

An English teacher’s perspective on English questions in the Japanese National Medical Licensing Examination

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Abstract

Since 2009 the Japanese National Medical Licensing Examination has included a small number of questions in English. Most English teachers welcome this as an acknowledgment of the increasing importance of English in a globalized world. However, given the very small number of English questions on the exam, and the wide variation in their format and content, it seems unlikely that this has prompted significant changes in attitudes towards English, or that it has noticeably affected the way English is taught in medical schools. Furthermore, the sometimes questionable quality of the English used in questions also suggests that their inclusion is something of a token gesture that does not reflect any fundamental change in the place of English in the medical school curriculum. It seems likely that only a large increase in the number of English questions on the exam would prompt significant changes. However, that in turn would not be without its risks, and could simply lead to a focus on training students to answer questions on the exam, rather than on providing them with practical language skills for their future careers. The best way forward is far from clear.

1. Introduction

In 2021 there were 81 medical schools in Japan, spread among 42 national universities, 8 public universities, and 31 private universities (MEXT 2020). Together they have the capacity to admit almost 10,000 undergraduates per year. However, while English normally features both on the entrance examinations for medical schools and in the undergraduate curriculum, until 2009 there were no English questions on the National Medical Licensing Examination (hereafter NMLE), which students must pass to qualify as doctors. This was no doubt one reason why traditionally there had been little control over what was actually taught in English classes in medical schools, and little attention had been paid to it. As Gerling (2004, p. 21) commented, “English is taught as a separate, unrelated topic, and its relevance remains a theoretical concept.” Indeed, a survey conducted at the turn of the century found that many Japanese medical schools at the time did not even offer courses specifically in medical English (Kipler et al. 2000). It must be assumed that the inclusion of English questions on the NMLE from 2009 was at least partly aimed at raising the profile of English in the

undergraduate curriculum, and assuring that teaching focused more squarely on the English actually needed to work effectively as a doctor in a globalized world. Indeed, the field of *medical English* is broader than many people realize, and doctors' English needs are not as clear as is often assumed. For example, while it is natural to imagine that *English for talking to patients* is high among doctors' needs, Willey *et al.* (2020) found that many doctors use English far more for obtaining information from the Internet, communicating with other professionals, or preparing manuscripts for presentations, and that when they do encounter an English-speaking patient, the patient is likely to be a nonnative speaker. This is a scenario typically overlooked in English textbooks for medical students, which rarely seem to be based on any objective analysis of doctors' actual English needs.

Against this backdrop, it might be hoped that the English questions in the NMLE could provide some degree of clarity on exactly what Japanese doctors are expected to be able to do in English, and to serve as a catalyst for raising the level of English ability among graduating students.

2. English questions in the NMLE

2.1 *The many forms of English questions*

All past NMLE questions are available for download from the MEXT website (<https://www.mhlw.go.jp>). The English questions in the NMLE come in many shapes and sizes. In many cases questions contain a mix of Japanese and English, e.g.:

疾患と聴診所見の組合せで正しいのはどれか。

- a COPD — stridor
- b 胸膜炎 — rhonchi
- c 石綿肺 — fine crackles
- d 肺水腫 — Hamman's crunch
- e 気管支喘息 — friction rub

(NMLE 116 [2022] question E15.)

On the other hand, there are also some all-English questions including a case summary, question, and five options, all in English, e.g.:

A 65-year-old woman was diagnosed with stage IB right lung cancer. She underwent right lower lobectomy with lymph node dissection for the cancer. She developed a milky white pleural effusion of 860mL, which was drained after starting meals on the first postoperative day.

Which pleural effusion test should be performed for a definitive diagnosis?

- a Protein
- b Bacteria
- c Triglyceride
- d Malignant cells
- e White blood cells

(NMLE 114 [2020] D63.)

Another pattern involves an introduction, question and options in Japanese surrounding an English text, e.g.:

44歳の男性。航空会社の職員に付き添われて空港内の診療所を受診した。持参した英文紹介状の一部を示す。

This patient is a 44-year-old man with a complaint of right flank pain*. The pain suddenly occurred while he was on the airplane. It was colicky and radiated to the right inguinal region. Neither nausea nor diarrhea was associated. He had appendectomy when he was 8 years old.

Urinalysis results : Protein (-), Sugar (-), Occult blood (2+)

*flank pain : lateral abdominal pain

この患者にみられる可能性の高い身体診察所見はどれか。

- a 腸雑音亢進
- b 陰嚢の透光性
- c 腹部血管雑音
- d Blumberg徴候
- e 肋骨脊柱角の叩打痛

(NMLE 109 [2015] F25.)

The inclusion of many questions containing *some* English—sometimes only a word or two—makes an exact count of the number of English questions in the exam somewhat problematic, as it is hard to determine exactly what constitutes an English question. However, while a trend towards more English-only questions appears discernible in recent years, the number of such questions is still vanishingly small. In 2021 English-only questions accounted for only 4 out of 400 questions, and in 2022 3 out of 400, or less than 1% of all questions.

2.2 *The quality of the English in NMLE questions*

While the very small number of English questions prompts suspicion regarding just how important English is for test takers, the quality of the English in some questions is also a cause for concern. It is generally accepted that doctors should try to write clearly and concisely, and yet questions sometimes feature unnecessarily complicated constructions, e.g.:

“He lived alone and drank alcohol every day. The amount of his alcohol intake was over 60g/day.”

(NMLE 115 [2021] B32.)

In the above example it seems more likely that a doctor would simply write, “He lived alone and drank over 60g of alcohol every day.”

In other cases the text provides information that could be inferred by any doctor and does not need to be specifically stated, e.g.:

“...she was slightly hypotensive with a blood pressure of 96/68mmHg.”

(NMLE 114 [2020] A31.)

Iizuka (2022) highlighted this example in a recent conference presentation, noting that any doctor is aware that

a blood pressure of 96/68mmHg is abnormally low, and hence it would be unnecessary to specifically mention this in a case summary.

There are also instances where the English is unnatural or even ungrammatical, such as the following:

“However, he has never been treated on alcoholic problems.”

(NMLE 110 [2016] C20.)

At the very least, *on* should be replaced with *for*, and surely *alcohol-related problems* would be the more natural expression? Meanwhile, another part of the same question includes the following sentence:

“Distended abdomen has been developed in these two days.”

(NMLE 110 [2016] C20.)

This is also at best a rather awkward expression, for which “He has developed distended abdomen over the last 2 days” would seem a far more natural alternative. Another question contains the following, in which *had an appendectomy* seems the appropriate expression:

He had appendectomy when he was 8 years old.

(NMLE 109 [2015] F25.)

The identity of question authors is obviously kept secret, but it would appear that checks on the English used in the exam are not especially rigorous.

2.3 Level of difficulty

The *medu4* website (<https://medu4.com>) reports correct answer rates for English questions typically exceeding 90%, and as high as 99%. Conversely, correct answer rates below 80% appear to be very rare. This high success rate would be a cause for celebration if it reflected a very high level of English reading ability among test takers. Alas, in most cases it seems instead to indicate both that the medical content of the questions is relatively simple, and that often a question can easily be answered provided a few key words in the English text can be identified. The following question is a typical example of this (underlining added):

北米での医学会参加のため搭乗していた旅客機内でドクターコールがあり対応した。目的地の空港のスタッフに情報提供した方が良いと判断し、乗務員に伝えたところ、「所見をメモして欲しい」と依頼され記載した文面を示す。

A 78-year-old female passenger has developed swelling of her left lower leg towards the end of a long-haul flight. She does not complain of any pain at rest. She has pitting edema of her left lower leg, but no color or temperature changes are observed. Calf pain is induced on dorsiflexion of her left foot. Because she suffers from shortness of breath, the possibility of pulmonary embolism should be considered, and transfer to an appropriate hospital is advised.

原因として考えられるのはどれか。

a Acute kidney injury

- b Deep venous thrombosis
- c Femoral neck fracture
- d Heart failure
- e Peripheral arterial disease

(NMLE 112 [2018] E31.)

Even before reading the English text, learning from the Japanese introduction that the incident takes place on board a long-haul flight is likely to draw attention to *deep venous thrombosis* as a possible answer, given that this is a known risk on long-haul flights, and even goes by the alternative name *economy class syndrome* (Dusse et al. 2017). As for the English text, the chief complaint *swelling of her left lower leg* is consistent with deep venous thrombosis, but is not in itself enough to eliminate the other options. However, recognition of *pulmonary embolism* should suffice. Even a student who does not know this term, or the term *deep venous thrombosis*, would probably know the words *pulmonary*, *venous*, and *thrombosis*, and thus make logical deductions. The student would certainly not need to understand the whole English text in order to answer the question, and thus it is not surprising that the correct answer rate for this question is reported to be 99%. A similar analysis could apply to many English questions on the NMLE, and this is another reason—in addition to the small number of questions—why students are unlikely to feel that studying English is an essential part of their exam preparation.

3. Can students prepare for the English questions, and should they?

3.1 The case for focused study

Even though there are very few English questions, students may be willing to invest time and effort in brushing up on medical English as part of their preparation for the NMLE if they feel this is likely to increase their chances of answering correctly. If so, how should they study?

Regarding university entrance exams, one of the most popular study strategies is to pore over past exams to become familiar with common question patterns and frequently occurring language. To evaluate the appropriateness of this strategy for the NMLE, I undertook a basic corpus analysis of English questions from 2015 (NMLE 109) to 2021 (NMLE 115), as described below.

3.2 A simple corpus analysis of NMLE English questions 2015-2021

Questions from NMLE 109-115 (2015-2021) were downloaded from the MEXT website and the English questions were extracted and gathered into a single Word file. The file was then stripped of all Japanese, of all grammatical words such as articles, prepositions and conjunctions, and of all non-medical vocabulary (*man*, *woman*, *room*, *eat*, *had*, etc.). Furthermore, where the same term appeared more than once in the same question, only the first instance was recorded. This reduced the text to a total of 367 words including 227 separate terms that could loosely be described as *medical English*. They include some words that are common in medical texts while not technically qualifying as medical English (e.g., *appropriate*, *anxious*), and in many cases a somewhat arbitrary decision had to be taken as to whether words should be listed separately or as a single term (e.g., ‘*body*’ and ‘*cooling*’, or ‘*body cooling*’?). However, the terms in the list can be roughly divided into the following categories:

- Diseases and conditions: *appendicitis*, *arrhythmia*, *Crohn's disease*, *lung cancer*, etc.

- Signs and symptoms: *abdominal pain, jaundice, nausea, pitting edema, vomiting*, etc.
- Body parts and anatomy: *bowel, calf, limbs, lymph node, right inguinal region, sigmoid colon*, etc.
- Examinations and treatment procedures: *appendectomy, bone scintigraphy, CT, mammography, physical examination*, etc.
- Miscellaneous nouns: *admission, bacteria, breathing, contrast, temperature*, etc.
- Miscellaneous verbs: *administer, complain, drain(ed), induce(d), palpate(d)*, etc.
- Miscellaneous adjectives: *acute, anterior, arterial, axillary, colicky, postoperative*, etc.

The full a-z list is given in the Appendix.

Analysis of the list shows that terms that appear more than once are mostly fairly common terms that the vast majority of test-takers can be expected to know without having specifically prepared for English questions on the exam. These include terms such as the following: *abdominal pain, abdominal tenderness, blood pressure, body temperature, complaint, diagnosis, diarrhea, nausea, shortness of breath*. Terms perhaps less likely to be known to all students have typically appeared only once, and include the following: *ascites, atrioventricular block, bone scintigraphy, colicky, dorsiflexion, embolism, extremities, icterus, lobectomy*, etc.

This suggests that for students, carefully studying past NMLE questions may offer peace of mind and reassure them that they have little to fear, but is unlikely to prepare them for low-frequency vocabulary they would not otherwise have known. This can be confirmed by comparing the corpus for 2015-2021 against questions from 2022. For example:

A 21-year-old previously healthy man presented to the emergency room with chest pain, which was worse on breathing, lasting for two days. Lung and heart examinations were unremarkable. Chest X-ray (A) and ECG (B) are shown in the figure*.

What is the most likely diagnosis?

- a Herpes zoster
- b Myocardial infarction
- c Pericarditis
- d Pneumothorax
- e Pulmonary embolism

(NMLE 116 E38 [2022]) (*figure not shown)

While the main text contains several terms appearing in past questions (*emergency room, chest, pain, breathing, examination*), these are all common terms that students could be expected to know anyway. As for the five answer options, only *pulmonary embolism* had appeared before, and is not the correct answer here. In the case of this question, it seems highly unlikely that whether or not the student had actively studied past questions would affect their ability to identify the correct answer (*pericarditis*). Analysis of another all-English question reveals a similar pattern:

A 64-year-old man was brought to the emergency department because of left hemiplegia with impaired consciousness. On physical examination, consciousness level was GCS E4V4M6, blood pressure

164/82mmHg, pulse rate 96/min and irregular. Neurological examination was unremarkable except for left hemiplegia. No carotid bruit was heard on either side. Brain MRI (Diffusion-weighted image) is shown in the figure*.

Which of the following is the most likely ECG diagnosis?

- a Atrial fibrillation
 - b Supraventricular tachycardia
 - c Third-degree atrioventricular block
 - d Ventricular fibrillation
 - e Ventricular tachycardia
- (NMLE 116 E38 [2022]) (*figure not shown)

A student who didn't already know *hemiplegia* could have learned it from a past question, and among the five options *ventricular tachycardia* had appeared previously, but again it seems unlikely that active study of past questions would be key to identifying *atrial fibrillation* as the correct answer.

Of course, if students take the time to practice reading English case summaries and memorize extensive vocabulary lists, this will no doubt increase the chances of them being able to fully understand all the English that appears in NMLE questions. However, on present evidence it seems unlikely that this would make a difference to many students' scores on the exam.

4. Conclusion

Although the inclusion of English questions on the NMLE portrays an image of an outward-looking Japan eager to ensure that its doctors are qualified to function in a globalized world dominated by English, at present their inclusion appears to be largely a cosmetic exercise. The number of and nature of the questions does not appear to be sufficient to motivate students to devote more time and energy to studying medical English, or to encourage medical schools to push for higher levels of achievement in English. In short, it would appear that a student's level of ability in English still has very little influence on whether or not they will succeed in qualifying as a doctor. Of course this may change in the future, especially if there is a significant increase in the number of English questions on the NMLE. However, while logic may suggest that this would be a way to force an increase in levels of English ability among medical students, that would not necessarily be the outcome. Indeed, teachers have for decades complained that the inclusion of English entrance exams for most high-level university courses has significant negative consequences, condemning generations of talented high school students to waste valuable time studying archaic grammar rules and memorizing Japanese translations of words, instead of developing practical language skills. It would be sad to see the same thing happen in Japanese medical schools, with the teaching of practical skills such as history taking and giving presentations relegated to the background, and the focus instead placed on simply training students to answer English questions on the NMLE. Other factors can and hopefully will lead to higher levels of practical English ability among graduating medical students in the future, but at present a more English-oriented NMLE does not appear to be a likely catalyst for this.

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Appendix: List of medical terms appearing in NMLE English questions 2015-2021.

(Numbers in parentheses indicate the number of separate questions in which the same item appeared.)

abdominal CT (2)	arterial	burning sensation	definitive
abdominal distension	ascites	calf	delta waves
abdominal pain (4)	associated (2)	chest (2)	detected
abdominal tenderness (2)	atrioventricular block	chills	developed
abnormal findings	axillary lymph nodes	clinic	diagnosed
abnormality	bacteria	colicky	diagnosis (2)
acute	bilateral	complain	diarrhea (2)
administer	biopsy	complained	disease
administration	blood pressure (3)	complaint (3)	dissection
admission	body	conjunctiva	distended abdomen
alcohol (2)	body cooling	conscious level	dizziness
alcoholic	body temperature (2)	consciousness	dorsiflexion
anterior	bone scintigraphy	considered	drained
antibiotic	bowel	consult	ECG
anxious	bowel sounds (2)	contrast	echocardiography
appendectomy	breast	Crohn's disease	ectopic pregnancy
appendicitis	breast surgery	CRP test	edema
appropriate	breathing	CT (2)	embolism
arrhythmia	broad-spectrum	deep venous thrombosis	emergency room

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endoscopy	left lower quadrant.	peritoneal irritation	sinus
estrogen	lesion	periumbilical area	sinus tachycardia
examination (3)	limbs	persistent	skin
examine	lobectomy	physical examination (3)	skin muscle
extremities	localized	physician	slight
faint	located	pitting edema	social history
female	lower	pleural effusion	spiculae
femoral neck fracture	lower leg	postoperative	ST elevation
fever	lung cancer	pouches	sudden onset
feverish	lymph node	premenstrual syndrome	suffers
fingers	malignant cells	present	supraventricular tachycardia
flank	mammography	presentation	swelling
flushed	mass (2)	presented (2)	symptoms
gastrointestinal	Meckel's diverticulosis	presenting	syndrome
general malaise	medical	presenting complaint	T wave
generalized	menstruation	pretibial	tachycardia
Glasgow Coma Scale	metastases	protein (2)	temperature (3)
gradually	muscle spasms	pulmonary	tenderness
headache	muscle weakness	pulse rate	thickened
health-screening examination	nausea (3)	QRS-complex	toes
heart failure (2)	NSAID	radiated	tracheal intubation
heart rate	nystagmus	rapid	transfer
hemiplegia	observation	rebound tenderness (1)	triglyceride
histo-pathological findings	occult blood	rectal	ultrasonography.
history	omitted	regular (2)	underwent
hospital (2)	onset	respiratory rate	upper
hypotensive	oral	right inguinal region	ureterolithiasis
icterus	pain (5)	right lower (2)	urinalysis
induced	pallor	right lower quadrant	vaginal spotting
inflammatory disease	palpated	sensory disturbance	vascular spiders
infusion	palpitations	severe	ventricular tachycardia
intake (2)	passenger	shallow	vomiting
invasive ductal carcinoma	patient (2)	sharp pain	white blood cells
investigation	pelvic	shortness of breath (2)	worsening
irradiation	perform	sick	
jaundice	performed	sigmoid colon	
kidney injury	periodic	sigmoid diverticulitis	
left lower abdomen	peripheral	sigmoid volvulus	