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Mistranslation and Maltranslation in A Medical Website: Evidences from Dorland's Medical Dictionary

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Abstract

This study examines the quality of entry translation in Dorland's Medical Dictionary (DMD) containing mistranslation and maltranslation. This embedded-case study used DMD human-based and website mistranslation leading to maltranslation. The purposively selected data were 111 tropical medicine related the entries and its definition inserted in the *Kamus Kedokteran Dorland Edisi 31* and the website translated by Google Translate. The translation techniques and assessment of the quality were processed in a Focus Group Discussion. The rational how a mistranslation raised maltranslation was based on the basic medical science when a doctor examined, diagnosed, treated, promoted and prevented diseases for the benefit of patients. Findings show that 111 entries made up of 158 human-based translated sentences are composed of 2816 units of translation, and the 162 Google Translate sentences for 3054 units. There are 18 translation techniques in human-based translation, 16 in Google Translation, 80 mistranslations leading to 57 maltranslations causing incorrect diagnosis, mistreatments, and misdirection of health promotion and prevention of disease. Of 40 tokens, maltranslation occurs 32 times and human-based translation 25 times, implying low quality of the translation that requires improvement of the definition, word entries, and sentences in the website.

Keywords−mistranslation, maltranslation, medical dictionary, human-based and Google Translate.

Introduction

This study concerns with translation studies specifying the translation process from English language into Indonesian language viewed from linguistics. Specifically, this study examines evidences of text features that describe mistranslation and mistranslation as a result of interpreting improper description in the Dorland's Medical Dictionary (DMD). Mistranslation does occur in medical practices as a result of insufficient transfer of equivalent meaning in the Source Language (SL) into Indonesian language as the Target Language (TL) of translation. At the higher level, mistranslation contributes a maltranslation evidence as a result of insufficient, improper and failure to

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transfer meaning to severe distinction of the substance in the SL into TL. Evidences from human-based translation techniques and Google translation techniques are served to evaluate in this study.

In the past the translation of medical texts was considered not difficult because it was one of the oldest and universal fields of scientific translation, and human anatomy and physiology around the world were almost the same (Fischbach, 1961:1; Fischbach, 1986:1). However, now the translation of medicine is often considered more difficult than the translation of other scientific and technical texts because the translator is required to have a basic knowledge that is up to date about the mechanism of the body's work and the development of disease and as well as related matters (Moraes, 2010:30).

DMD or *Kamus Kedokteran Dorland* (KKD) *Edisi* 31 in Indonesian version is central in Indonesian medical dictionary. A medical dictionary is a specialized dictionary covering terms used in the health professions by doctors, nurses, and others involved in allied health care services. The dictionary with authoritative spellings and definitions is a particularly crucial resource in medicine, where a misspelling or misunderstanding can have unfortunate consequences for people undercare (Dictionary.com. 2018). Unfortunate consequences can also occur due to mistranslation of definitions in the medical dictionary, though translation techniques are not good or bad or wrong in themselves, they effect the result of the translation (Molina and Albir, 2002:509). For the mistranslation of medical terms that contain unfortunate clinical consequences, researchers propose a term of maltranslation. The *mal* prefix comes from the Latin word *malus* which means bad or abnormal (Dorland, 2007:1112).

Maltranslation is a combined word of *mal* and *translation* denoting wrong translation that put patient's heal that risk. Translation techniques are not good or bad or wrong in themselves, however they affect the result of the translation (Molina and Albir, 2002:509). The maltranslation term necessitates that medical science is unforgiving about errors, sensitive and high risk (Taylor, 2011:123; Nababan et al., 2012:43; Budiharso, 2018), hence identification of maltranslation requires specific knowledge, skills and competence of the assessor.

The translation of medical texts has a high risk because of errors or distortions of meaning or taxa of translation have the potential to instill wrong knowledge and understanding to readers or interested persons or medical personnels and doctors. Wrong understanding can harm patients in terms of diagnosis, treatment, management, prevention and health promotion (Flores *et al*., 2003; Kelly, 2010:1; Foden-Vencil, 2014:1; Karwacka, 2014:20). In particular, the translation of

wrong medical texts can be fatal in terms of health, law and economics (Pym, 2010:27; Pym, 2015:18). For example, the mistake of translating just one word, namely *intoxicado* to be *intoxicated*, has fatal consequences and caused a large loss. Regarding this, Kelly (2010:1) wrote: *If a picture is worth a thousand words, then what is a word worth? ... The miscommunication led to a misdiagnosis, the wrong course of treatment and eventually, to his quadriplegia. It also resulted in a malpractice settlement of $71m.*

Excerpt below cited from an entry of *chloroquine* in Dorland's Medical Illustrated Dictionary 31st Edition page 352 exemplifies how SL is translated into TL in Bahasa Indonesia that indicate how mistranslation occurs:

> SL (English Language)
> *a 4-aminoquinoline compound with antiinflammatory and antiprotozoal properties, used for the suppression and treatment of malaria, and for the treatment of giardiasis and extraintestinal amebiasis, for suppression of lupus erythematosus, and as antiinflamatory in the treatment of rheumatoid arthritis, administered orally*.
>
> TL (Indonesian Language)
> *chloroquine senyawa 4-aminokuinolindengan sifat antiinflamasi dan antiprotozoa yang digunakanuntuk supresi dan terapi malaria, giardiasis serta amebiasisekstraintestinal dan untuk supresi lupus eritematosus di samping dipakai sebagai preparat antiinflamasi pada terapi artritis reumatoid; chloroquine diberikan per oral* (Kamus Kedokteran Dorland Edisi 31 page 407).

An omission in human-based translation of the above excerpt occurs in the phrase: *for the treatment of (giardiasis and extraintestinal amebiasis)*. This omission potentially produces a mistranslation leading to a maltranslation, since *chloroquine* cannot suppress or stop the clinical course of giardiasis (Kusmartisnawati in Hadidjaja and Margono, 2011:61-62; Solikhah, 2018). If it is administered it is a mistherapy, it will endanger the health of a patient. Pym (2010:3) wrote *"Omission is a common enough strategy, especially in low-risk situations. However, it might give a high-risk rendition, ..."* Vázquez Ayora (1977, in Molina and Albir, 2002:504) defined omission as to omit redundancy and repetition that is characteristic of the source language.

In the source sentence, redundancy and repetition were not so frequent that the words should be omitted. The translators might have been in a rush. This happening gave web translation positive value over human translation. Thus, the term maltranslation indicates that accuracy in medical dictionary translations requires specific knowledge, skills and competence of the assessor. Mistranslation and maltranslation are not only related to accuracy but also acceptability and

readability of a sentence because medical science is unforgiving about errors, sensitive and high risk (Taylor, 2011:123; Nababan et al., 2012:43; Pym, 2015:73; Anggororeni, et.al, 2018).

The translation process should comprehensively cover the unit of translation. Vinay and Dalbernet (1995:21-22) define the unit of translation as the smallest segment of the utterance whose signs are linked in such a way that they should not be translated individually. According to the particular role they play in the message, several types of units of translation can be recognised, e.g. semantic units, *i.e.* units of meaning.

Huang and Wu (2009:111) claims that studying translation without knowing the unit of translation is no different from studying medicine without knowledge of the human cell. They further define unit of translation as a target text segment instead of the commonly accepted source text segment, as follows: (1) the unit of translation creates an interval in the translating process, (2) it is into which the translators render s from the source text, (3) it has distinct and consistent grammar features, and (4) it possesses presence of meaning which is identifiable, and accuracy which is measurable through standardized assessment. Brodovich (2015:218) states *because the unit of translation was defined as a portion of the original text, it would seem that the text as a whole cannot serve as a unit of translation*.

Not all translation errors are fatal, however, for instance, Fakler and colleagues (2007:1) report a translation error in an artificial knee replacement device. The instructions for use in written English *non-modular cemented* have been translated into German as non-cemented or without cement. As a result of 47 non-cement (adhesive) knee replacement operations carried out from May 2006 to March 2007 at the Hospital in Germany, 34 patients had to undergo surgical revisions. Fortunately the remaining 13 patients did not complain of interference.

Flores et al. in 2003 conducted a research in a Children's Hospital, and found 5 types of translation techniques *i.e.* omission, addition, substitution, editorialization and false fluency used by interpreter that producing mistranslation leading to maltranslation. Flores et al. (2003:1,2) explained that omission happened when the interpreter did not interpret a word/phrase uttered by the clinician, parent, or child. Addition was the interpreter added a word/phrase to the interpretation that was not uttered by the clinician, parent, or child. Substitution: the interpreter substituted a word/phrase for a different word/phrase uttered by the clinician, parent, or child. Editorialization: the interpreter provided his or her own personal views as the interpretation of a word/phrase uttered by the clinician, parent, or child. False fluency: the interpreter used an

incorrect word/phrase, or word/phrase that does not exist in that particular language. Seventy three percent (73%) is a false fluency error, namely the mistake of translating medical terms into words or phrases that are not contained in the target language. Of all the translation errors, 63% of them contain 13 types of clinical consequences (Flores et al., 2003:1,2).

In Indonesia, mistranslation practices do happen for some instances. Once, dosage and direction for use of a B (Trademark) Gargle have been mistranslated. The original patient package insert reads: *Gargle undiluted 15 mL (3 tsp) followed by mouth rinsing for min of 30 sec. Repeat 2-4 times daily or as required*. The Indonesian translation is: *digunakan dengan dikumur langsung sebanyak 15 mL sebanyak 3-5 kali sehari*. The translation techniques used are modulation from *2-4 times daily* to *3-5 kali sehari* (*3-5 times daily*) and reduction of *(3 tsp)* and *for min of 30 sec*. Another Indonesian leaflet advices 10 ml of B Obat Kumur. Wrong dosage and direction for use in a short time course will develop side effects, among others: anaphylaxis reaction, anaphylatoid, anaphylaxis shock, burns, mucosal irritation, and hypersensitivity reaction. Silalahi (2009:i) found that the accuracy of human-based translation from English to Indonesian reached 64.75%.

The evidences of maltranslation in the above illustration, strongly indicate that linguistically translation approach does not suffice to translate a medical text. Medical translations applies accuracy in medical knowledge that requires analysis involving medical science, thus linguistic text error (mistranslation) alone is not sufficient as the basis for analysis (Pym, 2004:27; Pym, 2015:18). Taylor (2011:123) insists: *"For the medical writer, being "right" is paramount. More than probably any other discipline, medical science is unforgiving about errors".*

The experience of Patil and Davies (2014:1) in the Children's Emergency Unit, Nottingham, England, was an example of using Website Translation. At that time Patil and Davies had difficulty communicating with parents of pediatric patients who could not speak English. The child was treated in the emergency room because the suffering was very severe. Hesitantly, Patil and Davies tried Internet translation on the Google Translate Website to obtain translations from English into the mother tongue of the patient's parents and use the results to explain the child's situation. Luckily the patient recovered and when the hospital translator later came, stated that the information conveyed to the patient's parents was accurate. This event, in addition to showing the advantages of website translation in emergency situations, also illustrated the added value of the ability to synchronize medical text translations with the professionalism of doctors. This synchronization capability was most likely useful for producing better medical translations.

Patil & Davies (2014:1) examined the accuracy of the translation of Google Translate on ten commonly used medical phrases and found that the accuracy level was only 57.7%.This condition shows that the translation of medical texts must inevitably follow the development of information technology or the rapid Internet era in the present, although there are still deficiencies in terms of accuracy. The Internet provides higher translation speeds and is more economical than human-based translation and can be accessed much faster, almost every time, in any place, freely and widely. Van der Meer (2016:1) worried that *The Future Does Not Need Translators*. *... but we certainly need a future*.

Đorđević (2017:45) believed that translation techniques depend on specific language pair, the area of expertise and the specific issue the translator is facing when translating. She also stated that since recent approaches to the study of translation imply a strong focus on the target text as a product, the existing translation techniques for non-literary translation e.g. adaptation, amplification, borrowing, economy, transposition, modulation and compensation are still applicable (2017:39-44).

Grounded the above background in mind, this study is guided by the following research questions:

1. How do medical terms coined in the DMD, KKD and Google Translate translation affect mistranslation and maltranslation?
2. How do mistranslation techniques used in the DMD, KKD and Google translate affect translation quality that distorts SL proper meaning?

Methods

Research Design

The present study used a case study applying qualitative approach on translation study focusing on translation product. The study tried to describe how the original English version of DMD 31st Edition translated by Indonesian medical doctors into *KKD Edisi 31* and by Google Translate website, and to find translation techniques applied, whether the result was accurate or not, and if there was mistranslation leading to maltranslation, and evaluated the quality of translation. This study used multiple sources as the sites including Dorland's Medical Illustrated Dictionary (DMD) 31st Edition, the Indonesian human-based translation of *Kamus Kedokteran Dorland (*KKD*) Edisi 31* and Google Translate website translation of DMD (Spradley, 1980;

Santosa, 2017). This study, used qualitative approach as the dominant approach in the analysis of data. However, for the purpose of triangulation was also used to enhance the objectivity of the findings (Ngoc Minh Vu, 2017:91). Triangulation refers to the use of different data sources and different methods of data collection in the examination of the phenomenon (Freeman, 1998; Ngoc Minh Vu, 2017). Three types of triangulation are applied: source or document, method, and investigator triangulation. Source triangulation covers the original text of the DMD 31st Edition; *KKD Edisi 31*; and Google Translate translation. Methodological triangulation consists of content analysis, focus group discussion and key review informant technique. Investigator triangulation constitutes a tropical medical doctor, professor of linguistics specialized in translation and experts in translation technique.

Data and Sources of Data

Data of this study derived from DMD 31st Edition, the Indonesian human-based translation of *KKD Edisi 31* and Google Translate website translation. DMD is a preeminent medical dictionary published in 1890. The research materials are DMD 31st Edition publishedin 2007 by Elsevier/Saunders, USA, consisting of 2208 pages, with 11 consultants; *KKD Edisi 31* was converted into Indonesian by 14 Medical Doctors, and edited by 16 Medical Doctors, printed and published by EGC Medical Publisher, Jakarta, Indonesia in 2012, covering 2531 pages. *KKD 31st Edition* (2012) was selected because of its typical features that KKD has its incomplete translated title indicating carelessness making a good reason to investigate the way of translating texts inside. The purposively selected data consisted of 111 tropical medicine related entries of the 31st DMD because the first author has an additional education in tropical medicine. The other researchers are professors in linguistics.

Data Collection and Analysis

The data were cropped in a Focus Group Discussion (FGD) involving 4 participants, headed by a professor in linguistics specializing in translation, the first author and experts in translation. The entries and its explanation are human-based translated in the *KKK Edisi 31* and website translated by Google Translate. Table 1 shows an example of *wandering* entry and its definition. The mechanism of maltranslation development is in table 1 and sample of scoring techniques is in Table 2.

Table 1.
Wandering entry and its definition in DMD, KKD and Google Translate

Original text	Human-based translation and translation techniques	Mistranslation/ Maltranslation
wandering abnormally movable; too loosely attached.	Wandering dapat **bergerak** *pb* *ee* *trans* secara abnormal; yang *ee* *nb* *ee* melekat terlalu kendor. *ee* *ee* *ee*	Mistranslation: *bergerak* (*move*) should be *dapat digerakkan (movable)*
Original text	Google Translateand Translation techniques	Mistranslation/ Maltranslation
wandering abnormally Movable; too loosely attached.	**Pengembaraan bergerak** *ee* *ee* secara tidak normal;terlalu *ee* *ee* *nb* *ee* longgar melekat. *ee* *ee*	Mistranslation 1. *pengembaraan* means *travelling around*, then it does not fit *wandering.* 2.*bergerak* (*move*) should be *dapat digerakkan (movable)*

Translation techniques are positioned below underlines. Words of interest are printed in bold. Translation techniques: *pb*: pure borrowing; *ee:* established equivalent; *trans*: transposition; *nb*: naturalized borrowing.

Types of translation techniques are taken from Newmark, 1988; Hervey and Higgins, 1992; Vinay and Dalbernet, 1995; Molina and Albir, 2002; and Đorđević, 2017. Mistranslations of the Indonesian versions are detected after application of translation techniques, and then maltranslations determined. The explanation on how mistranslation raise maltranslation is based on the way of a medical doctor examines, diagnoses, treats, promotes and prevents diseases for the benefit of patients. The data were analyzed using content analysis (Spradley 1980, Santosa, 2017:83-84) focusing on shaping meaning especially through relationships among translation technique, mistranslation, maltranslation and translation assessment.

Sentences containing mistranslation or maltranslation are scored according to the model for translation quality assessment by Nababan et al. (2012:50-51) based on the principle that a quality translation must be accurate, acceptable and easily understood (readable) by the target reader. This model is selected because it is based on the Indonesian translator perception of translation quality assessment on English-Indonesian language pair product. The model is simple, practical and holistic. The condensed guide marks of the model consists of two steps: 1) applying

instruments for assessing accuracy, acceptability and readability, and 2) weighting and calculating the accuracy, acceptability and readability quality scores. Each of the translation quality assessment instruments consists of three parts. The first part shows an assessment of the translation category: good, fair and bad; or high, medium and low. The second is scoring the categories with a scale of 1 to 3, which is sorted according to the reverse pyramid, the higher the quality of a translation, the higher the score obtained and vice versa. The third part is the qualitative parameters of each translation category. Each of the three aspects has a different value weight. The aspect of accuracy has the highest weight, namely 3. The aspect of acceptance of translation ranks second, namely 2. The readability aspect has the lowest weight, namely 1.

For example, the translation quality assessment of **cutaneous anthrax** entry and its explanation (DMD, 2012, pp. 100 and *KKD 31*, 2012, page 100). As table 2 suggests, there were no mistranslation and maltranslation in the first sentence as results of pure borrowing technique of *cutaneous anthrax* and established equivalent and structure transposition of *inoculation of Bacillus anthracis into superficial wounds or abrasions*. Good results of the translation techniques deserved a good value (3) for accuracy.

Table 2.
*Translation quality assessment of **cutaneous anthrax** entry and its explanation.*

No.	Source sentence	Target sentence	Score		
			Accuracy	Acceptability	Readability
1	cutaneous anthrax the most common type of anthrax in humans, due to inoculation of Bacillus anthracis into superficial wounds or abrasions.	*cutaneous anthrax jenis antraks yang paling umum pada manusia, disebabkan oleh inokulasi Bacillus anthracis ke dalam luka atau abrasi. Superficial*	3	3	3
2	It begins with a small,	*Dimulai dengan lesi papular*	1	3	3

	painless, pruritic papular lesion that may have **satellite lesions and enlarges**, ulcerates, and becomes crusted with a black eschar; this is surrounded by spreading edema. (malignant edema) and Induration	*berukuran kecil, tidak nyeri, gatal, dan dapat disertai dengan **lesi satelit yang membesar,** berulserasi, dan menjadi krusta dengan keropeng hitam yang tebal dan melekat (*eschar*); lesi ini dikelilingi edema yang menyebar (malignant edema) dan indurasi.*			
3	The eschar may either **heal** or progress to a systemic condition, Sometimes involving The meninges, Accompanied by high fever and severe toxemia.	*Eschar dapat **sembuh secara spontan,** tetapi juga dapat Berkembang menjadi kondisi sistemik, kadang mengenai selaput otak, disertai dengan demam tinggi dan toksemia berat.*	2	3	3
	Total		6	9	9
	Average score		2	3	3
	Weighted score		2x3=6	3x2=6	3x1=3
	Final weighted average score		(6+6+3)/6=2.5		
	Overall qualitative assessment of the entry translation		fair accuracy, fair acceptability, fair readability		

Words of interest are printed in bold.

A clause of the second sentence: *papular lesion that may have satellite lesions and enlarges,* was translated using literal and structure transposition techniques into: *lesi papular … dan dapat disertai dengan lesi satelit yang membesar,* and yielded a distortion of meaning. The Indonesian translation meant that the satellite lesions enlarge, not the popular lesion. Therefore, the result deserved a bad value (1) for accuracy.

The word *heal* in the third sentence was translated with an amplification or an addition of *secara spontan* (*spontaneously*) to become *sembuh secara spontan*. This translation brought about a distortion of meaning, since in obstetrics spontaneous delivery is not a normal delivery. So it would be more accurate to translate into *sembuh* instead of *sembuh secara spontan*. The amplification or addition produces medium accuracy with the value of 2.

The amplification or addition could also be stated as a modulation translation technique since it involves a change in cognitive category. Molina and Albir (2002:510) states that amplification is to introduce details that are not formulated in the source text: information and/or explicative paraphrasing. This includes Vinay and Dalbernet's explicitation, and Newmark's explicative paraphrase. Footnotes are a type of amplification. Đorđević (2017:41) also says that by means of this technique, the translator adds details that are not present or expressed in the source text but are necessary in the target text so that the recipients of the target text may understand what it is about. Nida (1964 in Molina and Albir, 2002:502) listed several circumstances that might oblige a translator to make an addition: to clarify an elliptic expression, to avoid ambiguity in the target language, to change a grammatical category (this corresponds to Vinay and Dalbernet's transposition), to amplify implicit elements, and to add connectors. Modulation is to change the point of view, focus or cognitive category in relation to the source text; it can be lexical or structural. This coincides with Vinay and Dalbernet's acceptation (Vinay and Dalbernet, 1995:36; Molina and Albir, 2002:510; Đorđević, 2017:43).

Nababan et al. (2012:50-51) stated that the highest weighted score of accuracy is adjusted accordingly the basic concept of the translation process as a message transfer process (accuracy) from the source language text to the target language. The medium weighted score of acceptability determination is based on the idea that the aspect of accept-abilities directly related to the suitability of the translation with the rules, norms and culture that apply in the target language. In certain cases, the aspect of acceptability affects the aspect of accuracy, since a translation that is not acceptable will also not accurate. The lowest weighted score given to the readability aspect is related to the notion that the translation problem is not directly related to the problem whether the translation is easily understood or not by the target reader. However, because the target readers generally do not have access to the source language text, they really hope that they can understand the translation easily. Several examples describing the relationship of mistranslation, translation techniques applied, maltranslation and scores of translation quality assessment are presented in the results.

Findings

General Translation

Maltranslation from mistranslation in human-based translation is an initial effort to diagnose a mass or tumor, a medical doctor will try to move it to know if the mass or tumor actively move or it can be moved. Mistranslation is the result of unit transposition translation technique of *movable* is *bergerak (actively move)*. The correct meaning is *could be moved*, which is passive. Here, mistranslation becomes maltranslation because it causes misdiagnosis, and further will result in mistherapy and endanger patient's health.

Maltranslation from mistranslation of Google Translate website translation indicates result of established equivalent translation technique of *wandering* to *pengembaraan* (*trajectory*), and a mistranslation with a connotation of *actively and aimlessly travelling around*. In medicine, something in the body will wander, not *pengembaraan,* to favourable parts of the body after monitoring if the condition and situation are suitable for its habitat and functions. It never moves without aims. Evidently, this mistranslation becomes maltranslation as a result of distorting the natural character of a healthy human. Using the word *pengembaraan* will cause misdiagnosis as a healthy man is diagnosed ill. Another maltranslation, as happened in human-based translation above, appeared as result of unit transposition unit from adjective to verb, that is *movable* to *bergerak* (which actually *dapat digerakkan*), and creates misdiagnosis that cause mistherapy that is detrimental to patient's health.

The translation techniques used are: pure borrowing that is taking a word or expression straight from another language without any change. Pure borrowing corresponds to Vinay and Dalbernet's borrowing (Vinay and Dalbernet, 1995:31; Đorđević, 2017:42). and established equivalent technique that is defined as the use of a term or expression recognized by dictionaries or language in use, as an equivalent in the target language. This technique corresponds to Vinay and Dalbernet's equivalence and literal translation (Vinay and Dalbernet, 1995:33,38; Molina and Albir, 2002:510). Transposition is most often used to substitute a certain class of word with another one in the target language. For instance, a verb may be translated by means of a noun, or an adjective may be used instead of a noun. In addition, transposition may also be used to resolve the lack of correspondence occurring at the level of grammar, syntax and morphemes. In short, isto change a grammatical category, structure and unit. It basically concerns with word's form and position (Newmark, 1988:85; Molina and Albir, 2002:511; Đorđević, 2017:43). Naturalized

borrowing technique is taking a word or expression straight from another language to fit the spelling rules in the target language. Naturalized borrowing corresponds to Newmark's naturalization technique (Newmark, 1988:82; Đorđević, 2017:42).

Translating Unit of Translation

The first segment to present in the results is the unit of translation. The units of translation in purposely selected data are words, terms, phrases, clauses and sentences. The total number in human-based is 2,816 and 3,054 in Google Translate Translation. It is noted that the number of words, terms, clauses and sentences of human-based translation are practically the same as of Google Translate translation. However, this does not mean both modes of translations use the same numbers of translation techniques nor produce the same mistranslations and maltranslations. The rational reason might be that they are translated into the same English-Indonesian language pairs.

There were 18 translation techniques applied, and all were covered by the techniques mentioned in scholars (Newmark, 1988; Hervey and Higgins, 1992; Vinay and Dalbernet, 1995; Molina and Albir, 2002; and Đorđević, 2017). All were included in the existing non-literary translation techniques (Đorđević, 2017:35). The three most used translation techniques in human translation are established equivalent, pure borrowing and combination as well as in web translation. The data support that the existing non-literary, scientific and specialized translation techniques are applicable for the medical dictionary. However, the quality of translations should be further assessed. It is also observed that the frequency of literal translation in web translation (78) is much higher than in human translation (2). This condition matches the observation of Hariyanto (2015:150) and Sigalingging (2017:107) that literal translation frequently used in web translation. One of the reasons might be the neglected requirement of using literal translation. According to Molina and Albir (2002:499): "Literal translation occurs when there is an exact structural, lexical, even morphological equivalence between two languages, and this is only possible when the two languages are very close to each other and also when form coincides with function and meaning." This requirement was strictly applied by human translator but not by machine translator. The human translators knew that English belonged to the Indo-European language family and Indonesian belonged to the Austronesian language family but Google Translate did not. Only 40 out of the 111 entries and explanations contained mistranslation and/or maltranslation. Translation techniques used in the 40 entries are in table 3.

Table 3.
Frequency distribution of 40 entries and its explanation human-based and Google Translate website translation.

Units of translation			Human-based translation		Google Translate translation	
Human-based		Google Translate	Mistranslation	Maltranslation	Mistranslation	Maltranslation
414	Words	594	30	25	35	30
81	Terms	105	8	4	11	6
103	Phrases	134	7	3	10	6
35	Clauses	43	5	1	8	3
57	Sentences	59	57	25	59	32

Translation techniques used in 40 entries and its explanation of the DMD 31st Edition human-based and Google Translate website translations are in table 4.

Table 4.
Frequency of translation techniques used in 40 entries of DMD

Translation Techniques	Human Translation	Web Translation
01. Established equivalent	330	332
02. Pure borrowing	84	65
03. Combination	64	45
04. Naturalized borrowing	21	21
05. Explicitation	12	3
06. Modulation	7	1
07. Discursive creation	4	12
08. Reduction	2	2
09. Transposition	2	1
10. Particularization	2	1
11. Ommission	2	1
12. Addition	1	1
13. Literal	1	28
14. Amplification	1	0

It is noted that the frequency of mistranslation and maltranslation in Google Translate is higher than inhuman-based translation. It is still not known whether the translation quality of human-based better than Google Translate translation. Translation quality assessment does not depend only on the number of mistranslations and maltranslations, but also on accuracy, acceptability and readability of a sentence.

Although translation techniques are not good or bad or wrong in themselves, they affect the result (Molina and Albir, 2002:509) and interpretation of the translation. It is obvious that mistranslation is very close to semantics as it is a matter of meaning. Furthermore, meaning influences the quality of translation especially in communicative translation *e.g.* medical dictionary. The quality of translation should be quantitatively measured in accuracy, acceptability and readability aspects as in the Translation Quality Assessment proposed by Nababan et al.,

(2012:50-53). Relationships between mistranslation and translation techniques are described in table 5.

Table 5.
An example on adjuvant entry in DMD and KKD and Google Translate

Original text in English	Indonesian human-based translation and techniques	Mistranslation
adjuvant [L. adjuvans aiding] in immunology, a nonspecific stimulator of the Immune response, such as BCG vaccine.	adjuvant [L. adjuvans *pb pb pb* membantu] dalam *ee ee* imunologi, stimulator *nb pb* Responsimun nonspesifik *nb nb nb* Misalnya vaksin BCG *ee nb pb*	The back translation (Google Translate) of *stimulator respons imun nonspesifik* is *stimulator of nonspecific immune responses.* Comment: word by word translation showed no Mistranslation
	Indonesian Google Translate translation and techniques	Mistranslation
	adjuvant [L.Adjuvan *pb pb nb* membantu] dalam *ee ee* imunologi,stimulator *nb pb* Nonspesifik dari respon *nb ee nb* imun,seperti vaksin BCG *nb ee nb pb*	Established equivalent of the word *of* is *dari* and it creates a distortion of meaning since the phrase of *stimulator nonspesifik dari respon imun* may also mean *stimulator nonspesifik berasal dari (originates from) respon imun*. The accurate meaning is the *nonspecific stimulator* is the BCG vaccine, not the response immune.

Translation techniques are attached below the underlines. However, their definitions already mentioned under table 1. *ee*: established equivalent; *nb*: naturalized borrowing; *pb*: pure borrowing.

The next step for evaluating an entry is combining original sentence, human-based and Google Translate website translations, mistranslation and maltranslation, and translation quality assessment. An example of Google Translate translation is presented below for the quality of translation reaches the lowest grades. See table 6.

Table 6.
Anaphrodisiac entry in the 31st DMD and its Google Translate translation.

Original text in English	Google Translate website Translation	TQA
*anaphrodisiac a drug or **medicine** that **allays** sexual Desire.*	anafrodisiak obat atau **obat** **Itu memenuhi** hasrat seksual.	A A R 1 1 1 Bad accuracy Bad acceptability Bad readability

TQA: Translation Quality Assessment; A: Accuracy; A: Acceptability; R: Readability. Translation techniques used are: *ee*: established equivalent, and *nb*: naturalized borrowing; their definitions already mentioned under table 1. Mistranslation and maltranslation are typed in bold.

Mistranslation appears as *allays* is translated into *memenuhi*. The appropriate translation of *allays* is *mengurangi*, and the translation of *memenuhi* into English is *to fulfill* or *to meet*. So, if *anaphrodisiac* is capable of fulfilling sexual desire, it is a maltranslation leading to mistherapy. The translation of *medicine* into *obat itu* using established equivalent and addition is not acceptable nor readable in an Indonesian sentence. Therefore, the translation is rated 1/1/1 or least accurate, least acceptable and least readable.

Additional information is about the proportion or frequency distribution of medical practices in relation to maltranslation. It is noted that the most medical practice related to maltranslation is diagnosis, 60% in human-based entries and 56% in Google Translate; then therapy, 28% and 31%; and the least is promotion and prevention, 12% and 12%. These findings correspond to characteristics of medical practice that the main role or concern of a medical doctor is diagnosis.

The last step in evaluating the effect of mistranslation leading to maltranslation in human-based and Google Translate website translations is calculating and comparing their translation quality assessment scores. The weighted scores are accumulation of translation quality assessment (accuracy, acceptability, and readability) scores of 111 entries. Seventy one entries contain no mistranslation nor maltranslation, and forty entries contain mistranslation and or maltranslation. Final weighted average scores in Table 7 are calculated according to the rules of Nababan et al. (2012:53).

Table 7.
Comparison of final weighted average scores of 40 entries of human-based and Google Translate website translation.

Group	Human-based Translation			Google Translate translation		
	Ns	WS	FWS	Ns	WS	FWS
Mistranslation (-) Maltranslation (-)	111	5.8/5.5/3.6	2.5	111	5.4/4.8/4.0	2.4
Mistranslation (+) Maltranslation (-)	15	5.7/5.4/3.2	2.4	8	4.7/4.2/3.0	2.0
Mistranslation (+) Maltranslation (+)	25	5.5/5.1/3.1	2.3	32	4.5/3.9/2.6	1.8

TQA: Translation Quality Assessment.Mistranslation (-) means there is no mistranslation in the sentences evaluated. Maltranslation (+) means there is maltranslation in the sentences evaluated. Ns is numbers of entries; WS is weighted scores. 5.8/5.5/3.6 means accuracy score is 5.8/acceptability score is 5.5/readability score is 3.6. FWS is Final Weighted Scores.

Overall weighted scores showed that accuracy, acceptability, and readability of human-based translations were better than Google Translate website translation. The overall weighted score of the human-based translation accuracy was 5.5, higher than the Google Translate website translation accuracy that was 4.1. These scores indicated that sentences of human-based translation were more accurate than sentences produced by Google Translate. Scores of the acceptability, and readability showed the same tendency. Further, the final weighted average scores also supported better human-based translation than Google Translate, although both modes of translations yielded less accurate, less acceptable and less readable sentences for the readers.

Discussion

Our findings in this study confirm that the idea to coin the term of maltranslation started when notifying that there was a need for further clarification of mechanism which connected between mistranslation and unfortunate clinical conquences for people undercare. An interpreter with good bilingual competence may help without guaranty (Flores et al., (2003:1,2). One of the basic solutions is improving interpreter by providing a bilingual pocket medical dictionary or an excellent medical dictionary and its translation or a practical handy facility capable of reading medical dictionaries and its translation in several languages in need by way of internet. Even a medical doctor needs it (Patil and Davies, 2014:1).

In Indonesia, an effort was done in translating the 31st Dorland's Illustrated Medical Dictionary into *KKD Edisi 31*. However, the cover of the *Kamus* showed a mistranslation by omitting the word Illustrated. This omission still made the *Kamus* title acceptable and readable, though in fact it was not accurate. The researchers tried to look inside and found many mistranslations. Deeper analysis found that 40 entries out of 111 entries contained 30 words and 57 sentences mistranslated leading to 25words (83%)and 25 sentences (44%) maltranslated in human-based translation. Thirty five words and 59 sentences mistranslated leading to 30 words (86%) and 32 sentences (54%) maltranslated in Google translation. These data proved that mistranslation and maltranslation happened inhuman-based and Google translation of medical dictionary in high percentage, ranging from 44% to 86%. Patil and Davies (2014:2) found Google Translate had only 57.7% accuracy when used for medical phrase translations, but still believed Google Translate could be a useful adjunct to human translation services when human translators were not available. For Indonesia, this condition gives bad indication in noble intention.

On the other hand, this situation is still far from what Van der Meer (2016:1) worries about that *The Future Does Not Need Translators*. *... but we certainly need a future*.

Inserting maltranslation term in translation study should be based on sound basis and proofs as several terms related to maltranslation, *i.e.* unit of translation, translation technique, mistranslation, and translation quality assessment have to be consulted. The first segment to understand is the unit of translation. Huang and Wu (2009:111) claims that studying translation without knowing the unit of translation is no different from studying medicine without knowledge of the human cell. Vinay and Dalbernet (1995:21-22) define the unit of translation as the smallest segment of the utterance whose signs are linked in such a way that they should not be translated individually. According to the particular role they play in the message, several types of units of translation can be recognised, *e.g.* semantic units, *i.e.* units of meaning. The unit number of translation as the basis of this article is 2816 in human-based and 3054 of Google Translate translation consisting of words, medical terms, phrases, clauses and sentences cropped in a FGD of qualified personnels. These numbers are adequate enough for an analysis, moreover this study is a qualitative study. When purposively source data are reliable and valid, its results are worthy of trust. Types of unit of translation have fulfilled the requirement of the qualitative parameters of the translation quality assessments of Nababan et al. (2012:50-51).

The data were translated using translation techniques primarily proposed by Molina and Albir (2002:509-511). They mentioned about 59 translation techniques, methods, procedures, strategies, and adjustments (Nida, 1964; Vázquez-Ayora, 1977, Margot, 1979; Newmark, 1988; Hervey and Higgins, 1992; Delisle, 1993; Vinay and Dalbernet, 1995). They classified them into 18 translation techniques and stated though translation techniques are not good or bad or wrong in themselves, they affect the result of the translation. This study does not differentiate methods from procedures or from techniques or from strategies, and uses them interchangeable and names them as techniques.

The numbers of translation techniques appeared in human-based translation are 18 and in Google Translate translation is 16 with established equivalents, pure borrowings and combinations the most applied. It is observed that the frequency of literal translation in web translation (78) is much higher than in human translation (2). This condition matches the observation of Hariyanto (2015:150) and Sigalingging (2017:107) that literal translation is frequently used in web translation. The data also support that the existing-non-literary, scientific and specialised

translation techniques are applicable for the medical dictionary. The translation technique follows the characteristics of a non-literary text that is of a given scientific community or professional group with certain features of vocabulary, form and style, which are wholly function-specific and conventional in nature and which are meant to inform, educate, announce, entertain, illustrate, instruct, present, argue, explain, teach, refer, denote, communicate, etc (Đorđević,2017:37). However, the quality of translations should be further assessed.

Translation techniques are not good or bad or wrong in themselves, however they affect the result of the translation (Molina and Albir, 2002:509), including mistranslation as mistranslation is interpretation of translation technique result. When mistranslation is considered leading to maltranslation in a translated sentence, the quality of the sentence should be assessed. It is believed that mistranslation and maltranslation influence the quality of translation especially in communicative translation *e.g.* medical dictionary. The quality of translation should be qualitatively defined and quantitatively measured in accuracy, acceptability and readability aspects as in the Translation Quality Assessment Model proposed by Nababan and coleagues, (2012:50-53).

The Translation Quality Assessment Model consists of two steps: 1) applying instruments for assessing accuracy, acceptability and readability, and 2) weighting and calculating the accuracy, acceptability and readability quality scores. Instruments applied consist of three parts. The first part is assessment of the translation category: good, fair and bad; or high, medium and low. The second is scoring the categories with a scale of 1 to 3, the higher the quality of a translation, the higher the score obtained and vice versa. The third part is the qualitative parameters. Weighting and calculating the three aspects are expressed in a different value weight. The aspect of accuracy has the highest weight, namely 3. The aspect of acceptance of translation ranks second, namely 2. The readability aspect has the lowest weight, namely 1.

As there were 111 entries, the weighted scores were accumulated from translation quality assessment (accuracy, acceptability, and readability) of 158 human-based and 162 Google Translate sentences. Seventy one entries contained no mistranslation nor maltranslation, and forty entries contained mistranslation and or maltranslation. Then, the final weighted average scores were calculated from the weighted scores. Complete calculation was presented in Table 7.

Overall weighted scores indicate that sentences of human-based are more accurate, more acceptable and more readable than sentences produced by Google Translate translation (5.5/5.1/3.1

compared to 4.5/3.9/2.6). The final weighted average scores also support that human-based is better than Google Translate translation (2.3 compared to 1.8), although both modes of translations yield less accurate, less acceptable and less readable sentences for the readers.

Conclusion, Limitation and Implication

This article has tried to fulfill the requirements of qualitative research, so that results are worthy trusted. In summary, maltranslation term is a specific issue worth mentioned in a translation study of medical dictionary translated in English-Indonesian language pair, in the area study of tropical medicine. Mistranslation and maltranslation happen in human-based and Google translation medical dictionary in high percentage, ranging from 44% to 86%.

Maltranslation is related to the existing non-literary, scientific translation techniques. In all of the purposively selected 111 entries,18 techniques used in human-based translation and 16 in Google Translate. Literal translation is used more frequently in Google Translate, 78 compared to 2. In the 40 entries containing mistranslation and/or maltranslation out of 111 entries, 14 techniques are used in human-based and 13 in Google Translate. Overall weighted scores indicate that sentences of human-based are more accurate, more acceptable and more readable than of Google Translate translation. The final weighted average scores support that human-based translates better than Google Translate. However, both modes of translations yield less accurate, less acceptable and less readable sentences for the readers.

This study has its restrictions in that evaluation is more focused on FGD and confirmation involving the translators and readers are not included. In addition, due to the this study gives more significances on medical concerns, analysis on linguistic aspects such as syntax and grammatical features are not emphasized more, contending that the affects of mistranslation and maltranslation in DMD, KKD and the website are more as the results of the language matters. Therefore, implications should be made in adherence to the contents of research findings and areas of the future research. The features of KKM and website describing KKM entries and definitions should have been received with care until improvement that provides proper descriptions that meaning in the DMD, KKM and the website is enacted. In addition, future research of the same field is suggested to improve its methodology by involving authors or translators, readers from variety of social background, and focus on medical concerns. KKM has been declared to translate and edit by some qualified medical doctors and professors in linguistics as the quality assurance that the

product should have attained full fidelity. However, maltranslation that jeopardize patients are still the most concerns in this study.

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