

How to Raise Proficiency in Intercultural Doctor-Patient Interactions: Suggestions for Medical ESP Course Content.

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Abstract

Japanese medical professionals might not be able to communicate effectively by only speaking in Japanese with foreign patients. In this scenario, practitioners should feel confident that their bedside manner can adequately relieve patient anxiety, by listening carefully, understanding and explaining conditions and modes of treatment in English. Although discussion mainly focuses on intercultural communication in Japanese medical contexts, there is also reference to Indigenous Australian and Canadian cultures. The nature of doctor-patient interaction is discussed, noting cultural and linguistic features of such discourse. Medical content from the Corpus of Contemporary American English (COCA) (Davies, 2008-), focuses on describing the dimensions of pain and coughs. Using data from various COCA searches, there are suggested activities for EFL/ESP students to support genre-specific language acquisition and production. One of the recommendations is for medical trainees to create and maintain their own English language resources for study and future professional practice. The goal is for medical practitioners to use these materials as a tool for more effective interaction with non-Japanese patients whose level of Japanese language proficiency is insufficient for meaningful communication in medical settings.

Keywords: Japanese doctor-patient, medical English, medical ESP, pain, Japanese onomatopoeia

Doctors are professionals referred to under the umbrella term “health care providers”. To emphasise the point, their job is to provide the care required to facilitate the optimum health treatment and outcome for their patients. To achieve this, and as part of their professional development, there are linguistic and other

communicative skills they need to develop and practice for effective patient interaction. Essentially, doctors need to be actively aware of their bedside manner and of their abilities to communicate effectively with patients. Some of the main intangible qualities include showing the patient a noticeable and appropriate level of care (e.g. time spent), attention (patient engagement) and empathy (taking the patient’s physical and emotional state seriously). Doctors need to listen, observe and examine a patient carefully to help make an accurate diagnosis, which might be based not only on physical, but also emotional symptoms such as stress, anxiety, agitation, mood, depression, or confusion. Therefore, besides their fundamental role to prescribe medication, other axiomatic practitioner skills are reflected in their ability to reduce patient anxiety and confusion and to explain information clearly and simply without condescension.

The content of this paper is arranged in four main topics related to doctor-patient interaction. The initial section comprises a wide-ranging discussion about the nature of medical care and practitioner roles across cultures. There is some discussion about the linguistic and cultural barriers faced by various Indigenous communities in different contexts that might deny them full access to the health care they need. Such disparities can dramatically affect perceived and desired functions and outcomes in intercultural medical interactions. The second and third sections concentrate on measures of pathology and symptoms. These specifically include measures of pain and cough descriptions, respectively. Data from the COCA (Davies, 2008-), reveals frequent pain and cough collocations. There is also some comparison of such symptom expression in English and in Japanese. The fourth area of content suggests how Japanese medical trainees can create their own English reference materials. Suggested medical ESP course activities primarily aim to increase confidence in

speaking skills and strategies to aid comprehension in conversation, with selective, topic-focused vocabulary instruction and discussion about verbal and non-verbal communication. In addition, course content readily allows a TESOL instructor to raise learner awareness of cultural differences in discourse styles and expectations that non-Japanese patients might have about the way that doctors communicate with them. A vital component of the course activities is for learners to practice lexical flexibility in order to develop their skills of paraphrase, so that they might communicate their intended meaning more clearly to achieve desired outcomes of communication and health care. Essentially, learners will need to think about the evolution of their own bedside manner and practice a wide range of communicative strategies for effective patient interaction in English.

Prescribing Medication

In this paper, “medical practitioner” most often refers to (Japanese) medical doctors and reference to “learners”, “students”, or “trainees” includes those enrolled in medical courses at a Japanese university, who are studying to become medical doctors. In Japan, only certified medical doctors, dentists, and veterinarians can legally prescribe medication, whereas pharmacists and other health care practitioners cannot (Nakagawa & Kume, 2017). In the United States, those qualified to prescribe medication include physicians/medical doctors (M.D., D.O., or D.P.M) and perhaps (with some restrictions) Physician Assistants (PAs), registered certified nurse practitioners and other advanced practice registered nurses (Byren, 2011). In the UK, an independent prescriber such as a general practitioner (GP) or a hospital doctor may write a prescription. Furthermore, a supplementary subscriber may prescribe medication within their qualification, such as to provide a patient with longer-term care for chronic conditions. Supplementary subscribers include nurses/midwives, pharmacists, optometrists and dieticians, among others (UK National Health Service, 2017). Since the 1960s, the United States has had a system of state-regulated prescribing rights for nurses and midwives. Such systems have been implemented in Sweden since the 1990s, the UK, Canada, Ireland and New Zealand. In Australia, a registered nurse (RN) or a midwife can also become

a nurse practitioner (NP), who is able to prescribe medication. This system has been in place since 2000. International prescribing models are outlined in the discussion paper on registered nurse and midwife prescribing (Nursing and Midwifery Board of Australia, 2017). To compare these international examples of who may prescribe medication, it is apparent that the context for medication prescription in Japan, is restricted to dentist-patient and doctor-patient interactions.

Bedside Manner

One of the main intentions of this paper is to exemplify ways that medical trainees can improve their English language proficiency and intercultural competence for improved interaction in English with non-Japanese patients. A TESOL professional can develop a medical ESP course in which learners engage in activities to foster patient empathy, create their own learning resources, enhance skills and discourse strategies for improved intercultural communication and to more consciously develop their “bedside manner”. The Cambridge Dictionary defines this idiomatic expression as “the way in which a doctor treats people who are ill, especially showing kind, friendly and understanding behaviour” and in American English, “the way a doctor behaves toward people being treated to make them feel comfortable” (Bedside manner, 2018). Overall course aims would include developing socio-pragmatic skills through an awareness of aspects of discourse specific to doctor-patient interactions in various medical contexts.

Contexts of Medical Interaction

The contextual focus of interaction is the doctor-patient relationship, likely to take place in a hospital or clinic. The context of the doctor-patient relationship with reference to teaching and learning materials in this paper, focuses on medical interactions in Japan. It does not extend to traditional medical practices in other cultures, including those of Ayurvedic medicine, acupuncture, shamans and spiritual healers in indigenous communities, for example. Nevertheless, there are some commonalities in the communicative relationship between healers and the afflicted irrespective of the cultural context.

The primary formal and procedural roles of a medical practitioner are to

- gather information from patients (oral/aural interaction)
- conduct physical examinations
- arrange various methods for diagnosis such as blood tests, x-rays or scans and consider how to make a diagnosis based on the results of these
- explain the results of tests (e.g. urine or blood), x-rays, or scans
- explain their current medical opinion and diagnosis
- suggest options for physical healing and rehabilitation
- prescribe medication, and
- explain the types of medication they prescribe, their function, possible side-effects and the duration of prescription.

Some of the key intangible, affective roles of a medical practitioner are to

- show the patient a noticeable and appropriate level of attention, care and empathy
- listen carefully to help achieve an accurate diagnosis
- reduce patient anxiety and confusion
- explain information clearly and simply without condescension
- allow the patient to ask questions for more information and clarification.

The complexities of sociocultural factors cannot be underestimated or ignored. They can dramatically affect the way in which two speakers from different cultural backgrounds perceive themselves and the other speaker, their status and role during interaction. Some of these factors germane to doctor-patient interaction include gender, age, ethnicity and previous experience in medical settings. Strong, Mathews, Sussex, New, Hoey, & Mitchell, (2009) found that there were differences in the description of pain according to gender. In a different study, subjects belonged to diverse ethnic groups in the U.S. (Edwards, Moric, Husfeldt, Buvanendran, & Ivankovich, 2005). Although no overall significant differences were found in this study for measures of pain, distress and disability between African American, Hispanic and white ethnic groups, coping strategies showed some variance. Other sociocultural factors in medical communicative competency were highlighted in a 1997 study by Hawthorne, Minas, Stuart & Hayes, (as

cited in Hawthorne, Minas, & Singh, 2004). They found that among 110 fourth-year medical students at the University of Melbourne, Australia, Asian learners, in comparison to Anglophone students, had “significantly less confidence in interacting with patients (including knowledge of the governing cultural rules)” (p. 152). A physician-patient relationship is an investment in time and (emotional) effort for meaningful interaction to achieve shared pragmatic goals. The patient needs the doctor to pay attention, listen, check, suggest and provide medical care towards the goal of improved health; ideally, a complete recovery. Yet even between native speakers of the same language, it cannot be assumed that there is level playing field of communication between doctors and their patients.

Indigenous Health

Communication becomes much more complex and convoluted when either or both interlocutors does not speak a shared *lingua franca* well. A prime example of this is the context of health care for indigenous peoples, who might not speak English as an official language. There are currently around 120 Indigenous languages spoken in Australia, according to the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS), (2014). Taylor (2010, p. 18) points out some of the linguistic obstacles that disadvantage Indigenous Australians in accessing adequate health care. Even when we do not factor in the apprehension and mistrust of a “white”, western medical system (Korff, 2018), there are life-threatening barriers for those who can access medical care. Unlike immigrants, Indigenous Australians don’t have the ease of access to translators for them to communicate effectively with healthcare providers (p. 8). Issues related to differences in language and culture-bound communication styles also directly impact the provision and management of Indigenous health care, often referred to as “service delivery” in government documents.

Some components of an ELF definition are relevant to Aboriginal health care in Australia. Kalocsai (as cited in Sifakis, 2017, p. 3) states that the focus “is not so much on language itself, but on the context of interaction and the users of ELF, ‘the community rather than the code’.” In addition, Sifakis goes on to say that “these contexts form a complex communication terrain of what Jenkins (as cited in Sifakis, 2017, p. 3) describes

as ‘English as a multilingual franca [...] in which English is available as a contact language of choice, but is not necessarily chosen’.” Moreover, many thousands of Indigenous Australians are not able to exercise such a linguistic option (or certainly, not easily). Nearly a quarter of a century ago, it was suggested that at least 30,000 Australians spoke an Indigenous language as their first language (Pauwels, 1995, as cited in Taylor, 2010, p. 8). Most recently, according to the Australian Bureau of Statistics (2016):

The final estimated resident Aboriginal and Torres Strait Islander population of Australia as at 30 June 2016 was 798,400 people, or 3.3% of the total Australian population. This population estimate represents a 19% increase in the Aboriginal and Torres Strait Islander population estimates from the estimate of 669,900 for 30 June 2011.

A report in the Parliament of Australia (n.d.) referencing 2011 census data, stated that “16.6% of Aboriginal and Torres Strait Island language speakers report that they do not speak English well or at all.” This percentage represents just over 111,000 Indigenous Australians, so in real terms, this is a considerable number of citizens who speak Language—capitalised to indicate an Indigenous language; that is, they are Indigenous Language Speakers (ILS). Taylor (2010, p. 18) notes that Australia’s ILS are members of a LOTE speech community, their acquisition of English (if at all) is from an ESL perspective and they come from NESB areas. Effectively, English is a foreign language to these Australian citizens. She compares some communicative features of English and Indigenous languages, comprising code switching, question types, silence and eye contact, among others (p. 209), which highlight some of the cultural and linguistic disparities that exist between (English-speaking) medical doctors and Indigenous patients.

Cultural differences can exacerbate communication difficulties between medical professionals and patients. Doctor attitudes towards patients, expressed as racism or bias, is included in six studies cited in Schouten and Meeuwesen, (2006, p. 31). Possible ways to counter this in medical training is suggested in an Australian study by Durey, (2010). Despite a sample size of only five patients, the research of Cass (as cited in Schouten & Meeuwesen, 2006, p. 25) revealed (white) doctor

ignorance; a lack of their awareness that Indigenous patients were being polite.

Another broader, cultural issue involves patient perceptions of the health system such as its relevance, effectiveness and necessity of health checks. There can also be a preference for the use of traditional medicines, treatments and cultural practices. This is part of the empowering tone of Gray (2011), who writes about the First Nations people in modern-day Canada and the ways they are reclaiming their culture. Although she doesn’t discuss doctor-patient interactions in western medicine settings, the cultural insights she provides clearly illustrate how the beliefs and practices of the First Nations people, for example, the use of medicine wheels, vary from those of mainstream, national (Canadian) culture.

Moreover, when patients sense that language is used as a tool of power and privilege, they can feel quite apprehensive and intimidated even by the thought of placing themselves in a medical setting. In fact, the very real dread they feel can prevent them from seeking medical attention. Naturally, such avoidance can have potentially life-threatening consequences, as can non-compliance. Studies in the United States among Latino and Asian patients revealed such issues (Ramirez, 2003, as cited in Schouten & Meeuwesen, 2006, p. 31).

Intercultural Medical Interactions in Japan

The two most likely consultation scenarios in Japan are that a Japanese doctor will speak in Japanese (JLF) with a foreign patient, or conversely that both will attempt speaking in English (ELF). The nature of native speaker and non-native speaker roles in medical consultations is an interesting one in Japan. A Japanese doctor might never have travelled abroad or experienced much interaction with people from other cultures. Their exposure to English language and formal study of it might have been limited to school and university courses. The non-native Japanese speaker, by virtue of the fact they are consulting a native Japanese-speaking doctor, means that they have travelled away from their home country and have communicated with people from other cultures who speak a different native language to theirs. Furthermore, foreign residents in Japan might have enough ability to communicate in Japanese, at least

until they reach their linguistic ceiling. If this occurs, the use of medical terminology and explanation of administrative procedures might require linguistic support in English. A foreign tourist might not speak Japanese, but might speak some English, regardless of the variety, or their proficiency. Perhaps the best way to at least start a doctor-patient relationship, is if both speakers try to communicate in a second language. Conversely, it is very difficult to develop much of a doctor-patient relationship if neither party understands the other's language.

Time is another context of discourse and cultural perceptions of this can also vary. Consultations might be brief, requiring the exchange of a lot of important information within a short period of time. Ohtaki, Ohtaki, and Fetters (2003) found that patient consultations in Japan were somewhat shorter than in the United States, perhaps because American patients asked more questions. They also found that there was more silence during consultations in Japan compared to the United States (Ohtaki et al., 2003). In emergency situations, there might be insufficient time to adequately check that doctors or patients fully understand the nature or expected outcome of some conditions. Doctors might need to quickly make important, perhaps life-saving decisions without the full knowledge or consent of a patient.

With reference to a temporal context, doctors and patients need to clearly establish and clarify the time frame of symptoms. If an initial medical consultation occurs on Monday morning at 9 a.m. and the patient's pain started the previous Saturday night, a Japanese doctor might state, when checking details, that the patient has experienced pain for three days (according to the calendar—Saturday was day #1 and now, Monday is day #3). On the other hand, the patient might clarify that the pain has been experienced for the past 36 hours, meaning 1½ days (according to the clock). Such a difference in time perception could affect making an accurate diagnosis. Similarly, in this consultation, a Japanese doctor would mean that a prescription for “three days” of medication would include Monday, Tuesday and Wednesday, whereas a foreign patient might think it is only enough medication for two days (48 hours). To help reduce a foreign patient's anxiety in the context of an initial consultation in Japan, it is advisable for medical staff to quickly gauge the degree to which a patient can communicate in Japanese within a medical domain and for the staff,

including doctors, to use some focused communication strategies. Patients also need to understand the way they are processed within a medical facility, for example, how to deal with their health insurance card and how to pay for and receive consultation and medication.

Communication Strategies

During various stages of a consultation, the doctor and patient take turns as reciprocal listeners and speakers for the purposes of gathering information from and also to relay it to the other party (see Hua (2014, pp. 106–107). Sequential phases of communication and their associated actions can be well-defined with the use of “standard” questions and expressions. This is evident when established protocols of procedure are observed, such as when a medical practitioner takes a patient's temperature, blood pressure, examines (inside) the throat, or provides treatment by hypodermic needle. However, phases of communication in medical interactions (see Staples, 2015, p. 126) can vary culturally in notable ways. In terms of the time spent on interaction, the quantity and quality of interaction (Ohtaki et al., 2003) found that in the US, doctors tended to spend more time discussing their diagnosis with the patient. It is critical that doctors check the comprehension of the patient about their condition, treatment, expected health outcome and time frame for recovery.

Dahm (2011) provided various examples for different scenarios, where international medical graduates (IMGs) used medical terms and also avoided such terms during doctor-patient role-plays. To engage IMGs and medical trainees in general to actively develop further verbal and non-verbal communication proficiency, a suggestion was to provide them with more explicit descriptions of communication strategy types. Kripalani and Weiss (2006, p. 889) recommended seven strategies for clear communication with patients. These can involve a level of critical self-evaluative discourse analysis, whereby in review of their explanations and actions, they could suggest how to improve their own communicative competence. Instructors, in roles as observers and advisors, can help learners to engage in these processes. One example could be to clarify a sequence and purpose of medical tests, such as when a doctor informs a patient “You'll need to have blood test 1, 2 and maybe 3” . This could

mean that the patient will have two or possibly three tests from blood taken at the same time. Alternatively, it could mean two or three blood samples taken on different occasions. It would be better to clarify the explanation and to provide more information, such as “You’ ll need to have a blood test and at that time, we’ ll test you for illness A and B. Depending on the results of those two tests, you may need another blood test to check for illness C.” This latter example is less confusing for a patient than the former one because it clearly indicates what the patient will do and the

purpose.

Combining some examples provided by Dahm (2011), five communicative strategies, including verbal and non-verbal, feature in Table 1. These show how to help clarify meaning during spoken discourse. This adaption indicates that the overall strategies shown by Dahm (2011) are not exactly strategies per se, but examples of more general strategies. Moreover, these strategies can be applied by both the doctor and the patient to achieve the goals of their communication.

Table 1
Communication Strategies in Doctor-Patient Interactions

Communication strategy	Explanation	Example utterances / actions
Paraphrase. Explain what you mean by using different words.	After using (medical) terms, explain them simply. Conversely, use the (medical) term after giving a simple explanation.	Your heart is racing/beating too quickly, which means you have a condition called tachycardia.
Clarify. Check that the other speaker understands what you mean.	Actively check that the other person understands the terms you have used.	Do you understand what I mean by chronic [condition]? Do you understand what happens when your blood sugar is too high?
Explain. Ask the other speaker to explain what they said.	Ask what the other person means.	What do you mean by “[term]?” Can you tell me more about your [symptom]?
Gesture. Use non-verbal ways to help gather or explain information.	Point to painful areas. Physical examination. Listening to, touching, or moving body parts.	(Non-verbal) When the doctor demonstrates a particular body movement and asks if a patient can replicate it.
Use non-verbal ways to help maintain and build rapport.	Body language. Using enough eye contact, smiling, nodding.	(Non-verbal) The doctor acknowledges the patient and indicates they are actively listening to them.

Table 1 shows that it is not only verbal communication, but also paralinguistic cues that help to facilitate doctor-patient interactions. To explain the first strategy in Table 1 involving paraphrase, the word “medical” appears in parentheses. This is to indicate that the strategy is not restricted to medical terms but could also include expressions and slang terms relevant to the context of the consultation. Furthermore, this strategy is a very useful overall language skill to apply when negotiating meaning, or to repair and avoid communication breakdown in non-medical communication scenarios.

Cultural variations are marked in the second strategy shown. Patients may be reluctant through feeling social distance with the doctor to ask for clarification and doctors may erroneously assume that patients understand the terms they have used (see Ohtaki et al., 2003). As Dahm (2011) and Hoekje (2007) point out, IMGs might not be able to effectively tell whether the medical terms they use are understood by a patient. Another comprehension issue is that patients might not fully understand terms they use with a doctor. Therefore, the clarification of meaning requires active listening and verbal interaction skills by

both interlocutors, as indicated by the second strategy shown.

Medical trainees need to understand the aims of the suggested communicative strategies in Table 1. Instructors (who could be TESOL trained, or native Japanese teaching medical courses) should make trainees explicitly aware of the reasons why these strategies are vital. This is because they provide a means by which doctors can achieve a high level of patient-centred engagement throughout all phases of health care, from the time of a first consultation, to follow-up consultations and periods of patient treatment. The balanced and appropriate use of the strategies shown in table 1 are fundamental to successful communication regardless of context, medical or otherwise. They allow a speaker to feel in control during interaction, equipped with some general, but important skills to help them monitor comprehension and negotiate miscomprehension at any phase of interaction.

Japanese Doctor-Foreign Patient Communication

Japanese medical practitioners should not make assumptions about a foreign patient's Japanese language proficiency; they should simply (and sensitively) ask about this. Doctors should not assume that a foreign patient (e.g. one residing in Japan) who does not have a high proficiency of *spoken* Japanese, does not understand Japanese language, customs, systems, procedures at all. Doctors should not speak loudly in English or in Japanese (most foreigners do not suffer hearing conditions). Instead, they should clearly pronounce what they say. Furthermore, doctors should not talk to foreign patients in the same way they would talk to a young child. This can annoy and embarrass a patient. It is one matter to explain something simply, but another to insult a patient's intelligence by "doctorsplaining", a neologism coined here. An example would be if a doctor said to an adult "When you swallow, the food goes down your throat through a long tube into your stomach. The food mixes in your stomach..." Doctors should speak to non-native Japanese speakers *almost* the same way they speak to native Japanese, except they need to realise that discourse styles vary, including aspects of politeness/impoliteness, silence, taboo topics and appropriate/inappropriate questions and turn-taking.

At the start of a consultation, as a basic courtesy, a doctor should greet a patient. To a non-Japanese patient, it can appear blunt, rude or intimidating for a doctor to start interacting by asking 「どうした?」 or 「なにがあった?」 as this is not a (conventional) greeting. It is more appropriate to ease a patient into a consultation with eye contact, a smile and an expected greeting like 「こんにちは。」. By greeting in such a way, the doctor can begin to establish rapport with a patient and start to reduce their anxiety. Next, the doctor can proceed to ask the patient about their Japanese language proficiency. Doctors should avoid asking such dichotomous questions as 「日本語は大丈夫ですか。」 because language proficiency is gradable and varies according to the genre of interaction. The patient should be allowed to explain the level of interaction in Japanese that they are comfortable with. It is appropriate for a doctor to say something such as "I'll speak/explain to you in simple Japanese. If you don't understand, please tell me and I'll try to explain it for you in English." The doctor could also choose to paraphrase in simple Japanese. The use of online translation software should be a last resort, as its accuracy is often dubious and suitable health care outcomes are too important to risk miscomprehension, misdiagnosis and an overall ineffective, dissatisfying consultation. It is important that medical practitioners do not speak in a way that seems condescending, patronising or rude to a patient. This requires care and consideration on the part of the doctor to carefully think about their speaking manner and the attitude they convey in English, as a vital part of the care they are entrusted to provide a patient. This shows the need for EFL learners to practice how meaning is conveyed through the prosodic elements of speech.

Corpora and their use for Medical Students

In an intensive English program, Hernandez (2017) compared Coxhead's Academic Word List (AWL) compiled in 2000, with the Academic Vocabulary List (AVL) (Davies & Gardner, 2014) and found that the AVL exceeded in three measures; coverage, frequency and range. However, Davies and Gardner (2014, p. 313) admitted that "like the corpus used for the AWL, there are no samples of spoken academic language in our corpus, and we acknowledge that some variation in our findings could result from this limitation." For

the suggested ESP course activities in this paper, active practice with role-plays is encouraged, as speech is the main mode of interaction in doctor-patient consultations. The research of Lei and Liu (2016) also compared the AWL and the AVL to formulate a new medical academic world list (MAVL) comprising only 819 lemmas, compared with 1751 of the medical academic world list (MAWL) of Wang, Liang, and Ge (2008). It is pertinent to note here, that the vocabulary lists compiled by Lei and Liu (2016) and Yang (2014) focused on *academic* medical word frequency and so their content was most relevant to (reading and writing) medical research articles (RAs). These lists therefore do not necessarily include high frequency vocabulary that might occur in spoken medical interactions. To mention some random lexical items that one might consider useful and relatively common in spoken doctor-patient interaction, the MAVL (Lei & Liu, 2016) does not include the words *hurt*, *cough*, *phlegm*, *headache*, *fracture*, or *vomit*. The word *bruise* does not appear in the 1751 lemmas of the MAWL compiled by Wang et al. (2008), the 676-word list for nursing (Yang, 2015), or the 819 lemmas of the MAVL (Lei & Liu, 2016). Although the word *fever* does appear on the MAVL, it does not appear on the other lists mentioned, and nor does *chills*.

COCA Pain Collocation

The purpose of an initial COCA (Davies, 2008-) search was to discover the range and frequency of vocabulary related to the description of pain, that could be used to assist the planning and preparation of teaching and learning resources for medical ESP students. However, the search was not restricted to an academic or medical domain, but was conducted across all domains to find the most frequent ways that pain features in spoken discourse. Specifically, from the COCA spoken corpora, which comprised 116,748,578 words, the one hundred most frequent lemmas immediately preceding *pain* were compiled; refer Appendix.

The search data shows that some contexts of meaning and usage can be vague and not all the lemmas specifically relate to the medical domain. A search with much longer lexical sequences before and after a key word would help to clarify meaning in context. For example, in Table 2, the use and meaning of rank #3, *much*, differs considerably between “Does

your [body part] have much pain?” and “Economic policies have caused much pain”. In a similar way, the expression *great pain* (rank #12) can mean *hardship*, or *difficulties*, not *physical pain*. Likewise, in Table 3 rank #15, *emotional*, can also be a general reference to stressful situations. The frequency of adjectives, verbs, and other lexical items immediately preceding *pain* compiled from the COCA (Davies, 2008-) are shown in Tables 2–4, respectively.

Examples of “medicalised English” expressions are discussed by Alami (2017). The Rank #11 lemma, *real*, shown in Table 2, is part of a common idiomatic expression “It’s a real pain [to do something]”. Citing numerous studies, he explains the difficulty for learners to understand expressions like “such and such ‘gave me a heart attack’ .” Alami (2017, p. 103) explains that these are not likely to be well-understood by Japanese (and in general, by Asian) EFL learners (Anderson, 2012b, as cited in Alami, 2017, pp. 103-104). In this example, learners might confuse the expression with the informal term for cardiac arrest; *heart attack*. One way to possibly avert such miscomprehension is to explicitly teach such hyperbolic medicalised English, so that students become aware that they are not medical terms (Alami, 2017, p. 106). Conversely, Lei & Liu (2016, p. 46) note from their comparison of the new GSL and the MAVL, that in a medical context, *arrest* differs in function and meaning from its general usage as a verb. In medicine, it means a stoppage or sudden cessation of motion, as in *cardiac arrest* and *circulatory arrest*. In either scenario, where doctors or patients need to comprehend or explain terms or expressions, the various communication strategies shown in Table 1 should be helpful. Comprehension should be clarified throughout their interaction. As explained by Hoekje (2007, p. 337), international medical graduates (IMGs) needed to become familiar with the language of the patient community as well as institutional-specific discourse. By using large corpora, such as the COCA, TESOL professionals and EFL learners can gain some perspective of how language is used in various modes and within domains. It is possible to use data from an elementary corpus search to compile a list of frequent lexical items that could be incorporated into medical ESP course content and materials.

Table 2
Frequency of Adjectives Preceding 'Pain'

Adjective	Frequency rank	Adjective	Frequency rank	Adjective	Frequency rank
back	1	pelvic	31	facial	65
chronic	2	stomach	33	obvious	66
much	3	shoulder	36	nerve	67
chest	4	extreme	37	horrible	69
physical	5	cancer	38	short-term	70
abdominal	6	throbbing	39	considerable	72
severe	8	arthritis	41	bodily	72
sharp	9	persistent	43	unnecessary	75
joint	10	leg	44	shooting	79
real	11	deep	45	agonising	82
great	12	stabbing	47	heel	83
excruciating	13	sudden	48	low-back	85
less	16	lower-back	49	intractable	86
postoperative	18	burning	50	migraine	89
terrible	19	worst	51	limb	90
muscle	20	unbearable	52	incredible	91
neuropathic	21	musculoskeletal	53	ear	92
intense	22	breast	54	lingering	93
constant	24	foot	56	hip	94
searing	25	phantom	57	debilitating	95
neck	26	dull	58	mild	96
acute	28	tremendous	59	long-term	98
knee	30	bone	62		

Table 3
Frequency of Verbs Preceding 'Pain'

Verb	Frequency rank	Verb	Frequency rank	Verb	Frequency rank
feel	7	inflicting	40	managed	78
cause	17	ease	55	caused	80
relieve	23	treat	60	treating	84
causing	29	experiencing	64	experienced	88
inflict	32	alleviate	68	suffer	97
reduce	34	relieving	74	relieves	99
causes	35	reducing	77	endure	100

Table 4
Sundry Lexical Items Preceding ‘Pain’

Part of speech	Lexical item preceding ‘pain’	Frequency rank
Preposition	without	14
Adjective (psychological pain)	emotional	15
	psychological	71
Adjective (pain medication)	prescription	46
	adequate	76
	over-the-counter	81
Non-medical	economic	27
	Marco	42
	bon	61
	royal	63
	psychic	87

Measures of Pain and its Description

Pain is a multidimensional concept with variations in its expression across cultures. Harrison (1988, p. 249) comments that although the classic written form of Arabic is universal, the spoken vocabulary varies considerably. This has implications for the way that Arabic speakers talk about pain. Around the world, commonly-used descriptors for measures of pain in alert and oriented (A&O) adults can be verbal, numerical, or pictorial (Hawker, Mian, Kendzerska, & French, 2011). A patient might verbalise their pain on a 0–10 scale, where 0 means “no pain”, 5 indicates “moderate” pain and 10 describes “the worst pain possible”. A common example of this is the Visual Analog Scale (2017) for Pain (VAS Pain). Such a pain scale can be more detailed, using the following adjectives and their corresponding level of pain intensity: 0 none; 2 annoying; 4 uncomfortable; 6 dreadful; 8 horrible; 9 unbearable; 10 agonizing (Canty, 2012). Some other descriptors include the Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP) (Hawker et al., 2011). The validity of some measures has been reaffirmed by translated versions, such as those in the research of Ferreira-Valente, Pais-Ribeiro and Jensen, (2011) in Portuguese, Ketovuori and Pöntinen, (1981) in Finnish, Radvila, Adler, Galeazzi and Vorkauf, (1987) in German, and Van Giang, Chiu, Thai, Kuo and Tsai, (2015) in Vietnamese. Pictorial pain descriptors include the Face

Pain Scale (FPS) (see Kniola, 2016) and the 11-Face Faces Pain Scale (Van Giang et al., 2015). A common descriptor is the Wong-Baker FACES pain scale, which can show the vocabulary for different pain intensities written in various languages below large cartoon-like faces. This is a suitable resource to assess pain intensity for ages 3 and above. The Pain Assessment IN Advanced Dementia (PAINAD) scale that includes five categories of physical conditions, each scored 0–2, with the total combined score indicating the level of pain treatment intervention. The FLACC scale (face, legs, activity, cry and consolability) is suitable for children under 3 years of age and for those patients who are non-verbal, but conscious. Each of these categories is scored 0–2, with the total combined score indicating the level of pain treatment intervention. For reliability, it is vitally important that pain level assessment is repeated using the same pain scale. For examples of these scales, see Breivik, Borchgrevink, Allen, Rosseland, Romundstad, Hals, Kvarstein and Stubhaug, (2008); Hawker et al., (2011); Jodi RN, (2016); and Kniola, (2016).

Six critical dimensions of pain assessment are discussed by Price, Fogh, Glynn, Krasner, Osterbrink, and Sibbald (2007). These categories roughly correspond to at least seven categories of lexical items that can be identified from the one hundred most frequent adjectives immediately preceding the lexical item *pain* in the COCA (Davies, 2008-). The seven categories and number of lexical items within each (indicated in parentheses) comprise: location (27); intensity (25); duration, (7); frequency (3); quality of life and associated impact on daily activities (5); other (medical) (3); and other (non-medical) (3). Frequency data from

the COCA (Davies, 2008-) is compiled for the categories of pain location, pain intensity, and pain duration; refer Tables 5–7, respectively. The quality of life category lexical items are presented in Table 8, noting their respective parts of speech, despite conducting a specific [adjective + *pain*] COCA search. Tables 5–8 also show the vocabulary level of the lexical items as they appear in the Genius Dictionary 5th edition (Minamide, 2014). Vocabulary marked with X indicates inclusion in this dictionary, but with no stated vocabulary level: (Junior High School***; High School**; University*). Some vocabulary has no level indicated because it does not feature in this dictionary and some terms clearly form part of a register specific to the medical domain, such as *postoperative*, *neuropathic*, *musculoskeletal* and *intractable*.

There can also be overlap between categories of pain description and lexical items might be used to describe more than just one pain dimension. For instance, asking a patient about their quality of life includes how they feel about enduring pain. The degree

to which a patient can put up with the level of pain they experience, could be described as *gaman suru* 「我慢する」 in a Japanese (language) context. In addition, impact on daily activities refers to how well a patient is able to sleep, work, or engage in activities for leisure and enjoyment. This directly relates to the things that a patient can do comfortably enough by themselves, such as bathing/showering, getting dressed, standing, walking, driving or cooking. It also indicates the extent to which they need assistance to do such activities on a daily basis. These categories are important for medical practitioners to consider because of the impact that pain can also have on the mental health of patients and their carers/family, how pain impacts their work, overall physical mobility and independence. Such interrelated factors underscore a fundamental role of a physician to prescribe medication for suitable pain management, which can be complex. A doctor needs to prescribe sufficient and effective pain treatment while also considering the (side) effects of prescribed (or contraindicated) medication or surgery.

Table 5
Frequency and Vocabulary Level of Pain Location Adjectives

Pain dimension	Frequency rank	Adjective preceding <i>pain</i>	Vocabulary level
Location	1	back	***
	3	chest	**
	6	abdominal	X
	10	joint	**
	20	muscle	**
	21	neuropathic	
	26	neck	***
	30	knee	**
	31	pelvic	X
	33	stomach	**
	36	shoulder	***
	44	leg	***
	49	lower-back	*
	53	musculoskeletal	
	54	breast	**
	56	foot	***
	62	bone	**
	65	facial	X ^a
	67	nerve	**
	71	psychological	**
73	bodily	* ^b	
83	heel	**	

85	low-back	
89	migraine	X
90	limb	**
92	ear	***
96	hip	*

Note. ^aface***, ^bbody***

Table 6
Frequency and Vocabulary Level of Pain Intensity Adjectives

Pain dimension	Frequency rank	Adjective preceding <i>pain</i>	Vocabulary level
Intensity	8	severe	**
	9	sharp	***
	12	great	***
	13	excruciating	X
	14	without	*** ^a
	16	less	***
	19	terrible	**
	22	intense	**
	25	searing	X
	28	acute	*
	37	extreme	**
	39	throbbing	* ^b
	45	deep	***
	47	stabbing	X ^c
	50	burning	X ^d
	51	worst	**
	52	unbearable	X ^e
	58	dull	** ^f
	59	tremendous	**
	69	horrible	**
72	considerable	**	
79	shooting	X ^g	
82	agonising	X ^h	
91	incredible	**	
96	mild	**	

Note. ^apreposition, ^bthrob*, ^cstab*, ^dsense 3 burning eyes 燃えるような [情熱的な] 視線, burn***, ^ebear** (animal), ^fsense 5, ^gno pain sense, ^hagony*

Table 7
Frequency and Vocabulary Level of Pain Duration Adjectives

Pain dimension	Frequency rank	Adjective preceding <i>pain</i>	Vocabulary level
Duration	2	chronic	*
	24	constant	**
	43	persistent	*
	48	sudden	**
	70	short-term	***
	93	lingering	X ^a
	98	long-term	***

Note. ^alinger*

Table 8
Frequency and Vocabulary Level of Quality of Life Lexical Items

Pain dimension	Frequency rank	Word preceding <i>pain</i>	Part of speech	Vocabulary level
Quality of life/	78	manage	Verb	**
Impact on	86	intractable	Adjective	x
activities of daily	95	debilitating	Adjective	x
life	97	suffer	Verb	** ^a
	100	endure	Verb	** ^b

Note. ^ax sufferable (adj), ^bx endurable (adj)

A corpus search restricting lexical items to those immediately preceding *pain* does not fully account for the way pain is often described in doctor-patient interactions. There are some obvious reasons for this. One of these is that it is necessary to consider frequent language forms beyond the level of vocabulary and even collocations, where descriptions relating to pain are often not [adjective + *pain*] constructions. For example, notable omissions from descriptions of pain intensity shown in Table 6 include *prickling*, or *tingling*, which might be referred to colloquially as a sensation of “pins and needles”. A patient might express a lack of pain, by saying they have no sense of feeling in part of their body, for example, “My [body part] feels numb”, “I have a numbing pain in my [body part]”, or “I have numbness in my [body part]”. Other ways to express pain might include the feeling of “a knot in my stomach”, “I feel like I’ve been punched in the stomach”, or a generalised “gnawing pain”, which usually refers to pain in the stomach/abdominal area. Furthermore, pain is often described using the words *hurt*, *ache*, *sore* and *burn*. Yet another way is to use expressions such as “My [body part] is killing me”, or “I can’t stand the pain [in

my body part]”. In the case of influenza, for example, a patient might describe their symptoms by using expressions such as “I feel awful”, “I feel like I’m burning up”, “I feel like I’ve been hit by a bus/truck/train”, or “I feel like I want to curl up and die”. Such expressions can be quite a typical (and accurate) way to describe feelings of acute malaise. Doctors should be aware of the illocutionary force patients use to convey the feeling/meaning of their pain intensity and to paraphrase expressions to clarify them, even if the patient’s immediate condition seems obvious.

Looking beyond corpus collocations, some of the ways that a patient might describe pain are shown in a framework of syntactic patterns; refer Table 9. Learners could discuss and write their own translations in addition to the examples in the table and then practice using this information in various role-play scenarios. Wette and Hawken (2016, p. 48) provide assessment criteria for medical interview role-plays. It is apparent in the table that paralinguistic communication also constitutes an important and useful means to help identify pain. This should help direct doctor attention to help them make a (faster) diagnosis.

Table 9
Patient Descriptions of pain

Pain dimension	Examples of patient descriptions	Example translations of patient descriptions
Location	It hurts here [+ gesture]. It's painful when I touch my [body part]. move bend lift I have / get a [adj] pain in my [body part].	ここが痛い。 ... が痛い。
Intensity	It's [+ adj]. The pain is worst in the morning. It doesn't hurt at night. (as much/so much) before I eat. after I eat. when I lie down cough stand sit It feels (a bit/somewhat/much) better when I apply heat/cold. have a warm bath. rest/lie down. take [+ medication name]. The pain has been getting worse (since...).	朝、痛みが一番ひどいです。 夜はあまり痛くないです。 ・食べる前は・食べた後は ・横になるときは 少し / いくらか / とても良くなります ・温めると / 冷やすと・温かいお風呂 に入ると・休むと・～(薬の名前)を 飲むと ... から痛みがひどくなっています。
Duration	The pain started a week ago. It's been painful since ... day. It's been painful since ... day.	一週間前から痛みははじめました。 ... 曜日からずっと痛いです。昼 / 夜 の間痛みます。
Frequency	The pain comes and goes/is on and off. It hurts every morning/night/day/when it [the weather] is cold. It hurts when I breathe. sit. stand. walk. lift. turn. bend. exercise. raise my (arm/leg).	痛みがあつたりなかったりします。 毎朝 / 毎晩 / 毎日 / 寒いときに痛みま す。 呼吸をするときに・座るときに・立つ ときに・歩くときに・持ち上げるとき に・体をねじるときに・体を曲げると きに・運動するときに・(腕 / 脚) を 上げるときに
Quality (of daily living)	It's hard/difficult for me to move. to exercise. to sit. to walk. to sleep. to breathe. to bend.	動かすのが難しいです。

to get dressed.

	I have trouble sleeping. sitting. lifting. walking. moving. breathing	寝るのが難しいです。 座るのが (物を) 持ち上げるのが
Impact (on activities of daily living)	I can't ride a bicycle. I can't ... by myself. drive walk well sit for a long time It's difficult to ... by myself. go shopping go out wash	自転車に乗れません。 自分で運転できません。 ... するのが難しいです。 ・買い物に行くのが ・外に出るのが ・洗うのが

Table 10 shows some of the ways that a medical practitioner (not restricted to a doctor) might ask a patient to describe their pain. Learners could discuss and write their own translations in addition to the examples in the table. It is clear from the information

presented that paralinguistic communication also constitutes an important and useful means to help identify aspects of pain. This information is vital to help doctors make a timely and accurate diagnosis; refer Table 10.

Table 10
Medical Practitioner Pain Questions

Pain dimension	Example questions for the patient	Example translated questions for the patient
Location	Where exactly does it hurt? Where do you feel pain? Where is it painful? Do you have / feel pain here? (+ gesture)	どこが痛いですか。 ここで痛いですか。
Intensity	How bad is the pain? Is it always the same (intensity) ? When does it hurt the most? What things relieve the pain? What brings you relief? What kinds of pain relief have you tried? Have you tried applying hot /cold packs?	痛みはどのくらいですか。 いつも同じ感じですか。 一番痛い所はどこですか。 何 (の薬) が一番効きますか。 懐炉 (かいろ : hot pack) / 冷却剤 (れいきゃくざい : cold pack) を試しましたか。
Duration	How long have you had the pain? When did the pain start? Have you had this pain before? How long did it take to recover?	いつから痛みがありますか。 以前にもこの痛みがありましたか。 治るのにどのくらい (の時間が) かかりましたか。

Frequency	How often does it hurt?	どのくらいの頻度（ひんど）で痛みがありますか。
	How frequent is the pain?	
	Is the pain constant?	痛みに変わりはないですか。
	Does it always hurt? Is it always painful?	ずっと痛いですか。
Quality (of daily living)	Do you have anyone to help you at home?	お家で看病する方はいますか。
	How does the pain affect your daily life?	日常でどのように痛みが影響しますか。
Impact (on activities of daily living)	Can you walk / wash / cook by yourself?	一人で歩けますか / 身体を洗えますか / 料理できますか。
	Can you drive / shop / go out by yourself?	一人で運転できますか / 買い物できますか / 外出できますか。

In a medical consultation, after gathering information and making a diagnosis, an assumed, critical role of a doctor is to prescribe enough medication to alleviate the conditions. Regarding pain management, non-Japanese patients neither expect, nor want to hear “Hang in there!” [頑張ってください。] from a medical professional. They expect effective (pain) treatment and they are paying the doctor to prescribe it. Cultural expectations can vary regarding the amount and strength of pain relief medication a patient expects to receive. Communication conflict is quite possible if a doctor does not (want to) prescribe what the patient considers to be medication of sufficient strength and dosage, noting that in Japan, these are often lower than in other countries. A case was reported in the media of a skiing accident in Niseko, Hokkaido (Smith, 2017), where an Australian man with serious multiple fractures to his ribs, finger, knee, back and shoulder was not given *any* pain relief medication during his rescue from the mountain, *nor* in the ambulance on the way to the hospital. The man said that translators struggled with English throughout his entire stay in hospital, where staff deferred to a common Internet translation website

(Smith, 2017). Needless to say, this was a pointless attempt at communication. This patient’s terrible experience underscores the value of the content of this paper; to support a wide range of Japanese medical personnel in delivering a better level of health care in English.

COCA Cough Collocation

In addition to pain, another common symptom to discuss in medical interactions is a cough/coughing. This symptom can be an indication of apparent, or underlying conditions previously diagnosed, or as yet undiagnosed, such as the common cold, influenza, bronchitis, asthma, cancer, HIV infection, post-nasal drip, allergies, gastroesophageal reflux disease (GERD), chronic obstructive pulmonary disease (COPD), pneumonia, or whooping cough (see Levine, 2015). Table 11 shows the twenty most frequent lemmas from a COCA (Davies, 2008-) [adjective + *cough*] search. An MI score threshold of 3.0 or higher indicates that a collocation has a reasonable degree of semantic bonding (Panocová, 2017, p. 44).

Table 11
The Twenty Most Frequent Adjectives Immediately Preceding the Word ‘Cough’

Rank	Lexical item	Frequency	All	%	MI
1	whooping	255	804	31.72	15.47
2	chronic	85	12625	0.67	9.91
3	hacking	58	2331	0.67	9.91
4	persistent	51	6705	0.76	10.09
5	dry	50	37662	0.13	7.57
6	bad	30	123676	0.02	5.12

7	little	30	401783	0.01	3.42
8	over-the-counter	21	1367	1.54	11.10
9	deep	19	72827	0.03	5.22
10	productive	18	9641	0.19	8.06
11	racking	16	578	2.77	11.95
12	occasional	11	11258	0.10	7.13
13	phlegmy	10	65	15.38	14.43
14	slight	10	11396	0.09	6.97
15	wet	10	21739	0.05	6.04
16	WTC	9	205	4.39	12.62
17	wracking	8	130	6.15	13.11
18	rasping	8	341	2.35	11.71
19	cherry	8	7950	0.10	7.17
20	nonproductive	7	89	7.87	13.46

The frequency data shown in Table 11 and from the most frequent 100 adjectives preceding *cough* in a COCA search, does not reflect accurate overall frequency/ranking in a number of ways. TESOL instructors/ESP course planners preparing vocabulary exercises based on lexical frequency should use corpora with caution if claiming the veracity of their statistical reliability and be aware of potential pitfalls in the accuracy of corpus-generated frequency lists. There is a potential for confusion of meaning if spelling seems questionable. From the data in Table 11, it is possible that the percentage of rank #1, *whooping*, at 31.72% could be higher, if combined with rank #22, *whopping*, at 0.48%. A low MI score for *whopping* might suggest a spelling error and an intended meaning of *whooping*. The next point is that different lexical items can have the same meaning. For instance, although the rank #20 lexical item, *nonproductive (cough)*, at 7.87% indicates the usual medical term, it has the same meaning as rank #49, *unproductive (cough)*, at 0.45%. A third comment relates to usage, considering full or abbreviated forms. A common example is the interchangeable use of *flu* or *influenza*. Rank #8, *over-the-counter*, at 1.54% is also referred to as *OTC*, rank #31 at 0.67%. However, these lexical items do not refer to coughs per se, but are components of multi-adjectival nouns, where *cough* is an adjective preceding a noun, for example, *over-the-counter (cough/pain) medication*. Similarly, rank #19, *cherry*, refers to *cherry (flavoured) cough mixture/medicine/syrup*. A final observation is that rank #16, *WTC*, reveals a skew in lexical frequency at 4.39%. This refers to World Trade

Center Cough Syndrome (WTC Cough Syndrome) with symptoms of chronic rhinosinusitis, asthma, and/or bronchitis, often complicated by gastroesophageal reflux dysfunction (Prezant, 2008). Of course, the data from an American corpus comprises the lexical items used by American English speakers. In this case, the data is context-specific with reference to a medical condition in the United States.

Coughs and their Description

The research of Vernon, Leidy, Nacson and Nelson (2009) discussed three dimensions of coughing: frequency; intensity; and disruptiveness. They noted that patients can describe single coughs or multiple coughs occurring as uncontrollable paroxysms, which might be referred to as fits, bouts, spells or episodes. From the one hundred highest frequency lemmas in the COCA (Davies, 2008-) [adjective + *cough*] search, forty-seven are clearly associated with the following three dimensions of coughing. The number of lexical items for each dimension appears in parentheses: intensity (14); feeling/quality (22); and duration (11); refer Tables 12–14, respectively. These tables also show the vocabulary level of the lexical items as they appear in the Genius Dictionary 5th edition (Minamide, 2014). Vocabulary marked with X indicates inclusion in this dictionary, but with no stated vocabulary level: (Junior High School***; High School**; University*). Some vocabulary has no level indicated because it does not feature in this dictionary.

Table 12
Frequency and Vocabulary Level of Cough Intensity

Cough dimension	Frequency rank	Adjective preceding <i>cough</i>	Vocabulary level
Intensity	3	hacking	X ^a
	6	bad	***
	7	little	***
	9	deep	***
	11	racking	X ^b
	14	slight	**
	17	wracking	
	23	rattling	X ^c
	28	barking	* ^d
	29	mild	**
	40	choking	X
	43	acute	*
	45	violent	**
	97	viscious	X

Note. ^ahack* sense 3 US, ^brack* (no cough sense), ^crattle* (no cough sense), ^donly 'barking mad', bark* (no cough sense)

Table 13
Frequency and Vocabulary Level of Cough Feeling

Cough dimension	Frequency rank	Adjective preceding cough	Vocabulary level
Feeling/quality	5	dry	***
	10	productive	*
	13	phlegmy	X ^a
	15	wet	***
	18	rasping	X
	20	non-productive	X
	30	raspy	X
	37	terrible	**
	42	nasty	** ^b
	44	bloody	** ^c
	48	croupy	X ^d
	49	unproductive	X ^e
	52	irritating	X ^f
	56	ragged	* ^g
	59	shallow	** ^h
	71	seal-like	* ⁱ
	79	croaking	X ^j
	80	gagging	* ^k
	81	brassy	X ^l
	84	gurgling	X ^m
87	congested	X ⁿ	
92	ripping	X ^o	

Note. ^aphlegm (no star), ^bsense 3, ^csense 2, ^dsense 1クループ (激しい咳を伴う小児病), ^eno star, ^firritate*, ^gsense 4 (呼吸が^g) 不規則な), ^hsense 3 (breathing) (呼吸が^h) 浅い, ⁱseal* (animal), ^jno star, croak sense 2 (voice), croaky (no star) (声が^j) しわが^jれた, ^kno sense, gag*, ^lno star, no sense, ^mno sense, gurgle*, ⁿno star, no sense, ^ono star, different sense, rip* (no cough sense)

Table 14
Frequency and Vocabulary Level of Cough Duration

Cough dimension	Frequency rank	Adjective preceding cough	Vocabulary level
Duration	2	chronic	*
	4	persistent	* ^a
	12	occasional	**
	25	frequent	**
	26	nagging	x ^b
	41	lingering	x ^c
	51	nocturnal	*
	53	nighttime	^d
	91	repetitive	^e
	94	stubborn	* ^f
	95	daytime	*

Note. ^a(sense 2) *, persist**, ^b(no star), nag*, ^c(no star), linger*, ^d(no star), night***, ^e(no star), repeat*, ^f(sense 3) *

It is surprising that from the [adjective + *cough*] one hundred highest frequency lemmas in the COCA (Davies, 2008-), the adjectives *tickling* or *tickly* do not appear.

Developing Medical Language Resources

Medical trainees have to learn a considerable amount of specialist vocabulary related to anatomy, disease, sickness and injury, drug names and treatment procedures. It is unrealistic to propose or expect that they should learn the equivalent vocabulary in a foreign language because this would put the onus on them to effectively learn two languages concurrently and to learn words they might not often see or use in professional practice. Such pressures are not realistic given their study loads, structure of training and time constraints. They do, however, need to think carefully about the human interaction in their chosen career. They need to practice and reflect on the way they communicate with patients in their first language and skills they might need to communicate in English. Through a conscious awareness of and reflection on their affective skills of sensitivity and empathy, they can develop their bedside manner (see Zazgyva, Zuh, Voidazan, Russu, & Pop, 2014).

In this final section, there are some suggested English language/medical ESP course resources and activities for medical trainees, including doctors and nurses. One aim is for them to create their own materials to use in professional practice. Another aim is to reduce the learning burden of trainees during the intensity of their medical studies. With guided instruction, a TESOL practitioner can help trainees to compile content that should help them to effectively convey their intended meaning in English to patients who have low, or no Japanese language proficiency. The activities also make learners acutely aware of the way they communicate in their first language, by understanding differences between expression in Japanese and in English.

Lei and Liu, (2016, pp. 49–50) recommend that learners should study more collocated word forms and refer to medical dictionaries. Sometimes these can be useful for direct translations of say, disease names. However, dictionaries can have limited value in offering relevant examples of usage. They can

also encourage learners to believe that a particular word or expression can be translated in only one way. In other words, dictionaries might enhance a learner's lexical range, but not necessarily skills of lexical flexibility. Lexical concepts might not have translation equivalents in another language but require explanation, through paraphrase for example, to convey their meaning. Effective communication though, entails so much more than just words, phrases and sentences. It also comprises vital aspects of "face", attitude, intelligibility (prosody), comprehensibility, appropriateness and paralinguistic cues (e.g. eye contact and silence). The dimensions of these elements become much more noticeable when speakers engage in intercultural communicative acts.

Overall, recommended activities for medical trainees have the same approach as for general English language learning. The main difference is, of course, that interaction between medical professionals and patients involves genre-specific terms and focus. The pedagogy includes: translating Japanese terms into English; translating English terms into Japanese; explaining Japanese expressions in English, including the use of paraphrase; comparing the meaning of English and Japanese expressions; doctor-patient role-plays with various themes and focus on phases of interaction; and clarifying, reviewing and analysing communication processes and goals in focused pre-activity and post-activity discussions.

Medical Loanwords

A complicating factor for a Japanese doctor speaking in Japanese to a patient is the potential for misunderstanding loanwords; "gairaigo" 「外来語」. Confusion can result even when Japanese native speakers communicate with each other. A doctor might misunderstand the vocabulary a patient uses and vice versa. The use of loanwords by Japanese speakers highlights some of the complexities of communication. Some words are simply changed into katakana, (katakanago) 「カタカナ語」 such as *care* 「ケア」 but these usually feature semantic broadening or narrowing. Another, more confusing type of vocabulary for English speakers is the Japanese use of "waseieigo" 「和製英語」, vocabulary coined in Japan. An example of this is *magic hand* 「マジックハンド」 which in a hospital setting, can be a

very useful implement. If a patient cannot bend, they can pick up items dropped on the floor with this long-handled implement that has a vice-like grip at the end.

Other problems for Japanese speakers using loanwords are that the meaning will differ from similar words in English and so will their pronunciation. Furthermore, most loanwords are nouns and so a Japanese speaker might not know which verbs collocate with them in English. Owing to historical influences in the past century, some medical loanwords are German in origin, including *X-ray* 「レントゲン」, (*plaster/plastic*) *cast* 「ギプス」, *medical chart/record* 「カルテ」, and *gauze* 「ガーゼ」. Other vocabulary comes from French, such as *vaccine* 「ワクチン」. Doctors should therefore not assume that the loanwords they use come from English, or that they will be understood by English-speaking patients.

Loanwords and meaning.

Japanese often communicate in one-word utterances that convey much more than what is said. The utterance of single adjectives is a common feature of Japanese spoken discourse. There is little value in a Japanese speaker trying to communicate using only one word or expression in English, especially if it is a loanword, without supporting context. Repetition is not one of the suggested communication strategies shown in Table 1. Repeating a loanword might not help a patient to understand meaning and this is one of the reasons why EFL learners need to develop skills to paraphrase.

As part of their formal training, medical professionals should study ways to clearly communicate information, either by avoiding loanwords, or by using them carefully and by checking that a patient understands their usage in a medical context. The study of loanwords requires attention to meaning (sense), pronunciation, form (part of speech) and usage, as indicated in the following loanword examples A-C.

Loanword example A: 「シヨック」

How would you translate 「シヨック」 into English? The answer is *shock*.

What does that word mean in these sentences? The patient is in *shock*. The patient is suffering from *shock*. What kind of word (part of speech) is it in these

sentences?

Make another sentence that shows the meaning of this word (e.g. The symptoms of *shock* include ...).

How is the loanword 「ショック」 different in meaning to the medical use of *shock* ?

Loanword example B: 「ターミナル」

How would you translate 「ターミナル」 into English?

The answer is *terminal*.

What does that word mean in this sentence? The disease/patient' s condition is *terminal*.

What kind of word (part of speech is it) ? How do you pronounce it? Where is the stress in the word?

Make another sentence that shows the meaning of this word.

How is the loanword 「ターミナル」 different in meaning to the medical use of *terminal* ?

Loanword example C: 「ハイテンション」

Using the communication strategies from Table 1, how would you tell a patient that they had *hypertension*?

How is the loanword 「ハイテンション」 different in meaning to hypertension?

Loanword pronunciation.

One of the ways that loanwords differ from their source language is their pronunciation. Even words that are borrowed without semantic shift can cause miscomprehension for English speakers. Although the pronunciation of some loanwords might approximate their source language, it is highly likely that Japanese speakers will have to make a conscious effort to modify pronunciation if they want to convey meaning clearly in English. Focused pronunciation practice of loanwords can help to make trainees more aware of this feature of communication. Learners can practice using and explaining loanwords in various miscomprehension role-play scenarios. Some examples of loanwords with pronunciation similar to English, include: *scan* (as in MRI scan) 「スキャン」, and calcium 「カルシウム」. Some examples of loanwords with pronunciation which can easily cause miscomprehension in English, include: *allergy* 「アレルギー」, *virus* 「ウイルス」, *catheter* 「カテーテル」 and *gauze* 「ガーゼ」.

A Japanese doctor might think they are communicating in English using English words, when in fact, the words have a different meaning, usage, pronunciation, or do not come from the English

language. This kind of communication problem might be relevant to the skill deficit indicated by Dahm (2011), where IMGs neglected to explain terminology because they were not aware of a need to provide more information. A final comment about the use of loanwords is that they need to be studied with the verbs with which they collocate. These are often common verbs such as *have*, *do*, or *make*.

Talking about Pain

One approach to the study of English pain vocabulary is to start with the learner' s native language, collate terms and note the medical conditions with which they are associated. An instructor can help to explain the ways that various types of pain are expressed in English. Students can participate in short role-plays to practice using various pain scales, rate a patient' s pain intensity and suggest suitable pain relief options. One of the goals for a first residency year acculturation course for psychiatrists in the United States, was to compile a set of informal terms relating to the body, health conditions and behaviours (Hoekje, 2007, p. 337). It was further explained that international medical graduates (IMGs) needed to become familiar with the language of the patient community, which includes slang and other informal, conversation-style terms and expressions. This kind of language collation can be included in its own section of an active glossary, where doctors could make future additions when patients use such terms. By reviewing such informal language, doctors can become better able to listen to and comprehend what patients might say.

Japanese Onomatopoeia

For the next type of vocabulary learning, a dictionary might be insufficient to give common or useful descriptions and examples. Kurahone, Kurahone, and Kurahone, (2010) and Pasion, (2016) present pain vocabulary with attention to onomatopoeic usage; refer Table 15. Japanese speakers frequently use onomatopoeia, “giseigo” 「擬声語」 to describe pain, in contrast to English speakers, who usually use various adjectives and expressions. Doctors should be familiar with the way that pain conditions are

described in English. They should also be aware that English expression might use different parts of speech to that in Japanese. Moreover, a doctor should avoid using the Japanese expressions in Table 15 because their semantic properties are largely inaccessible to English speakers. Some other common examples of

Japanese onomatopoeic usage (Kurahone, Kurahone, & Kurahone, 2010) include the sound of wheezing 「ヒューヒュー」、 「ゼーゼー」、 the sound of heavy breathing, or feeling puffed 「ハアハア」、 the sound of a cough 「ゴホンゴホン」、 the condition of a dry throat 「カサカサ」、 「イガイガ」 and a spotty skin condition 「ブツブツ」.

Table 15
Japanese Onomatopoeia to Describe Pain

Pain vocabulary in katakana	Pain vocabulary constructions	Pain vocabulary in romaji	English description and example condition
ズキズキ	ズキズキする痛み ズキズキした痛み ズキンズキン ズキリと、ズキッと	zuki-zuki	A throbbing pain. Headache.
シクシク	シクシクする痛み	shiku-shiku	A dull, prolonged pain. Stomach ache.
ガンガン キリキリ	頭がガンガンする キリキリする痛み	gan-gan kiri-kiri	A pounding headache. A sharp pain. Stomach cramps.
ヒリヒリ	ヒリヒリする、 ヒリヒリ (と) 痛む ヒリヒリ (と) 痛い	hiri-hiri	A burning sensation. Sunburn.
ピリピリ	ピリピリする ピリピリ (と) 痛む ピリピリ (と) 痛い	piri-piri	A stinging of burning feeling, more for superficial injuries. Rash.
ビリビリ	ビリビリ痺れる、 ビリビリした痺れがある	iri-biri	A burning sensation. A sore throat.
チクチク	チクチクする チクチク (と) 痛む 刺すように痛い チクチク (と) 痛い チクリと、チクっと	chiku-chiku	A stinging, pricking, pinching, twitching, tingling, scratchy, itchy, burning feeling, but used for deeper sorts of pain. Chafing.
ドーン		do-n	a general, dull pain. An ache.
キーン		ki-n	a sharp pain.
キューツ	キューツと痛む	kyū	Slow, spasmodic pain. Cramps.

Creating Ongoing Medical Language Resources

One of the activities most recommended throughout a course of medical training is for learners to prepare their own resources for study and future

professional practice. The idea is to create various sections in a notebook (or notebooks) for fast and easy referral, perhaps during a consultation with an English speaker. The sections can be arranged according to theme or Japanese syllabary. Some sections could be devoted to just vocabulary, whereas others could have whole sentences.

Explaining Procedures of Care

Some suggested categories and examples for student workbook content feature here. As part of explaining the procedures of care, it is recommended that learners write a full, clear question or sentence to show how terms and expressions are commonly used in medical practice. Topics can include vocabulary, various medical procedures (tests, scans, operations), use of medication, asking about allergies, giving patient instructions and hospital/clinic-associated vocabulary. Learners might want to add information such as parts of speech. Some examples are shown here:

Take a deep breath in/out 息を大きく吸って、大きく吐いてください。

Say “Ah” 口を「アーン」と開けてください。

Hold your breath 息を吸って止めてください。

Don't move/Stay still 動かないでください。

Lie down on the bed (face down/ face up) ベッドで(うつ伏せ/あお向け)になってください。

Next time, I'll check ... 次回... を検査しましょう。

Do you have any allergies? Are you allergic to anything? Are you allergic to penicillin?

I'm going to (give/prescribe) you [medication type].

Are you taking any medication at the moment?

Have you taken this type of medication before? Did you have any problems with it?

Please come back (to see me) in another week/two weeks/month/three months.

Let me check your ... I'm going to check your ... I'd like to check your ... pulse, heart, breathing, throat, eyes, ears, liver, glands, wound, cut, fracture.

Now, I'm going to take your blood pressure, temperature, pulse

I'm going to put you on a drip, (an IV), put you on antibiotics

I'm going to give you a needle, give you a vaccination, give you a course of antibiotics

To bruise/a bruise/bruised/bruising Do you bruise easily/often?

To infect/to get (or become) infected/to get/have (an) infection

Inflamed (Adj)/inflammation (N) swell (V)/swollen (Adj)

Relief (N)/relieve (V) What things relieve the pain? What brings you relief?

Generalised pain – sore, soreness, tender, muscular, stiff muscles, internal, joint

Levels of severity (condition, injury, illness): mild; minor; major; severe; deadly; critical; life-threatening.

You will have a [body part] x-ray.

You will have a cast on your [body part] for [duration].

I think you have a virus. Have you had this virus before?

You will go to rehabilitation (referring to a place) each day.

You will go for rehabilitation (referring to activity) each day.

You should get vaccinated against [disease name].

I'll give you a [disease name] vaccination/shot.

The students should allow plenty of space in their active workbooks for future additions. As they experience interaction with English-speaking patients, they can add information to assist in communication the next time they might need fast reference for the same topic. One benefit is that learners can arrange the format of their workbooks however they choose. They could first write what they'd like to say in Japanese and then translate that to how it might be expressed in English, with checks and advice by a TESOL instructor. Alternatively, translations or explanations could be from English to Japanese. Trainees could also insert pictures or diagrams, perhaps with English annotation, to help patients understand key information more quickly and easily about symptoms and treatment. This approach might be a useful strategy to help explain aspects of internal medicine, reproductive and sexual health, for example, if a doctor feels they need some pictorial support to help discuss these subjects in English.

Conclusion

Intercultural health literacy does not only involve communicating with patients from other countries. Even within nations, as in the case of some Indigenous cultural groups, English might not be a viable *lingua franca* for the delivery of healthcare services. In medical consultations, communication aims to achieve accurate and timely transfer of information related to symptoms of ill health or injury, diagnosis

and forms of treatment to alleviate conditions. An intention is to make learners in medical training/ESP courses acutely aware of the ways they can relate to patients and convey the meaning of what they say in English. To develop their own bedside manner, they need to pay attention to how they can put the “care” into “healthcare”. The main content of this paper suggests that Japanese medical trainees should think about components of discourse in English with foreign patients. COCA corpus searches provide data for vocabulary frequency, and various ways such data can be categorised for pain and coughs were presented. This data can be incorporated into teaching/learning materials for ESP students. One reason why it is recommended that students make their own materials and resources for professional use is that they take control of their learning in ways they feel are relevant to their current and possibly, future linguistic needs. These are not fixed resources but can be expanded and amended over time. With such resources and a working knowledge of communication strategies, a practitioner should be confident that they can communicate well enough in English to achieve shared goals of medical discourse with a patient who lacks Japanese language proficiency.

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Appendix

The One Hundred Most Frequent words that Immediately Precede 'Pain' (COCA) (Davies, 2008)

Rank	Adjective	Frequency	All	%	MI
1	back	1064	707985	0.15	3.98
2	chronic	694	12625	5.50	9.17
3	much	606	520680	0.12	3.61
4	chest	566	31093	1.82	7.58
5	physical	393	73630	0.53	5.81
6	abdominal	343	2038	16.83	10.79
7	feel*	304	193360	0.16	4.04
8	severe	286	21421	1.34	7.13
9	sharp	266	24346	1.09	6.84
10	joint	245	23318	1.05	6.79
11	real	234	174	0.13	3.81
12	great	224	266832	0.08	3.14
13	excruciating	212	1214	17.46	10.84
14	without**	205	243693	0.08	3.14
15	emotional	199	322	0.62	6.02
16	less	184	202548	0.09	3.25
17	cause*	166	71128	0.23	4.61
18	postoperative	151	1699	8.89	9.87
19	terrible	145	26583	0.55	5.84
20	muscle	140	15613	0.90	6.56
21	neuropathic	121	151	80.13	13.04
22	intense	121	197	0.61	6.01
23	relieve*	118	3567	3.31	8.44
24	constant	114	20750	0.55	5.85
25	searing	111	1283	8.65	9.83
26	neck	108	34558	0.31	5.04
27	economic	95	117956	0.08	3.08
28	acute	93	7582	1.23	7.01
29	causing*	92	13786	0.67	6.13
30	knee	90	16943	0.53	5.80
31	pelvic	82	1025	8.00	9.71
32	inflict*	82	1408	5.82	9.26
33	stomach	82	18043	0.45	5.58
34	reduce*	81	39337	0.21	4.43
35	causes*	78	23856	0.33	5.10
36	shoulder	73	37946	0.19	4.34
37	extreme	72	19646	0.37	5.27
38	cancer	71	56593	0.13	3.72
39	throbbing	70	1408	4.97	9.03
40	inflicting	69	675	10.22	10.07
41	arthritis	69	3846	1.79	7.56
42	marco***	68	4789	1.42	7.22
43	persistent	65	6705	0.97	6.67
44	leg	64	26049	0.25	4.69

45	deep	64	7287	0.09	3.21
46	prescription	63	9864	0.64	6.07
47	stabbing	61	1638	3.72	8.61
48	sudden	60	22816	0.26	4.79
49	lower-back	59	142	41.55	12.09
50	burning	59	17656	0.33	5.13
51	worst	57	34879	0.16	4.10
52	unbearable	56	1942	2.88	8.24
53	musculoskeletal	51	607	8.40	9.78
54	breast	51	22023	0.23	4.60
55	ease*	50	14869	0.34	5.14
56	foot	50	39638	0.13	3.73
57	phantom	49	2654	1.85	7.60
58	dull	47	6818	0.69	6.18
59	tremendous	47	15154	0.31	5.02
60	treat*	46	23159	0.20	4.38
61	bon***	44	1730	2.54	8.06
62	bone	44	19109	0.23	4.60
63	royal ^Δ	43	18858	0.23	4.58
64	experiencing*	42	7631	0.55	5.85
65	facial	41	5868	0.70	6.20
66	obvious	41	28692	0.14	3.91
67	nerve	39	9338	0.42	5.45
68	alleviate*	38	2390	1.59	7.38
69	horrible	38	11561	0.33	5.11
70	short-term	37	8602	0.43	5.50
71	psychological	37	20660	0.18	4.23
72	considerable	36	14684	0.25	4.69
73	bodily	35	3277	1.07	6.81
74	relieving*	34	776	4.38	8.85
75	unnecessary	33	6033	0.55	5.84
76	adequate	33	12447	0.27	4.80
77	reducing*	33	14928	0.22	4.54
78	manage*	32	186	0.17	4.17
79	shooting	32	31073	0.10	3.43
80	caused*	32	36485	0.09	3.20
81	over-the-counter	30	1367	2.19	7.85
82	agonizing	30	1492	2.01	7.72
83	heel	30	5527	0.57	5.91
84	treating*	30	8780	0.34	5.16
85	low-back	29	7140	40.85	12.07
86	intractable	29	1142	2.54	8.06
87	psychic	29	2925	0.99	6.70
88	experienced*	29	29356	0.10	3.37
89	migraine	28	1046	2.68	8.13
90	limb	28	5167	0.54	5.83
91	incredible	28	15760	0.18	4.22
92	ear	28	21722	0.13	3.76
93	lingering	27	3939	0.69	6.17

94	hip	26	11360	0.23	4.59
95	debilitating	24	1597	1.50	7.30
96	mild	24	9356	0.26	4.75
97	suffer*	24	14304	0.17	4.14
98	long-term	24	29326	0.08	3.10
99	relieves*	22	474	4.64	8.93
100	endure*	22	4585	0.48	5.65
Total		10871			

Note. * Verb ** Preposition *** Noun ^Δ Idiomatic