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Relation			



## Expanding a Third-Year Medical English Curriculum at a Japanese National University

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In this article, we consider how our previous research on case reports (Fraser et al., 2021; Davies & Fraser, 2021) can be used to enrich a third-year medical English curriculum. To do this, we summarize the planning and development of the curriculum, which has been documented in previous articles, examine how existing course material connects to cases, and consider how new material that covers cases and case reports can be added to the curriculum.

In the last section of the article, we consider the future direction of our research by discussing how materials development can be connected into the practical English used in a hospital. Formal medical education takes place in two locations – universities and the hospitals themselves. We suggest ways in which audiovisual materials might be constructed that act both as language learning materials and as a support for medical staff in explaining hospital processes and procedures.

#### BACKGROUND

The existing medical curriculum on which this article is built has been developed over a period of eight years, based on materials that were created by the research team with the aid of medical doctors. It uses a "quasi-parallel" syllabus (Fraser & Davies, in press), one which refers to medical content that has already been taught to students, but extends slightly beyond it on the basis of learnability. For example, students may study diseases not covered in their medical classes, but the descriptions of those diseases are given simply within the materials, and connected to language on signs (objective evidence, such as a rash) and symptoms (something evident only to the patient, such as a headache). Because the purpose of the medical English curriculum is not to teach medicine itself but to teach medical English by connecting to medical content, this is sufficient for the purposes of the students, who can understand the terms in context.

The curriculum itself consists of 13 units of material thematically organized around body systems (see Figure 1) and an introductory unit organized around the anatomical position (the key body position used for reference), medical terms of location, the vertical and horizontal planes used for a three-dimensional space, and the views of a body or body part, such as from the front (anterior view) or from beneath (inferior view). An important sub-syllabus is lexical, with corpus and discourse analysis being used to identify high-value items for learning. Within the 13 units, vocabulary is contextualized in two different types of discourse: essays and dialogues. Vocabulary tasks, comprehension questions, and skills tasks are organized around

these.

The curriculum is taught in two components, with seven units of material being taught by a team from the university's Institute for Foreign Language Research and Education, and seven being taught by the medical school's English specialist, who also gives grades based on the results from the two components.

From 2017 to 2020, until the problems brought about by the onset of the COVID-19 pandemic, the institute's team taught their component through flipped learning (Enokida et al., 2018), involving the university's learning management system (LMS), software for creating and delivering course content as well as managing educational courses, and a three-day intensive course in September of each year. The other seven units were taught in classrooms across four terms.

In 2018, the institute's team experimented with providing their component early as a short course, taught in October and November, for second-year students (Davies et al., 2019). This was to explore whether students who had completed their dissection work and basic physiology could successfully complete the course. The results indicated that they could cope well, and so this early course was offered in subsequent years, with approximately two-thirds of second-year students electing to take the component in their second year in 2020 and 2021.

With the beginning of the COVID-19 pandemic in early 2020, the delivery of the curriculum had to be changed. The institute's team was asked to provide its intensive course and the second-year course online. This was achieved through use of the LMS, Blackboard Learn 9 (Bb9), and Zoom videoconferencing software. The medical school component had to be converted to Bb9 content and was delivered as a monitored self-study course involving tasks that were marked automatically on Bb9 along with writing tasks that were posted on Bb9's blog.

- 1. Anatomy Planes, Locations and Views
- 2. Musculoskeletal System
- 3. Brain
- 4. Heart
- 5. Lungs
- 6. Endocrine System
- 7. Gastrointestinal System
- 8. Liver
- 9. Integumentary System
- 10. Lymphatic System
- 11. Urinary System
- 12. Reproductive System
- 13. Eyes
- 14. Ears, Nose, Throat

FIGURE 1. 14 Units of Material

### Case Study Research

In 2020, our research team investigated the language of case reports. To do this, discourse analysis was used on three case studies and corpus analysis was used on 108 case studies provided by the medical school (Fraser et al., 2021). The discourse analysis provided information on the purpose and content of the main sections of case reports, while the corpus analysis was used to identify useful words and phrases.

Using the results of the analysis, the pedagogical implications were considered in terms of both receptive skills and productive skills. From the receptive skills point of view, whole case studies could be used for several purposes: reading for overall meaning, focusing on the purpose of each section, and also for highlighting and learning useful terms and phrases. From the productive skills perspective, the writing of full case studies was considered too complex in the second year and third year of medical studies for the following reasons: A case study is written to highlight an unusual case or treatment, taking place against a background of standard cases, but second-year and third-year students are still at the stage of developing their understandings of those standard cases; in addition, case studies are usually written by practising doctors who have first-hand knowledge of the case they describe. Consequently, our tentative hypothesis for productive skills was that the key section in the body of a case study was the case presentation itself. Here, the process of history taking (an initial consultation with the patient about her/his problem and relevant medical and social history), examination, diagnosis, treatment, and results are summarized as objectively as possible. Taken independently, case presentations can be used for both standard and unusual cases. In addition to the case presentation, the writing of an abstract, effectively a summary of the body of the case report, can also be used for writing practice.

#### **METHOD**

In this article, we review the curriculum and teaching of its components to consider how existing material connects with the new research and how new material can be integrated. The curriculum was constructed by the research team in consultation with medical specialists and is well-established. Two of this article's authors have been involved in its delivery since its inception. It is designed for students to make the transition from general English to English for Medical Purposes (EMP). However, while the materials cover subject matter that can be found in medical reference books used by undergraduates as well as doctor—patient interaction, they currently do not cover article writing. The type of article that fits most easily with the existing materials is the case report, which documents a single unusual case, particularly in relation to its case presentation section. Consequently, the research team is considering how to integrate such reports into the curriculum. The article is therefore a reflection on existing materials development and an exploration of future materials development based on the experience within the research team. The key research questions are:

- 1. How have existing materials been designed and taught?
- 2. How can case presentations be integrated into the curriculum?
- 3. How can case reports be integrated into the curriculum?

The possibilities for integration into a curriculum involve (1) writing extra materials into the existing units of material, and (2) creating new units of material that form an extra course. The resulting planning is likely

to involve both approaches, and the following discussion and summary are used to explore how this could be most effectively achieved.

#### DISCUSSION

#### The Design and Teaching of Existing Materials

The design of the materials has been influenced by Nation and Newton's (2009) four-strand model of meaning-focused input, meaning-focused output, language-focused learning, and fluency. However, in the course materials, the focus is on the first three strands. Stretches of discourse provide both input and contextualization to key vocabulary prior to output.

Each body-system unit starts with a focus on anatomy/physiology. Students are required to match key anatomy terms to medical diagrams, then read a passage on anatomy/physiology, answer questions on the passage, then read to each other before finally trying to explain the anatomy/physiology to each other with reference to diagrams and key terms only.

The longer second section focuses on medical problems and diseases. Students match some key terms that are taken from an essay to their definitions, read the essay, and answer questions on it. This is followed by a doctor—patient dialogue, which is used for reading practice, before students participate in four history-taking role plays. On completing the role plays students are required to match the patient histories to four medical problems described in the medical essays. A final self-study section usually focuses on treatments for some of the medical problems mentioned in the essays.

The influence of the Nation and Newton (2009) model is in the anatomy/physiology section and the dialogue with the role plays. Here, meaning-focused input and language focus (vocabulary) precede meaning-focused output.

#### **Integrating Case Presentations into the Curriculum**

Case presentations concern patients, and the clearest links in the materials are the doctor–patient dialogues and the role plays, where there is primarily a focus on history taking. Many of the dialogues contained in the units are designed as useful illustrations of questioning techniques in history taking; where the dialogues focus on examinations or discussing results, supplementary dialogues on history taking are provided. To construct history-taking dialogues, a disease is chosen, and an imaginary conversation is constructed. For the role plays themselves, diseases covered in the unit are chosen, and simulated patients are constructed, providing students with information for the role plays. These materials are linked to final evaluation tasks for the institute's teaching component, in which students construct dialogues from summaries of history taking.

In relation to reading cases, one possibility would be to construct information for role plays in a form similar to a case presentation. Consequently, students practise reading the first section of a case presentation that outlines the key data on the patient and her/his signs and symptoms. However, by doing this a problem would emerge. A student preparing for a role play would be provided with a formal and technical passage. One of the functions of the dialogues and role plays is to operate in the less technical register of doctor–patient communication, providing students with useful everyday terms. To convert from a technical register to one appropriate for doctor–patient interaction would over-complicate the role-play task.

Regarding productive skills, in a previous article (Davies et al., 2021) we have suggested that extra information could be added to a dialogue to provide sufficient information to allow students to practise writing a case presentation. However, in the example that we used, this was made possible because the dialogue was one about discussing results and involved tables. In the materials, these dialogues are rare in comparison to history-taking conversations.

While the complexities of weaving case presentations deep into the existing materials may make it too much of a challenge, this process offers insights into how a set of materials might be developed. In relation to meaning-focused input, books such as Rees et al.'s (2014) 100 Cases in Clinical Medicine present the reader with the early parts of a case presentation: the history, the examination, plus test results (investigations) and sometimes scans. The reader then has to answer questions. A common format is the following (p. 41):

- What is the likely diagnosis?
- What is the appropriate management?

The following page in the book provides extensive answers. While 100 Cases in Medicine is oriented towards medical students studying in English to give them practice in "self-directed exploration of clinical problems" (Rees et al., 2014, p. vii), the cases offer an insight into their possible use for EMP. In EMP, the main purpose is to help students to develop the language skills and abilities they need to work in English. In 100 Cases in Medicine, the history sections vary in length between one and three paragraphs. An example of a short paragraph is as follows:

A 35-year-old man is seen in the emergency department because he developed a painful right knee. This has occurred rapidly over the past 36 h. There is no history of trauma to the knee joint or previous problems. He feels generally unwell and has also noticed that his eyes are sore. He has had no significant previous medical illnesses. He is married with two children. He is a non-smoker and drinks about 15 units of alcohol per week. He is a businessman and returned 3 weeks ago from a business trip in Thailand. (Rees et al., 2014, p. 39)

In comparison, the opening of a case presentation on rheumatoid arthritis (RA) from one of the three articles used for discourse analysis in our previous article shows similar language:

A 39-year-old Japanese female with a 5-year history of RA had been treated for severe erosive arthritis with 12 mg/wk of methotrexate. She complained of left ankle pain and left elbow pain that was especially notable when she experienced left ankle pain. The left ankle was swollen, with local heat and limited range of motion (passive dorsiflexion of only 10° and plantar flexion of 25°). (Nakasa et al., 2015, p. 281)

The actual case report then differs from the imaginary case by explaining the results of scans:

A plain radiograph in the standing position revealed diminished joint space of the tibiotalar and talocalcaneal interfaces, with the narrowing classified as Larsen grade 4 (Fig. 1). Magnetic resonance imaging scans showed articular cartilage loss in the tibiotalar joint (Fig. 2). The American Orthopaedic Foot and Ankle Society hindfoot-ankle scale score was 37 points (18, 19). (Nakasa et al., 2015, p. 281)

In contrast, because it is a pedagogic task for medical students, the hypothetical case provides an investigations section with data from tests, but these are for the reader to make a diagnosis. The main linguistic difference is the use of the present tense in the hypothetical case compared to the past tense in the real case report.

From the perspective of adding extra tasks to existing units of material on a learning management system, the use of hypothetical case information with tasks for students to make diagnoses would be a relatively straightforward addition, and could utilize multiple-choice questions for diagnosis, comprehension, and vocabulary checks. For each of the thirteen main units, a case could be added. This would then provide reading material in the form of a task for analysing data from a case.

In relation to the creation of an additional course that links to the existing curriculum, the opportunities for using the discourse of cases are more extensive. From the receptive skills perspective, students can be given readings of full case presentations, and in relation to meaning, answer comprehension questions. To build understandings of syntax and grammar, tables of information and notes can be used for students to perform gap-filling tasks that draw their attention to syntax and phrasing, such as the example shown below in Figure 2.

In a similar way, paragraphs can also be constructed involving the placing of key phrases and terms into the text. In this way, such language-focus materials would be designed to fix students' attention on key phrases in context.

			1	
	Age	39		
	Sex	F		
	Complaint	Right knee – pain		
	Onset	Previous day		
Complete the sentence with the following words:  painful/woman/39/with/knee/presented/a/old/year/right				
A				
Answer: A 39-year-old woman presented with a painful right knee.				

FIGURE 2. Sentence-Level Task

From a productive skills perspective, simulated data can be constructed from which students are required to write case presentations. Here, there are two possibilities: (1) To use purely tabulated data; (2) to use a combination of dialogues and tabulated data. The advantage of the latter option is that students would be required to extract signs and symptoms from a history-taking dialogue, and also at times, to change some non-technical terms from the doctor–patient register to the technical terms of the doctor–doctor register. For example, "shoulder blade" in a doctor–patient dialogue would need to be converted to "scapula" in the case presentation. Currently, students are familiar with creating dialogues (Davies et al., 2019) based on cases for evaluated tasks (see Appendix). With regard to writing up cases, the process can be reversed, with extra information added. Fraser et al. (2021) provide an example involving diabetes mellitus.

#### **Integrating Case Reports into the Curriculum**

In relation to actual case reports, we have noted that it is unrealistic for students in the early stages of their medical studies to write full case reports. However, it may be possible to summarize them in the form of abstracts.

Regarding receptive skills, case reports are already used in learning materials. Kennedy and Hirada (2005) include two case reports in their *Textbook of English for Medical Purposes Volume II*. The reports in the units focus on the case presentation and discussion sections, and are supported by key terms with Japanese translations and notes, followed by a variety of tasks on comprehension, structure, and abbreviations. This approach creates a reading of manageable length, well supported by explanations and tasks. However, in comparison to the full case reports in our corpus, these textbook readings appear to start at the case presentation stage, which we have identified as the most pedagogically useful on the basis of both receptive and productive skills. Our aim is to focus, if possible, on the full case report. As we have noted (Fraser et al., 2021), there are very important features in the introduction such as "Here, we report..." and, in particular, the use of "we". Similarly, with the conclusion, structures such as "In conclusion, we reported..." frequently occur.

From a pedagogical perspective, the selection of appropriate case reports is of great importance. In our corpus, the reports vary from 1.5 to 12 pages in length. The challenge is to find shorter case reports that are not too technical. The reason for this is to focus students' attention on structuring phrases, labelled as formulaic academic phrases (FAPs) by Guest (2017), of the case reports rather than specialized terminology. If this is not possible, the case reports may need to be simplified, which would probably require the input of both medical staff and applied linguists, supported by corpus analysis.

#### **Summary**

The most likely strategy for the integration of case reports into a curriculum is consequently twofold: the addition of tasks that involve a short reading and some hypothetical results to the existing materials, in which students are required to make a diagnosis; and the creation of a linked course that builds from standard case presentations to full case studies. In the linked course, the standard presentation section would involve receptive skills involving readings, a language focus on key structuring phrases, and productive-skills work on writing a case presentation using simulated data and dialogues. In relation to case reports, the focus would be more on receptive skills and a language focus, but with a productive skills task of writing an

abstract.

The addition of standard case presentations and case reports to the third-year curriculum would complete the research team's main aim of providing materials which focus on the development of both spoken and written forms of communication that utilize a core of medical English content. However, this is only a basic core, and in the next section we consider how the curriculum can be extended.

#### **FUTURE DIRECTIONS**

In our current research, we are focusing on the integration of case reports into an existing curriculum, one which is taught before the end of students' third year of medical studies. To move beyond this, we consider how the curriculum can be connected to the activities of the university hospital.

The third-year curriculum is designed as a transition from general English studies, taught in the students' first year, to English for Medical Purposes, and has a focus on developing a core of vocabulary, and communication in two registers: doctor–doctor and doctor–patient. While this provides a grounding in EMP, there are a variety of ways in which applied linguistics research might be used to develop the curriculum further. A key aspect of our research is the creation of learning materials. To do this, the research team creates text in the form of essays and dialogues that carry content. This will soon be supplemented by hypothetical cases as well as adapted open-access case reports. The materials are often supported visually by diagrams and photographs. With the development of a flipped learning approach, we have also been able to provide links to useful video on websites such as YouTube.

One of the challenges of further developing a medical English curriculum is that a university hospital has a wide range of specialisms, with each one utilizing a variety of specialist terms, making it very difficult for a small research team to cover them all. In contrast, in the early years of medical study, the required content is more focused on a core curriculum: Students have to gain a basic grounding in all areas of medicine, and our body-systems-based materials cover a core of around 2,000 contextualized medical terms.

One strategy for hospital-based research would be to cover the more general areas of patient care. Most patients, unless they are arriving by ambulance, have to enter a hospital and find their own way to the correct department. After seeing a doctor, they may undergo tests and/or scans, the most common probably being blood tests, X-ray scans, ultrasonography, and CT scans.

A particularly important area involves in-patients (those staying in a hospital). Patients need to receive instruction from a nurse about what to bring and where they will need to go in the hospital. Similarly, when patients arrive at a ward, they will receive advice and instruction. While this is not usually the responsibility of a doctor, it raises the interesting issue of teamwork among medical professionals in providing medical care.

With current developments in ICT, it is now possible to create video with audio narratives that can be made available through websites such as YouTube. The advantage of video is that it can give strong visual support to spoken or written language. There are a number of areas in which footage of the hospital and some procedures using a volunteer as a model could be valuably employed. Where a nurse has to make sure that a patient understands what should be brought for a hospital stay, for example, it might be easier to sit with the patient and watch an explanatory hospital video in English than to attempt a full spoken explanation. While our main focus is on what is needed for doctors, and explaining hospital procedure is not usually part of their duties, from a learning perspective such videos would provide good opportunities for medical

students to gain an understanding of hospital medical procedures through English study.

We have noted that it is almost impossible to cover an entire hospital, but one possible avenue would be to work with one or two departments, examining the interactions with patients and English language needs. For example, in relation to gastroenterology, our current materials refer to colonoscopy only once in relation to treatment:

With the early stages of colorectal cancer, a very small tumor can be removed during (16) *coloncoscopy*. If this is not possible, tumor removal can be done through open laparotomy or laparoscopically.

This could be extended by videoing hospital locations, equipment, and demonstrating the steps in a colonoscopy. In addition, interviews with the teams involved in colonoscopies and polypectomies might reveal some of the language needs. If a doctor is introducing gas into the colon to aid inspection of the bowel, this may create a build-up of pressure, and the doctor may need to advise the patient that it is OK to release this gas. The technical verb is "flatulate", but it might aid doctors to know more colloquial terms such as "break wind" or "fart". Identifying how language can be fine-tuned will have a much greater chance of success when applied linguistics research is close to the point of its actual use, in which medical teams are in dialogue with patients.

#### **CONCLUSION**

In this article, we have considered how our research on case reports in medicine can be utilized to expand a third-year curriculum, given the level of medical knowledge possessed by students at that level. We have argued that some elements of case presentations can be introduced into existing units of material through more receptive-skills-oriented tasks, and a more extensive set of materials can be created through a linked course that builds from analysis and writing practice of case presentations to the more challenging task of reading and analysing full case reports with writing tasks that focus on abstracts.

In relation to the future directions of EMP research, we have argued that orienting the research to the university hospital itself offers important possibilities in developing audiovisual material that can fulfil a dual role: delivering learning content for students as well as providing simple explanations of procedures and processes that might help hospital staff when communicating with patients in English. An advantage of conducting research at the hospital is that materials could be made that not only aid medical students with hospital terms and terminology, but also help other medical professionals such as nurses.

Finally, the ideas produced in this article touch on the role of applied linguistics research. Most of the research and materials development undertaken by the applied linguistics team has been oriented towards materials development for students, where the study of language in use acts as a basis for improving language learning, in our case in English for Medical Purposes. The new direction we propose goes beyond this by aiming to develop materials that can be used to support communication in English within a hospital. Many interactions in English take place in situations where all the interlocutors are using English as a foreign language. Exploring how simple, clear English narratives can be used to aid explanation and communication in hospitals is a valuable aim, and future research will be oriented towards developing dual use materials that will not only aid student learning but also provide support to medical staff and patients.

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#### **APPENDIX. Evaluated Writing Task**

Write a history-taking conversation between a doctor and a patient, using the information below. It is the first time for the doctor to meet the patient (Hana Tanaka).

Hana Tanaka is a married housewife, 45 years old, with three children. She has been suffering from indigestion, and also has a burning pain in her abdomen (in the stomach area). She has had both problems for 10 days. Eating reduces the pain, but then it gets much worse a few hours after the meal. The pain sometimes wakes her up in the middle of the night. Although she sometimes gets indigestion, she hasn't experienced the burning pain in her abdomen before.

Mrs. Tanaka eats three meals a day regularly, with cereal (muesli) and toast for breakfast, a salad for lunch (with vegetable oil and plenty of raw apple cider vinegar), and a larger meal in the evening (usually soup, rice, some meat and vegetables, and ice-cream). She drinks two glasses of red wine almost every evening. She has been under a lot of stress in the last year because she has started a part-time university law course, and she is also very busy looking after her children. Because of the stress, she often gets headaches, and takes ibuprofen quite regularly.

#### **ABSTRACT**

# Expanding a Third-Year Medical English Curriculum at a Japanese National University

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In this article, the authors consider how a third-year medical English curriculum could be expanded to incorporate materials on cases and case reports, then discuss how further research and development could be oriented towards the activities of their university hospital. In the article the links between the two locations, the hospital and the campus, are discussed.

In relation to research on case reports, the authors argue that the most useful section of a case report for third-year students is the case presentation, and that materials based on usual cases offer more possibilities at the level of learning in the third year of medical studies. Using Nation and Newton's ideas on meaning-focused input, language focus, and meaning-focused output, the authors consider how hypothetical cases and tasks can be oriented towards reading and writing, and how tasks can be designed to focus on key structuring phrases in case presentations. Concerning full case reports, the authors argue that materials are more likely to be oriented towards reading and language focus, but that writing can be used in tasks involving abstracts, in which students summarize the body of a case report.

Regarding the hospital itself, the authors argue that research on its activities could be used to create dual-use audiovisual materials. These could both aid language learning for students and also aid medical staff when they provide explanations of processes and procedures for patients.

### 日本の国立大学における医学部3年生英語カリキュラムの拡張

ウォルター・デイビス サイモン・フレイザー 達川 奎三 榎田 一路 マーシャル・ヒガ 広島大学外国語教育研究センター

本稿では、医学部3年生英語カリキュラムを、症例に関する教材と症例報告を一体化させるために、どのように拡張することができるかを議論し、そして、その後の医学の研究や発展が、大学病院における医療活動に導くことが可能かを考える。つまり、医療機関である病院と教育・研究機関である大学の連携を探求する。

症例報告の研究に関して、医学部3年生にとって最も役に立つ部分は「事例発表」であり、また、通常の事例に基づいた教材が、学生たちが専門領域を学ぶというレベルでは、仮想の事例に基づいた教材より有益であると筆者たちは考える。意味を重視したインプット、言語の焦点化、そして意味を重視したアウトプットに関わるNation & Newton の主張に沿い、いかに仮想の事例や課題がリーディングとライティングの活動に導くことができるか、また、コース課題を事例発表に見られる主要な構築表現に焦点化するためにどのように設計すべきかを吟味する。完全な(フルの)事例報告に関しては、教材はリーディングと言語(表現)を重視すべきであるが、ライティングはアブストラクト(要約)を扱う課題に用いることができるだろう。

大学病院に関しては, 医療活動の研究は視聴覚素材などを使った教材開発を可能にするであろう。これらは, 医学生の外国語学習支援はもとより, 医療従事者が患者に医療行為の過程や手順を, 英語で説明する際にも役立つ。