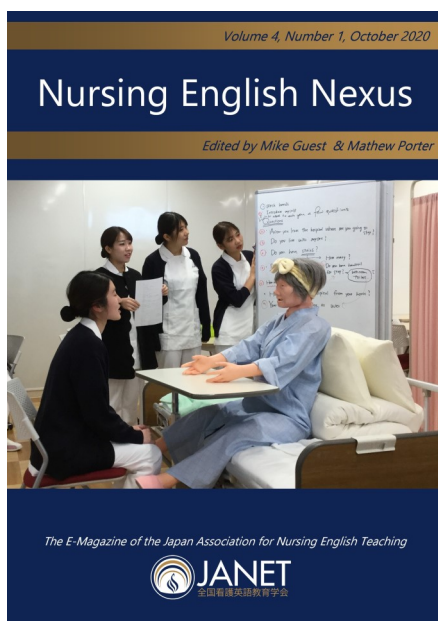


# Corpus Analysis for Lexis Usage in Global Nursing Discourse

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## Corpus Analysis for Lexis Usage in Global Nursing Discourse

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**Abstract:** This article is designed to clarify lexis usage in the global nursing discourse community, using a corpus analysis of a recent influential nursing document: *The Future of Nursing: Leading Change, Advancing Health*, published by the Institute of Medicine, the U.S. National Academy of Sciences in 2011 from which a total number of 7822 lemma types were counted. As this document addressed nursing policy as opposed to practice, the most frequent lemmas did not include items connected to diseases, symptoms, and specific nursing practices. Instead, this paper discusses the connotations of the report's choice of lexis regarding more general domain terms, such as, "health" ("health care") vs. "medicine" ("medical care"), "physician" vs. "doctor," "nurses and physicians" vs. "physicians" and "nurses," "professional" vs. "worker," and "transdisciplinary" vs. "interprofessional" vs. "interdisciplinary" vs. "multidisciplinary." Discussion is presented based on the idea of utilizing nurse-friendly language. The author hopes that this article will contribute to genre analysis of English for Nursing Professionals.

**Keywords:** lexis-usage, genre analysis, global nursing discourse, the Future of Nursing, nurse-friendly language

This article aims to clarify the use of lexis in the global nursing discourse community as exemplified in one highly influential policy paper. The paper we selected for a corpus analysis was *the Future of Nursing: Leading Change, Advancing Health* (hereafter, *Future of Nursing (Report)*, or *Report*) (downloadable from <https://www.nap.edu/download/12956>). The *Report* was published in 2011 by the Institute of Medicine (hereafter, IOM), the National Academy of Sciences in the US. Such IOM reports are highly influential on the health policies at various levels of government in the US.

*The Future of Nursing Report* emphasized that it should be nurses who lead the drive to safer and higher quality health care. To enable nurses to accomplish this, *the Report* proposed a number of important policy recommendations to improve the nursing work environment, regulation, education, and practice (Watanabe, 2012, pp. 81-88), which are all currently featured discourse topics within the global nursing community, as global nursing has been significantly influenced by U.S. nursing.

The release of the *Report* in the US, led other countries to release documents regarding their own countries' future nursing visions (Government of Australia, 2014; Japanese Nursing Association,

2015; Scottish Government, 2017). Although I cannot provide an exact figure, *the Future of Nursing* has been referenced and cited by numerous nursing researchers throughout the world. It would not be an exaggeration to say that even though the *Report* is a document pertaining to American nursing, it is also representative of contemporary global nursing discourses. Thus, we hope that a corpus analysis of *the Future of Nursing Report* will give us better understanding of lexis usage within global nursing discourse.

As for English education in nursing, whether for baccalaureate or 3-year nursing diploma programs (usually attached to a hospital), a number of needs analysis have been conducted (Motooka & Kawasaki, 1999; Miyake & Tremarco, 2005; Hirouchi, 2012) resulting in many nursing English text books being published in Japan that provide Japanese nursing students with opportunities to learn clinical dialogue and vocabulary in English (Watanabe, 2019, pp. 111-112).

Recently, however, genre analysis has become the dominant approach in English for Specific Purposes (ESP) education and research (Dudley-Evans, 2000; Takeuchi *et al.*, 2010). Teaching nursing English effectively therefore requires some degree of genre knowledge, particularly for

academic purposes. However, there has not yet been much genre analysis of contemporary global nursing discourse. Therefore, we hope that the present research might help to explain the use of lexis within global nursing contexts and thus will contribute to genre analysis for English for Nursing Professionals.

### Methods

*The Future of Nursing Report* consists of 701 pages including a summary, an overview, a main report, and appendices, including seven supplementary research papers containing further relevant topics. The following items, however, were removed from the full text of the *Report* for the creation of the corpus: the book and chapter titles in the upper margins on each page, the copyright descriptions in the lower margins, plus the references and index.

This study used *AntConc Corpus Analysis Tool Kit Windows 64-bit (3.5.8)* as a concordance and the *Someya Lemma List (no hypens [sic])* (Anthony, 2019).

First, a corpus was generated from the text. From this, the 100 most frequently used nouns were put together to create a preliminary list. Second, from the corpus, a number of lexical items were extracted which were on the list as they were frequently used in *the Report*, but the usage of which might differ from the same item as they are generally used. Third, a concordance analysis was conducted on those lexical items in order to analyze and clarify their connotations and denotations as used in the *Report*. Further, related historical and social contexts were reviewed to understand why those lexis were used in *the Future of Nursing*.

### Results and Discussion

A total number of 7822 lemma types were included in the corpus of *the Future of Nursing*. From those 7822 lemma types, articles, prepositions, conjunctions, and auxiliary verbs

were excluded. After that, the top 100 lemmatized word-list was created containing only nouns (see Table 1). Those lexical items are the most frequently used by the authors of *the Report*.

**Table 1**

**Top 100 Nouns from the Corpus of *the Future of***

Order	Words	Frequency	Order	Words	Frequency
1	nurse	6094	51	licensure	238
2	care	3201	52	team	232
3	health	2624	53	area	227
4	practice	1351	54	competencies	227
5	education	1317	55	leadership	225
6	program	1203	56	college	220
7	patient	892	57	BSN	213
8	need	725	58	recommendation	213
9	system	659	59	RNs	213
10	service	612	60	experience	211
11	student	554	61	certification	209
12	workforce	525	62	group	208
13	community	523	63	example	205
14	school	510	64	scope	204
15	physician	475	65	practitioner	203
16	professional	460	66	data	202
17	quality	453	67	RN	202
18	setting	450	68	access	201
19	role	438	69	evidence	201
20	degree	424	70	fund	200
21	work	395	71	outcome	200
22	board	394	72	improvement	198
23	policy	394	73	management	197
24	hospital	393	74	shortage	197
25	profession	391	75	development	193
26	graduate	388	76	knowledge	191
27	model	388	77	delivery	189
28	change	367	78	process	188
29	faculty	365	79	demand	185
30	level	362	80	standard	184
31	university	353	81	license	183
32	committee	351	82	baccalaureate	182
33	country	343	83	challenge	182
34	medical	328	84	family	181
35	advance	324	85	information	178
36	organization	319	86	reform	178
37	provider	319	87	requirement	176
38	support	303	88	specialty	174
39	future	302	89	plan	171
40	study	300	90	commission	169
41	population	290	91	regulation	165
42	register	289	92	curriculum	164
43	research	287	93	result	164
44	report	284	94	staff	163
45	APRN	283	95	opportunity	162
46	skill	283	96	technology	160
47	home	273	97	issue	157
48	cost	259	98	NPs	155
49	association	247	99	medicine	149
50	focus	246	100	APRNs	147

### Nursing Report

As Table 1 shows, the lexis used in *the Future of Nursing Report* is significantly different from those typically taught at undergraduate classes in nursing. Words referring to diseases, symptoms, and specific nursing practices do not appear in Table 1. One reason for this is that *the Future of Nursing* is obviously a document aiming to create

and develop better nursing policies. For example, early in the *Report* it is stated that, "Nurses have great potential to lead innovative strategies to improve the health care system. However, a variety of historical, regulatory, and policy barriers have limited nurses' ability to generate widespread transformation" (pp. 4-5).

From the corpus, I identified some lexical items which were frequently used in *the Report* in Table 1, but of which I felt usage might be different from the same items in general use, believing that such lexical items were likely preferred by the nursing discourse community. Once identified, I contrasted these items with the way they are generally used.

In order to further enable this discussion, I would like to introduce the term, *nurse-friendly language*. The notion of nurse-friendly language was first proposed by the Truth about Nursing, a powerful advocacy group for upgrading the image and profile of nursing and nurses in the US. According to the Truth about Nursing, "...the language we use affects how people think about nursing and health care generally" (2008a). In the media, and in society in general, nurses and nursing have often been depicted in ways that are insensitive to their values, often through the use of inappropriate words and expressions. Such an examination of the use of lexis in *the Report* will give us better understanding of nurse-friendly language as used in the wider nursing community.

In the discussion, I will also occasionally mention how certain Japanese clinical words tend to be translated into English in a "nursing unfriendly" manner among Japanese healthcare workers, which may negatively impact the image of Japanese nursing and nurses when participating in more global nursing discourse.

The numbers shown in parenthesis mark the frequency of the particular lexical usage in the *Report*

### Health (Health Care) vs. Medicine (Medical Care)

"Health" or "health care" and "medicine" or "medical care" may sometimes be used interchangeably in English. All of those words can be translated into 医療 *iryō* in Japanese. Originally in Japan, "medicine" was literally translated as 医 *i* or 医学 *igaku* and "medical care" into 医療 *iryō*. *i* and *igaku* were generally considered to refer to a physician's discipline while *iryō* was conventionally thought of as physician's practice. Although *iryō* actually has a broader meaning than merely physician's practice, "medicine" or "medical care" might be chosen as English equivalents rather than "health" or "health care" by nurses and other health care professionals, as well as by the general public both in Japan and around the world.

However, *the Future of Nursing Report* did not frequently use the terms "medicine" (149) or "medical care" (6). This important document instead overwhelmingly chose "health" (2624) and "health care" (1020) or "healthcare" (56).

As stated above, "medicine" and "medical care" have conventionally been considered to be limited to physicians' discipline, treatments, and procedures. On the other hand, neither "health" and "health care" denote "mere access to biomedical care [but encompass] prevention and health promotion, mental and behavioral health, and primary care services; public health; acute care; chronic disease management; transitional care; long-term care; palliative care; end-of-life care; and other specialty health practices" (p. 37).

These medical disciplines are not separate from, but rather subsumed under, the superordinate term "health care". For example, "acute care" is often viewed as accompanying general medical care with specific medical procedures. However, the *Report* treats "health care" as a superordinate of "acute care", as shown in Example 1.

**Example 1:** "Acute care describes *healthcare* [emphasis added] provided to treat a condition over a short period of time." (p. 414)

This implies that *the Future of Nursing* considers medical care, as well as the various subordinate disciplines of medical care, to be subsumed under the superordinate term “health care” (or ‘healthcare’). “Health” or “health care” have broader meaning and usage ranges.

As for the terms “medicine” and “medical,” *the Truth about Nursing* states as follows:

“The media and others often use the terms “medicine” or “medical” to refer to health care generally. Some feel that these uses equate the practice of physicians with all health care, and disregard the contributions of nurses, social workers, pharmacists, and other professionals. They may also lead some to the mistaken conclusion that these other professions are subsets of or subordinate to medicine.” (2008a)

If nurses are thought of as mere subordinates of physicians, it will be impossible for nurses to take the lead in quality care. Sandy Summers, the founder and executive director of the Truth about Nursing, also wrote in her book, *Saving Lives*, “Language is powerful. Unfortunately, too many common words and phrases, with deep roots in our culture, reinforce damaging assumptions and stereotypes about nursing” (2015, p. 302).

As mentioned earlier, *the Future of Nursing* is a document designed to create better nursing policy. Therefore, it can be presumed that the *Report* did not use “medicine” and “medical care” but instead selected “health” and “health care” intentionally. “Health” and “health care” were viewed as nurse-friendly language, while “medicine” and “medical care” were not.

Further lexical selections from the *Report* can also be presumed to be based on the notion of nurse-friendly language.

### Physician vs. Doctor

As seen in Table 1, “physician” is used 475 times.

Although “doctor” is widely used as an English equivalent of the Japanese 医師 *ishi* in Japanese, the word “doctor” does not appear in Table 1. A concordance analysis of the *Report* confirms 36 usages of “doctor.” Out of those 36 usages, “doctor” is used only 14 times to mean *ishi*. The remaining 22 usages referred to doctorate degrees in nursing, as follows:

- Doctor of nursing practice (15)
- Doctor of philosophy in nursing (6)
- Doctor of nursing science (1)

In short, in *the Future of Nursing*, the term “doctor” was used primarily to refer to doctorate degree holders. Therefore, if you are an *ishi* in Japanese, you should be referred to as a physician in English. The term “doctor” should be deployed only to refer to those who have a doctorate degree (and in fact there are many such doctors in nursing science).

Health care professionals are taught that they are in an equal position centering on their patient in a care team. Calling a physician a “doctor” unconditionally would erode the basis for the optimal collaboration required by team care. The Truth about Nursing states as follows:

“The use of the term “doctor” to mean a “physician” also adds to what some feel is the excessively high regard the medical profession enjoys relative to other health care professions.” (2008b).

It is highly probable that the authors of *the Future of Nursing* considered that using the word “doctor” for a physician is not nurse-friendly language and therefore should not be selected. Though not appearing in Table 1, there were alternative terms referring to “physicians” in the corpus such as MD (97), noted 57 times after excluding those used in proper names, followed by a very few usages of “medical doctor” (5) and “medical professionals” (1).

## Nurses and Physicians vs. Physicians and Nurses

It is also interesting to note whether “nurses” or “physicians” was placed in the prominent position when both words were written together. Conventionally, “physicians and nurses” seems to be used more widely than “nurses and physicians”, which can be supported by quick Google searches of the hyphenated phrases “physicians-and-nurses” and “nurses-and-physicians.”

A Google Search conducted on May 14, 2020 showed that ‘physicians-and-nurses’ registered about 191,000,000 results and ‘nurses-and-physicians’ about 3,700,000. In short, ‘physicians-and-nurses’ was used over 50 times more than ‘nurses-and-physicians.’ Although the results of search engine queries should be considered only as a reference, the fifty-fold difference in use between the two phrases is worthy of note. Many people, including nurses, write in this way without giving it a second thought. This might reflect the widespread notion that the physician is the leader.

Our corpus analysis of *the Future of Nursing Report* indicated that the order of “nurses and physicians” was used 8 times (out of those, 2 usages were for citations) while “physicians and nurses” appeared 4 times (of those, 2 usages were for citations). It can be surmised then that the *Report* intentionally wrote “nurses” before “physicians” (See Example 2). This presents another linguistic example as to how nurses might be respected and treated better in order to improve the quality of health care.

**Example 2:** “*Nurses and physicians* [emphasis added], not to mention pharmacists and social workers, typically are not educated together, yet they are increasingly required to cooperate and collaborate more closely in the delivery of care.” (p. 31)

## Professional vs. Worker

Another interesting lexical choice of note in *the Future of Nursing*, is that of “professional” vs. “worker.” Due to the lemmatization of Table 1, the term “professional” (460) includes both “professional” (255) and “professionals” (205). As “professional” was primarily used as an adjective in the corpus, only “professionals” was checked in order to distinguish the noun.

In our analysis, “professionals” often collocated with “health” (“health professionals”: 137), “health care” (“health care professionals”: 27), and “nursing” (“nursing professionals”: 4). On the other hand, the use of “worker” (69) (“worker”: 16 and “workers”: 53) was less frequent than that of “professional(s),” for example, “health worker” (2)/“health workers” (13) and “health care worker” (2)/“health care workers” (9). We may therefore ask, what is the connotative difference between “health (care) professional(s)” and “health (care) worker(s)”?

A further detailed corpus examination of the *Report* reveals that “health worker(s)” was used 7 times in the phrase “community health worker (s)”. A community health worker is an unregulated worker who has completed short-time training and is volunteering to provide basic health care in his or her community. On the other hand, a nurse is a strictly regulated professional, qualified to lead patient care in a health system. This may then well be the reason why the *Report* did not use the term “workers” frequently, but instead chose “professionals” in health (care) for nurses.

This nomenclature is not only applicable to nurses. As seen in Example 3 below, *the Future of Nursing Report* uses “professionals” as a general term referring to regulated health (care) professionals. The wider nursing discourse community therefore seems to support the idea that nurses, physicians, pharmacists, physical and occupational therapists, medical assistants, and social workers should equally be referred to as

"health (care) professionals."

**Example 3:** "Teams need to include patients and their families, as well as a variety of *health professionals* [emphasis added], including nurses, physicians, pharmacists, physical and occupational therapists, medical assistants, and social workers, among others." (pp. 270-271)

Before moving to the next section, we would also like to address a similar lexical item, "provider" (319) ("provider": 69 and "providers": 250), whose frequency in use is not lower than "worker(s)" and not higher than "professional(s)." Our concordance analysis shows that "providers" was used, for example, as "primary care providers" (54) and "health care providers" (40), to indicate all types of health care professionals and facilities providing some type of care. As for nursing alone, few cases of "provider(s)" appeared in *the Future of Nursing*: "nursing providers" was not used at all and "nursing care providers" was used only four times to indicate all those who provide nursing care in any kind of front-line settings, including (certified) nursing assistants, licensed practical nurses, and registered nurses (p. 38). Therefore, while the term "provider(s)" was occasionally used, we did not find any particular reason to suggest that the term was intentionally selected in *the Report*.

### **Transdisciplinary vs. Interprofessional vs. Interdisciplinary vs. Multidisciplinary**

*The Future of Nursing Report* calls for team-based health care in which the values of nursing and nurses should be fully demonstrated and evaluated. The leader of the team is not always necessarily a physician. Therefore, to indicate the nature of team collaboration, the adjective often associated with "team" should not be "multidisciplinary" (11), as the meaning of "multidisciplinary" seems to be somewhat hierarchical (Colombia Center for Teaching and Learning, 2020).

Instead, when necessary, a nurse can also be leader of the team to make sure of optimal care for patients. Our concordance analysis shows that "interprofessional" (107) was instead frequently used in the *Report*, as "interprofessional" is often used for clinical practices (*ibid.*). However, attention should also be paid to the use of "transdisciplinary" (7). "Transdisciplinary" is a word indicating a more developed and advanced level of collaboration than "interdisciplinary" (52) (*ibid.*). The use of "transdisciplinary" may enable members to deepen their mutual respect and trust within a team in order to establish higher quality services.

**Example 5:** "Dr. Gerrity [Ph.D, RN] uses the word "*transdisciplinary*" [emphasis added] rather than "multidisciplinary" or "interdisciplinary" to describe the care provided at 11<sup>th</sup> Street. 'Transdisciplinary means you start to break down the barriers between disciplines. Each person learns something about the other person's discipline, and it enriches their own practice,' Dr. Gerrity said." (p. 137)

The *Report* also included a number of case studies as examples of best nursing practices. One of those best practices is illustrated in Example 5. It is notable that a front-line nursing professional with a doctorate degree chose to use the word "transdisciplinary." Although "transdisciplinary" was used only 7 times in *the Report*, the nursing discourse community might expect to see an increase in the usage of "transdisciplinary" in the future.

### **Review of Historical and Social Contexts in the US**

The discussions above were based on a corpus analysis of *the Future of Nursing Report*. For the last part of our discussion, we would like to briefly review some of the historical and social contexts behind the discourse of the *Report*, which is

relevant to understanding and interpreting the usage of lexis by the nursing community in the US.

Although developments in U.S. nursing nomenclature appear to be well-known in the wider global nursing community, in Japan, such discussion has been largely confined to only a few relevant nursing organizations and societies. This also serves to explain why we decided to analyze the lexical choices made in *the Future of Nursing*.

Academic topics in nursing began to shift from nursing theories and practices to sociological discourse in the US around 1960 and 1970. During that time, the country was hit by a shortage of physicians due to the Vietnam War. Remote, rural areas and minorities were not well-cared for. American nurses "...knew that physician manpower was unavailable and that the nurse with additional skills and knowledge could provide the needed level of care" (D'Antonio et al., 2016, p. 27). As a result, they started to demand prescription rights.

Prescribing medication had been previously authorized only to physicians. However, around that time, a new type of nurse, a Nurse Practitioner, with an expanded scope of practices, including prescription authority, emerged in the US. Such movements facilitated a shift in the country's pre-licensure nursing education from diploma through university programs.

However, shortly thereafter, a conservative (Reagan administration) government exerted fiscal austerity policies, putting pressure on nursing practices and working environments, resulting in poor staffing, deteriorating job satisfaction, increasing turnover, and, finally, a shortage of nurses.

Nurses began to believe that studying theories and skills alone did not enable them to gain sufficient resources to provide the level of nursing care that their patients most needed. Nursing professionals therefore determined that they had to conduct research to be used as a basis for policy-making. This idea gradually spread and

became most widely shared throughout the global nursing community in 1989 when the International Council of Nurses, the largest and most influential global nursing professional association, had its main congress theme center upon "...preparing nurses for a political future and on bargaining to enhance their situation" (International Council of Nurses, 2020).

Given these developments, it can readily be understood why the global nursing discourse community has since become more sensitive in terms of lexical usage.

### Conclusion and Limitations

This article presents one attempt to apply genre analysis within the global nursing discourse community by exploring the lexical choices made by the nursing discourse community through an analysis of the IOM's *Future of Nursing Report*, a document designed to create better nursing policies.

Historical and social contexts behind American nursing practice have led to the necessity of American nurses conducting research to be used as a basis for policy-making. One outcome of this has been the development and application of lexis that is deemed friendly and sensitive to nurses and nursing in the US.

In my discussion, I have applied the notion of nurse-friendly language when analyzing the corpus in order to reveal some connotative and denotative features of lexical choices made in the *Report*. Most notable among these were that "health (health care)" was more frequently used than "medicine (medical care)," "physician" more so than "doctor," "nurses and physician" than "physicians and nurses", and "professional" than "worker." Also, we might see "transdisciplinary" increase in usage, when used as an adjective collocated with "team" in the future. The discourse community's adoption of these terms should be recognized by Japanese healthcare professionals, teachers, and students.



This study, naturally, has very obvious limitations. Although *the IOM's Future of Nursing Report* was chosen as the most suitable example of global nursing discourse, the report's scope is limited to American nursing. Further study is warranted to research various genres of global nursing discourse, using a broader range of analytical materials.

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