy (Mattiello, 2012, pp. 160-161).

Since the paper in question is addressed to an audience of specialists in the medical field, who have a certain acquaintance with the specialised terminology of medicine, some acronyms, such as "CCL" (standing for "chronic lymphocytic leukaemia"), for example, are sometimes used without their full-length referents, thereby resulting in equivocal meanings. Since the Italian readership may not be fully familiar with the use of English acronyms (especially when the respective extended form is missing), in order to disambiguate the meaning of "CCL" in the TL, this was replaced by its corresponding Italian version (*LLC*) and preceded by the use of its unabridged form: *leucemia linfocitica cronica* (*LLC*). In a number of cases, the translator is faced with the possibility of using the English or the Italian acronym indistinctly since both are widespread and recognised in the TL. In these cases, the Italian version of the acronym

has been selected in the translation. An example includes "RAAS" (standing for "renin-angiotensin-aldosterone system") which was translated as *SRAA* (*sistema renina-angiotensina-aldosterone*). It might be argued that, English being the *lingua franca* of medicine (Karwacka, 2015, p. 276), the issue of translating acronyms has now become less emphasised, with most English initialisms having an international diffusion and being clearly understood within a specialised community of speakers (Mattiello, 2012, p. 162). Nevertheless, it must be noted that in similar peer-reviewed medical articles published in Italy, the Italian version of the acronym in question is sometimes preferred. This approach was then adopted on the assumption that the target readership might be more familiar with Italian spellings rather than with English ones. Note that both *LLC* and *SRAA* are examples of "acronyms by inversion of order" (Bankole, 2006): the letters used are the same in both English and Italian but with inverted order. The reason for that lies in the different grammatical structures of the two languages, especially on what concerns the positioning of adjectives: in English adjectives always precede the noun, while in Italian the process tends to be the opposite.

Another strategy adopted to deal with acronyms was omission. This is generally employed when the expression being referred to by the English acronym cannot be reduced to initials in Italian. This applies, for instance, to "QPD" (referring to the above-mentioned "Qingfei Paidu"). Online sources do not report the use of "QPD" in Italian medical texts. Since the medication in question can be equally referred to as *Decotto Qingfei Paidu*, the omission of the acronym does not result in a misunderstanding or lack of information in the ST and can be therefore deemed acceptable.

On what concerns abbreviations, these are largely employed in the ST figures and tables due to the economy in space they provide. The strategy used to deal with most ST abbreviations was borrowing so that these remained unchanged when transposed in the TT. An example is "CRT", used both in the SL and in the TL as a shortened form of "chemoradiotherapy" and *chemioradioterapia*.

(continued overleaf)

4   Conclusion

In conclusion, this paper particularly focuses on three different features of medical discourse: complex nominal phrases, specialised vocabulary and abbreviated forms. It has been observed that linguistic conventions of written medical texts vary across languages, with Italian showing a tendency towards a higher register and more complex syntactical structures than English. In line with this, a recurrent pattern in English into Italian translation is the replacement of premodifiers with prepositional phrases used in postmodifying position. As well as this, in order to conform to the linguistic conventions of the Italian language in the scientific and medical field, where impersonal forms are generally privileged, nominalisation and verbal modulation are commonly employed in this type of text rendition. On what concerns lexical choices, the terminological precision of medical texts entails the use of appropriate tools and resources, such as specialised dictionaries and glossaries, as well as a certain familiarity with the medical issues and procedures described in the text. The main problem with acronyms and abbreviations is that these can cause ambiguity when used without their full-length referents. The most frequently employed techniques include omission, borrowing and substitution of the source-language form for the target-language one. The translation strategies proposed in this paper have the twofold purpose of ensuring that medical information is transferred accurately whilst adapting the text to the target readership's expectations in terms of formal and stylistic requirements. The translator needs to bear in mind the importance of content correctness, terminological precision and readability inasmuch as translation errors can generate unpleasant situations for both patients and health professionals. Considering the global impact of language mistakes in the context of the COVID-19 pandemic, accuracy in medical translation needs to be treated as a high-priority issue.

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6 Resources

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