

# Trends of International Electives in Medical Education Undergraduates in Japan

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## Abstract

*Increasing numbers of medical students participate in international electives. However, this recent trend has yet to be examined in non-Western high-income countries such as Japan. The aim of this study is to assess recent trends in Japan, and to suggest ways in which those trends might be influenced. A retrospective cross-sectional analysis of responses to an 8-item questionnaire sent in August 2019 to 82 medical schools in Japan is reported. The responses were received in September 2019. Narrative responses were obtained regarding rationales for exchange programs, participant feedback, and challenges encountered. Responses were translated into English and categorized into themes. Of 82 Japanese medical schools, 56 (68%) responded to the questionnaire. Both the number of incoming and outgoing exchange students had increased steadily over the preceding 3-year period. The leading destinations for Japanese students were the United States (30%), other Asian (36%), and European countries (24%). Narrative responses reveal different rationales from those reported by medical schools in Western high-income countries. Only a few Japanese students chose low or middle-income countries as their destinations, as opposed to the trend seen in Western high-income countries. The reported challenges encountered by the exchange programs may provide insights for improvement. Exchanges have been greatly affected by the coronavirus disease 2019 pandemic. The results can serve as pre-pandemic baseline data and should promote further international collaboration for medical education under current circumstances.*

## Keywords

*international electives, undergraduate medical education, student, Japan, non-Western high-income country*

## Abbreviations

COVID-19 = coronavirus disease 2019  
IFMSA = International Federation of Medical Student Associations  
JABSOM = John A. Burns School of Medicine  
OGHIM = Office of Global Health and International Medicine  
US = United States  
WFME = World Federation for Medical Education

## Introduction

Pandemics, the climate crisis, aging populations, and health disparities require that future practitioners be competent in global health. However, medical practice and standards of medical care, as well as the impacts of infectious diseases, non-communicable diseases, and insurance systems, continue to vary globally. While information can be shared instantaneously, practitioners struggle to absorb and implement available knowledge. Training medical students through international elective programs in different medical care systems is one method for future physicians to develop global perspectives.

Globally, the number of medical students participating in international elective rotations has been increasing since the 1990s.<sup>1</sup> Historically, the focus was on tropical medicine, but currently the scope extends to global health issues.<sup>2</sup> Common themes include exposing students to health care systems in settings with different resources and medical cultures. A 2002 survey in the United Kingdom (UK) reported approximately 30% of medical schools provided electives, through which 40% of students visited low-resource countries.<sup>3</sup> Similarly, 24% of medical students in the United States (US) and 44% in Canada participated in global health experiences,<sup>4,5</sup> also focusing on low-resource countries.

In contrast, Nishigori et al, estimated 3% of medical students in Japan participated in international exchanges during the 2009 academic year—a much lower rate than in more developed countries including Western Europe, the US, Canada, Australia, and New Zealand.<sup>6</sup> They attributed this low rate to systemic issues such as difficulties assigning academic credit, the lack of inter-institutional affiliation, and low English proficiency. From 2011 to 2013, Suzuki et al, conducted a national medical school survey, which is used as a baseline for this assessment.<sup>7</sup> They found a steady increase in exchanges with 70% of Japanese exchange students studying in the US and Europe, while most foreign students arrived from Asia. The majority of exchanges occurred in the last 1-2 years of school, through inter-university partnerships, as part of the official curriculum.

The intent of international exchanges differs by country. Learners from less-developed countries traveling to developed countries generally seek to improve medical practice at home.<sup>8</sup> Conversely, learners from developed countries traveling to less-developed countries seek to experience care delivery under resource-poor conditions.<sup>9</sup> These are familiar themes in the literature of international medical education exchange.<sup>10</sup>

The objective of this study is to assess recent trends in international exchanges, including the rates of participation, to examine barriers, the educational purposes, and future intent of Japanese medical schools, and to suggest ways to influence those trends in Japanese medical schools.

## Methods

### Study Design

This retrospective cross-sectional study was conducted in 2019 to collect information on international exchanges among medical

students in Japan. The questionnaire, developed by the authors, was independently cross-checked for validity to quantify the degree of participation and gather supporting rationales. While a prior study used the questionnaire to assess curriculum development,<sup>7</sup> the focus of this study was to clarify the destinations of and the rationales for the exchanges.

The 8-item survey both in Japanese and English languages included the following questions: (1) During the academic years 2016 to 2018, how many of your students went to foreign medical schools or facilities, and to which schools did they go? (2) During the academic years 2016 to 2018, how many international medical students did you accept, and from which countries? (3) Was any portion of the exchange mediated by other organizations? (4) Does your school provide credit for overseas experiences? (5) Does your curriculum meet standards set by the World Federation for Medical Education (WFME)? (6) What are the expectations/purposes of the exchange programs at your school? (7) What value have participants reported? And, (8) What challenges has your school faced?

The University of Hawai'i's Committee on Human Studies declared this study exempt because individual data was not collected.

### Data Collection

Departments responsible for international student exchanges at 82 medical schools in Japan were contacted. Of the 82 schools, 21 with prior exchange relationships with the University of Hawai'i were contacted by the John A. Burns School of Medicine (JABSOM) Office of Global Health and International Medicine (OGHIM) via email; other schools were contacted by the corresponding author via telephone. Questionnaires in both Japanese and English were emailed in August 2019, and responses were received during September 2019. After responses from a number of schools were obtained, the purpose of the study was clarified to the responding schools, and ambiguous aspects of the questionnaire were rectified. Corrections included clarifying that the requested data was a breakdown of yearly participants by academic year. Narrative reports from participants could include those from foreign students and third party-assisted exchanges, but only school-approved exchange participants would be included for statistical analysis.

### Data Analysis

Data reported by informants were analyzed using Excel, version 2016 (Microsoft Corp., Redmond, WA). Data was categorized by the Japanese medical school, by the country of destination and origin, by the destination facility, and by year, allowing for summary statistics to be derived. Narrative responses in Japanese were translated and categorized into themes in English by 2 native Japanese-speaking authors. After the initial set of themes were developed, the themes were reviewed for similarities and categorized using constant comparison. The

final categorization was determined by consensus between the 2 Japanese-speaking authors.

## Results

### Participants

A total of 56 out of 82 (68%) Japanese medical schools responded to the survey with 2 recently established schools reporting no exchange programs and were excluded from analysis. The remaining 54 schools represent a total of approximately 36 000 (65%) of the estimated 55 000 medical students in Japan. Of the participating schools, 59% (n=32) are public and 41% (n=22) are private schools with 48% (n=26) of the schools located in urban areas (in or adjacent to metropolitan districts).

The number of undergraduate medical students sent overseas increased from 907 in the 2016 academic year, to 960 in 2017 (5.8% increase from 2016), and to 1098 in 2018 (21.1% increase from 2016). The number of students accepted from overseas increased from 1035 in the 2016 academic year to 1129 in 2017 (9.1% increase from 2016), and to 1278 in 2018 (23.5% increase from 2016). The majority of students who visited Japan in 2018 were accepted to private schools (60.3%, n=771) and in urban areas (72.8%, n=930), with nearly all schools sending at least 1 of their students overseas and receiving visiting international students.

### Destinations and Origin of Visitors

The leading destinations for Japanese students in 2018 (n=1098) were the US (n=331, 30.1%), Thailand (n=101, 9.2%), Germany (n=67, 6.1%), China (n=62, 5.6%), and the UK (n=53, 4.8%). Overall, 51 countries and jurisdictions were involved. Categorized into regions, Asia (n=400, 36.4%), the US (n=331, 30.1%), and Europe (n=259, 23.6%) were the main destinations (**Table 1**).

The leading countries of medical students arriving in Japan in 2018 (n=1278) were Taiwan (n=131, 10.3%), Thailand (n=119, 9.3%), China (n=110, 8.6%), UK (n=100, 7.8%), and South Korea (n=97, 7.6%). In total, 62 countries and jurisdictions were involved. Categorized into regions, Asia (n=716, 56%) and Europe (n=384, 30%) were the main sources of visiting students, while only 7% (n=89) arrived from the US.

### Academic Credit and Third-Party Assistance

Of the 54 schools responding, 46 (85%) reported that Japanese students were given academic credit for participation in exchanges.

The International Federation of Medical Student Associations (IFMSA) was the largest third-party organization to support exchanges. Most schools, however, arranged their own exchanges. A small number of Japanese schools received support from other

**Table 1. Japanese Medical Students Studying Overseas and International Medical Students Studying in Japan in 2018**

Country	Japanese students overseas n (%)	Participating Japanese schools n (%)	International students in Japan n (%)	Accepting Japanese schools n (%)
<b>Total</b>	1094	54	1278	54
Argentina	N/A	N/A	1 (0.1%)	1 (2%)
Australia	26 (2.4%)	12 (22%)	36 (2.8%)	9 (17%)
Austria	23 (2.1%)	7 (13%)	32 (2.5%)	4 (7%)
Bahrain	N/A	N/A	2 (0.2%)	2 (4%)
Bangladesh	N/A	N/A	3 (0.2%)	2 (4%)
Belarus	5 (0.5%)	2 (4%)	N/A	N/A
Belgium	7 (0.6%)	2 (4%)	8 (0.6%)	3 (6%)
Brazil	2 (0.2%)	2 (4%)	N/A	N/A
Bulgaria	N/A	N/A	2 (0.2%)	1 (2%)
Cambodia	1 (0.1%)	1 (2%)	1 (0.1%)	1 (2%)
Canada	34 (2.7%)	11 (20%)	8 (0.6%)	1 (2%)
Chile	N/A	N/A	1 (0.1%)	1 (2%)
China	62 (5.6%)	16 (30%)	110 (8.6%)	20 (37%)
Croatia	4 (0.4%)	2 (4%)	9 (0.7%)	4 (7%)
Czechia	4 (0.4%)	2 (4%)	4 (0.3%)	3 (6%)
Denmark	2 (0.2%)	2 (4%)	4 (0.3%)	3 (6%)
Estonia	N/A	N/A	2 (0.2%)	2 (4%)
Finland	3 (0.3%)	2 (4%)	2 (0.2%)	2 (4%)
France	21 (1.9%)	9 (17%)	14 (1.1%)	6 (11%)
Ghana	1 (0.1%)	1 (2%)	N/A	N/A
Germany	67 (6.1%)	18 (33%)	70 (5.5%)	12 (22%)
Hungary	5 (0.5%)	2 (4%)	55 (4.3%)	6 (11%)
Iceland	1 (0.1%)	1 (2%)	1 (0.1%)	1 (2%)
India	3 (0.3%)	3 (6%)	14 (1.1%)	3 (6%)
Indonesia	16 (1.5%)	5 (9%)	73 (5.7%)	13 (24%)
Iraq	N/A	N/A	3 (0.2%)	2 (4%)
Ireland	N/A	N/A	3 (0.2%)	2 (4%)
Italy	18 (1.6%)	9 (17%)	20 (1.6%)	7 (13%)
Kenya	9 (0.8%)	3 (6%)	N/A	N/A
Kuwait	N/A	N/A	1 (0.1%)	1 (2%)
Laos	5 (0.5%)	1 (2%)	N/A	N/A
Lithuania	N/A	N/A	3 (0.2%)	2 (4%)
Madagascar	1 (0.1%)	1 (2%)	N/A	N/A
Malaysia	12 (1.1%)	4 (7%)	25 (2.0%)	5 (9%)
Malta	1 (0.1%)	1 (2%)	1 (0.1%)	1 (2%)
Mexico	N/A	N/A	5 (0.4%)	3 (6%)
Mongol	5 (0.5%)	1 (2%)	3 (0.2%)	1 (2%)
Morocco	3 (0.3%)	3 (6%)	3 (0.2%)	3 (6%)
Myanmar	N/A	N/A	12 (0.9%)	2 (4%)
Nepal	9 (0.8%)	3 (6%)	1 (0.1%)	1 (2%)
Netherland	4 (0.4%)	3 (6%)	8 (0.6%)	6 (11%)
New Zealand	15 (1.4%)	1 (2%)	20 (1.6%)	3 (6%)
Norway	3 (0.3%)	2 (4%)	3 (0.2%)	1 (2%)
Pakistan	N/A	N/A	2 (0.2%)	1 (2%)

Table 1. Japanese Medical Students Studying Overseas and International Medical Students Studying in Japan in 2018 (continued)				
Country	Japanese students overseas n (%)	Participating Japanese schools n (%)	International students in Japan n (%)	Accepting Japanese schools n (%)
Peru	N/A	N/A	1 (0.1%)	1 (2%)
Philippines	29 (2.6%)	6 (11%)	51 (4.0%)	9 (17%)
Poland	12 (1.1%)	3 (6%)	11 (0.9%)	4 (7%)
Portugal	N/A	N/A	1 (0.1%)	1 (2%)
Qatar	1 (0.1%)	1 (2%)	N/A	N/A
Romania	N/A	N/A	3 (0.2%)	3 (6%)
Russia	8 (0.7%)	2 (4%)	10 (0.8%)	3 (6%)
Saudi Arabia	N/A	N/A	1 (0.1%)	1 (2%)
Singapore	27 (2.5%)	7 (13%)	30 (2.3%)	7 (13%)
South Korea	51 (4.6%)	13 (24%)	97 (7.6%)	19 (35%)
Slovenia	2 (0.2%)	2 (4%)	2 (0.2%)	2 (4%)
Spain	6 (0.5%)	3 (6%)	3 (0.2%)	2 (4%)
Sudan	N/A	N/A	1 (0.1%)	1 (2%)
Sweden	6 (0.5%)	4 (7%)	9 (0.7%)	6 (11%)
Switzerland	4 (0.4%)	3 (6%)	3 (0.2%)	3 (6%)
Taiwan	42 (3.8%)	18 (33%)	131 (10.3%)	17 (32%)
Tanzania	10 (0.9%)	1 (2%)	N/A	N/A
Thailand	101 (9.2%)	20 (37%)	119 (9.3%)	24 (44%)
Tunisia	N/A	N/A	3 (0.2%)	2 (4%)
Turkey	N/A	N/A	8 (0.6%)	4 (7%)
United Arab Emirates	18 (1.6%)	3 (6%)	18 (1.4%)	4 (7%)
Uganda	2 (0.2%)	2 (4%)	N/A	N/A
United Kingdom	53 (4.8%)	17 (32%)	100 (7.8%)	11 (20%)
Ukraine	N/A	N/A	1 (0.1%)	1 (2%)
United States	331 (30.1%)	47 (87%)	89 (7.0%)	19 (35%)
Vanuatu	1 (0.1%)	1 (2%)	N/A	N/A
Vietnam	18 (1.6%)	6 (11%)	11 (0.9%)	3 (6%)
Zambia	5 (0.5%)	3 (6%)	2 (0.2%)	1 (2%)
Unknown	2 (0.2%)	N/A	8 (0.6%)	N/A

N/A = not applicable

programs, including the Japan Association for Development of Community Medicine, the Japan Medical Education Foundation, the Japan-North America Medical Exchange Foundation, JrSr, and the Noguchi Medical Research Institute. These organizations mostly support sending Japanese students overseas as extracurricular activities.

Twenty schools reported that they were accredited by the WFME. Some reported that they were in the process of accreditation.

### Narrative Responses for Rationale, Benefits, Challenges

Rationales for international exchanges at Japanese medical schools were categorized into 6 themes on the basis of the

similarity of responses. The overarching themes were to foster international perspectives, to gain experiences not available at the home facility, and to enhance cultural competency (**Table 2**).

The benefits of student experiences were also categorized into 6 themes. Cultural exposure and development of language and communication skills were the top 2 themes (**Table 3**).

The challenges reported by medical school administrations were categorized into 10 themes, with the top themes being the burden of making arrangements, securing financial support and accommodations, and language barriers (**Table 4**).

Rationale	Total (n, %)
<b>International perspectives:</b> To develop professionals with international perspectives. To actively work internationally, and to practice global standard.	(52, 96%)
<b>More exposure:</b> To expose students to healthcare in different context. To provide opportunity to interact with foreign students.	(23, 43%)
<b>Humanity:</b> To enhance cultural competency/understanding of diversity. To nurture humanity.	(19, 35%)
<b>Transforming the education system:</b> To introduce international perspectives to the school. To encourage international communication by adapting to contemporary trends in globalization, diversity, and collaboration.	(15, 28%)
<b>Language Skills:</b> To improve communication skills in English.	(13, 24%)
<b>Leadership:</b> To develop professionals who contribute to the advancement of medicine.	(4, 7%)

Benefits for Participants	Total (n, %)
<b>Cultural exposure:</b> Experienced differences in medical systems, medical technology, medical education systems.	(44, 81%)
<b>Language / Communication (26, 48%):</b> Advanced language skills. Recognized the importance of improving language and communication skills.	(26, 48%)
<b>Students interaction:</b> Interaction with international medical students. Exposed to highly motivated and knowledgeable international students.	(25, 46%)
<b>Future vision / Role model:</b> Recognized the importance of a proactive attitude towards learning. Improved motivation.	(22, 40%)
<b>More exposure:</b> More opportunities for cases or procedures. Learned about diseases and treatments specific to destination.	(18, 33%)
<b>Personal growth:</b> Broadened perspectives.	(13, 24%)

Challenges	Total (n, %)
<b>Administrative burden for set-up:</b> Applicants' demand exceeds school capacity or require fine adjustment. Burden of the visa/immigration/travel clearance process	(31, 56%)
<b>Financial / Accommodation:</b> Financial burden on students. Lack of free or reasonable accommodation for foreign students	(23, 43%)
<b>Language barrier:</b> Better English skills needed for more valuable experience. Better English skills needed for more valuable experience	(15, 28%)
<b>Quality of education / Experience:</b> Variable quality and quantity of clinical experience by school/department. Providing appropriate predeparture preparations	(12, 22%)
<b>Cultural difference / Attitude:</b> Trouble rooted in cultural difference (eg, inappropriate behavior in the context of accepting countries)	(8, 15%)
<b>Safety / Security concerns:</b> Safety concerns and troubleshooting in foreign countries (eg, terrorism, remote support)	(8, 15%)
<b>Motivation:</b> Not many students apply for international electives despite of open slots	(5, 9%)
<b>Burden of teaching staff:</b> Burden for teaching staffs to accommodate the visitors with teaching	(5, 9%)
<b>Unexpected troubles:</b> Trouble related to transportation delays (eg, due to a natural disaster)	(2, 4%)
<b>None:</b> None or no response	(6, 11%)

## Discussion

### Medicine and Medical Education in Japan

Medical practice and education in Japan have unique historical and cultural backgrounds. Traditional Chinese medicine was introduced in the 5th century. Western medicine was introduced by the Dutch from the 17th to the 19th centuries, while Japan was largely closed to the outside world. In 1868, the government of Japan adopted the German medical system. After the end of World War II, the health care system was restructured during the US occupation. After universal health insurance was instituted in 1961, life expectancy at birth increased to the

world's longest by the late 1970s, while maintaining relatively low health expenditure (11.0% of GDP in 2019).<sup>11</sup> In 2011, on the 50th anniversary of universal health insurance, an article published in *The Lancet* held up Japan's post-war experiences and reforms in national insurance, social welfare, and medical system as a role model for the world.<sup>12</sup> In 2018, persons 65 years or older constituted 28.1% of the population. The proportion of elderly is expected to grow to 33.3% in 2036 and 38.4% in 2065,<sup>13</sup> posing unprecedented challenges.

While lectures have been central to undergraduate medical education, Japan's schools are shifting to interactive learning methods such as problem-based learning and integrating more

clinical rotations. The Objective Structured Clinical Examination (OSCE), introduced in 2005,<sup>14</sup> is 1 component of educational reform to meet WFME standards. Two years of mandatory postgraduate training were introduced in 2004. Specialty training and certification are also undergoing modernization by implementing third-party regulations and evaluation.<sup>15</sup>

After a 37-year period without a new medical school being founded, 2 new medical schools were established in 2016 and 2017. The International University of Health and Welfare, established in 2017, has introduced a globally-oriented curriculum, with most classes held in English, 14% of students are of foreign origin, and at least 4 weeks of mandatory international rotations are required in the final year.<sup>16</sup>

While English language instruction is required in Japan starting at the primary school level, there is little emphasis on conversational skills. Without extracurricular exposure, few students learn conversational English by the time they enter medical school. Much medical information is delivered in or translated into Japanese. Thus, students find it difficult to achieve English proficiency during medical school. Japan ranks 78th among 112 countries for English skills, categorized as low, and close to very low proficiency.<sup>17</sup>

### Number of Participants

This national survey revealed an increase in the total number of Japanese students sent overseas by the 54 responding schools between 2016 and 2018. A previous survey with 80 medical schools responding, reported 726 students sent overseas in 2011, 790 in 2012 and 749 in 2013.<sup>7</sup> In 2018, approximately 3% (1098/36 000 students in responding schools) of Japanese medical students participated in international electives. This rate can be estimated as high as 6% if the denominator is limited to 4th to 6th year students who are in the clinical portion of their curricula, an increase from 3% in 2009.<sup>6</sup> This rate is still low compared to developed Western countries due to the challenges revealed in this study, starting with delay in the implementation of international exchanges in the official curriculum in Japan during 1995-2000.<sup>7</sup> The number of foreign students accepted significantly increased from 263 in 2011 [an approximately 7-fold increase from 2011 to 2018 (assuming a hypothetical total figure of 1893 for 2018 (1278 x 80/54, adjusted for all Japanese medical schools, excluding the 2 newly established schools)]. Although a gradual, steady increase in numbers is evident, international electives among Japanese students are still not common in comparison to Western high-income countries.

More Japanese schools approved academic credit for international electives as compared to the past: 85% in this study as of 2019. This represents an increase from 59% in 2009 and 75% in 2011-2013. Nishigori et al, reported a correlation between the availability of academic credit and participation in international electives.<sup>6</sup> The trend toward granting credit reflects an increasing commitment of Japanese schools to international exchanges.

### Preferences in Destinations

In the pursuit of global health, it has become commonplace for medical students from Europe and the US to engage in service-learning in developing countries.<sup>18,19</sup> More attention is being paid to the perspectives of hosts and to ensuring the quality of the student experiences in international electives.<sup>20-23</sup> In contrast, Japanese schools send their students mainly to high-income countries. The proportion of medical students from Japan going to the US is quite significant, particularly compared the proportion of student visitors to Japan from the US (7%). Recently, Asian countries have gained popularity as the destinations compared to the 2011 to 2013 period, when 70% visited North America or Europe.

Takeda et al, reported that Japanese medical students visiting high-income countries obtained more clinical knowledge, while visitors to low- and middle-income countries learned more about social determinants of health.<sup>24</sup> Consequently, the latter developed an interest in pursuing medical careers in remote areas (odds ratio [OR] 3.1, 95% CI 1.29-7.48) and with global health organizations (OR 2.1, 95% CI 1.03-4.26). This is congruent with the interests of medical students from Western, high-resource countries.<sup>1,25</sup> In this study, 1 medical school noted “social determinants of health” in its rationale. Their students mostly traveled to low-resource countries.

Hayashi et al, reported on the long-term effect of international student electives more than 10 years later from 23 Japanese physicians.<sup>26</sup> Of the 23, 19 had traveled to the US. This study revealed the benefits of international electives on self-relativization, which contributed to the participants’ identity formation as medical professionals. There was, however, no long-term influences on specialty versus primary care career choices.

Battat et al, conducted a literature review to delineate common global health competencies.<sup>10</sup> The most highly cited competency (15.6%) was the skill of interfacing with different populations, cultures, and health care systems. Other common competencies reported in this study were immigrant health (9.4%), primary care in diverse cultural settings (9.4%), and understanding health care disparities among countries (6.3%). In this study, the results did not show such skills were emphasized in the rationales reported by Japanese medical schools. This may partly account for the difference in the destinations chosen by Japanese and Western institutions.

Some Japanese schools, particularly private schools and urban schools, accept international medical students for the purpose of encouraging intercultural communication among their own students. Comments from international visitors to Japanese schools are posted on the websites of several Japanese schools, which may provide insights for visiting students to decide on their destinations.<sup>27,28</sup>

## Barriers to Exchange Programs

Challenges reported by the schools will need to be addressed in order to advance the exchange programs. In order to maximize educational outcomes and student safety, Japanese schools may benefit from incorporating available curricular resources, including guidance on pre-departure training and post-travel debriefing.<sup>29-32</sup>

Many Japanese schools provide accommodations for international guests. Some schools report inequity in exchange relationships, with their students visiting overseas not being provided accommodations.

A low percentage of Japanese schools included “English” or “language” in their rationale for international exchanges. Although English is generally utilized, students from English-speaking countries may still experience significant language barriers.<sup>29</sup> Conversely, when Japanese students (who do not possess high English proficiency) visit countries where most of the population do not speak English, safety may be compromised because of their limited ability to communicate. Such hurdles may influence their choice of destination. Immersion is a rapid way to improve language fluency.<sup>33</sup> As English is most commonly used in academia globally,<sup>34</sup> it is reasonable that institutions in non-English speaking countries would seek English language immersion for their medical students.

## Future Developments

The WFME standards have been a focus of curricular reform for many Japanese medical schools. As of June 2022, 63 schools had been accredited by the Japan Accrediting Council for Medical Education, an agency recognized by the WFME;<sup>35</sup> other schools are in the process of becoming accredited. Burdick et al, suggest international exchange as a potential solution to the worldwide shortage of clinical training sites as seen in the US.<sup>36</sup> Japan does not have a shortage of clinical training sites and is thus potentially poised to play a role in global medical education. With more schools meeting WFME standards, visiting students are assured of instruction that meets international accreditation standards. With its national insurance system and a health care system adjusting to a rapidly growing geriatric population, international students can take home valuable insights to their home countries.<sup>37</sup> In addition, a very low crime rate ensures general safety for international students visiting Japan.<sup>38</sup>

While the US has been a major destination for Japanese students, the US Federal government has begun to require a J-1 (cultural and educational exchange) visa even for short-term training. With the advent of COVID-19 restrictions, the US has temporarily halted approving new non-immigrant visas in June 2020. This has already diminished the number of students traveling to the US. Japanese schools may choose to forge relationships with institutions in other countries or transition to other types of experiences such as online platforms.

The COVID-19 pandemic has not only severely curtailed overseas travel. It has also had far-reaching effects on the curricula of medical schools world-wide. All Japanese schools suspended international exchanges in spring 2020. Further developments can be expected as the pandemic evolves, and creativity will be required to develop alternative modes of international collaboration.<sup>39,40</sup>

As of 2018, there had been a steady increase in participants in international exchange programs in Japan, both as the origin and the destination. While the COVID-19 pandemic has severely curtailed international exchanges, this study may help Japanese schools reconsider the rationales of exchange programs, establish exchange partners in light of the positive experiences of other institutions, motivate transition to online platforms, and ask for third-party assistance from organizations such as IFMSA. The value of international exchange is clear, and the immersion experience cannot be replaced.

In the era of instantaneous transmission of information and universal problems such as pandemics and the climate catastrophe, the health workforce of the future must be fluent in global perspectives. Non-Western high-income countries will be increasingly involved in international exchange programs. Further studies that examine developing tendencies in international electives in other regions, such as elsewhere in Asia, are warranted in order to better delineate mutual agendas and benefits.

## Limitations

The participation rate of this survey was not as high as the previous study, which was supported by a major grant and achieved a 100% response rate.<sup>7</sup> The questionnaire may have been interpreted incorrectly by respondents, such that some schools may have reported on research exchanges, language exchanges, or students in other disciplines such as nursing. Students arranging international exchanges privately or through organizations separate from official school channels would not have been identified. The narrative portion of responses ranged from official reports to the personal impressions of respondents. Such subjective judgments may not be representative of the experience of all exchange students. Also, the reported program benefits were not clearly separated as to whether the reports were from Japanese or foreign students. Two native Japanese speaking authors translated the responses in Japanese and categorized them into themes, a process that may have affected data accuracy. Some respondents may have had divergent understandings of political geography (eg, whether or not Hong Kong should be included with China).

## Conclusion

This study demonstrated an increasing trend of international exchanges in undergraduate medical education in Japan as both the origin and the destination prior to the COVID-19 pandemic. The preferences in destination and the rationales for Japanese

student participation were distinct from the general focus of Westerners on low-income countries. One reason for the differences may be less concern about health disparities, given Japan's national health insurance system. Another may be the perceived need in Japan, as a non-English speaking developed country, for promoting international perspectives and communication skills in English to advance technology and systems in Japan's own institutions. Given the willingness to interact, the proportion of schools meeting WFME standards, the safety, the health care system, and the evolving social reform with the rapidly expanding aging population, Japan deserves consideration as an international learning site. With the growing interest in international exchange, third- parties (eg, the IFMSA) may be called upon to facilitate student rotations. Further studies from other non-Western developed countries are warranted to advance mutual agendas and to benefit international medical student exchanges worldwide.

## Conflict of Interest

None of the authors identify a conflict of interest.

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## References

1. Mutchnick IS, Moyer CA, Stern DT. Expanding the boundaries of medical education: evidence for cross-cultural exchanges. *Acad Med.* 2003;78(10 Suppl):S1-S5.
2. Rowson M, Smith A, Hughes R, et al. The evolution of global health teaching in undergraduate medical curricula. *Global Health.* 2012;8(1):35.
3. Miranda JJ, Yudkin JS, Willott C. International Health Electives: Four years of experience. *Travel Med Infect Dis.* 2005;3(3):133-141.
4. Association of American Medical Colleges. Medical School Graduation Questionnaire 2019 All Schools Summary Report. <https://www.aamc.org/system/files/2019-08/2019-gq-all-schools-summary-report.pdf> Published July 24, 2019. Accessed July 3, 2022.
5. Liauw SSL, Kuper A, Noël G, Richardson L. Global health education at home: Canadian medical students' perspectives after learning alongside Haitian peers. *Acad Med.* 2018;93(12):1865-1871.
6. Nishigori H, Takahashi O, Sugimoto N, Kitamura K, McMahon GT. A national survey of international electives for medical students in Japan: 2009–2010. *Med Teach.* 2012;34(1):71-73.
7. Suzuki T, Nishigori H. National survey of international electives for global health in undergraduate medical education in Japan, 2011–2014. *Nagoya J Med Sci.* 2018;80(1):79-90.
8. Peluso MJ, Rodman A, Mata DA, Kellett AT, van Schalkwyk S, Rohrbaugh RM. A comparison of the expectations and experiences of medical students from high-, middle-, and low-income countries participating in global health clinical electives. *Teach Learn Med.* 2018;30(1):45-56.
9. Peluso MJ, Encandela J, Hafler JP, Margolis CZ. Guiding principles for the development of global health education curricula in undergraduate medical education. *Med Teach.* 2012;34(8):653-658.
10. Battat R, Seidman G, Chadi N, et al. Global health competencies and approaches in medical education: a literature review. *BMC Med Educ.* 2010;10(1):94.
11. Organisation for Economic Co-operation and Development. Health at a glance 2021. <https://www.oecd.org/japan/health-at-a-glance-japan-EN.pdf> Published November 8, 2021. Accessed July 3, 2022.
12. Ikeda N, Saito E, Kondo N, et al. What has made the population of Japan healthy? *Lancet.* 2011;378(9796):1094-1105.
13. Song P, Tang W. The community-based integrated care system in Japan: Health care and nursing care challenges posed by super-aged society. *BioSci Trends.* 2019;13(3):279-281.
14. Teo A. The current state of medical education in Japan: a system under reform. *Med Educ.* 2007;41(3):302-308.
15. Onishi H. History of Japanese medical education. *Korean J Med Educ.* 2018;30(4):283-294.
16. International University of Health and Welfare School of Medicine. Guidebook 2023. <https://narita.iuhw.ac.jp/igakubu/en/pdf/pamphlet.pdf> Published April 8, 2022. Accessed July 3, 2022.
17. Education First. EF English Proficiency Index. <https://www.ef.edu/epi> Published November 17, 2021. Accessed July 3, 2022.
18. Abedini NC, Gruppen LD, Kolars JC, Kumagai AK. Understanding the effects of short-term international service-learning trips on medical students. *Acad Med.* 2012;87(6):820-828.
19. Chuang C, Khatri SH, Gill MS, et al. Medical and pharmacy student concerns about participating on international service-learning trips. *BMC Med Educ.* 2015;15:232.
20. Willott C, Khair E, Worthington R, Daniels K, Clarfild AM. Structured medical electives: a concept whose time has come? *Global Health.* 2019;15(1):84.
21. Anderson KC, Slatnik MA, Pereira I, Cheung E, Xu K, Brewer TF. Are we there yet? Preparing Canadian medical students for global health electives. *Acad Med.* 2012;87(2):206-209.
22. Bozinoff N, Dorman KP, Kerr D, et al. Toward reciprocity: host supervisor perspectives on international medical electives. *Med Educ.* 2014;48(4):397-404.
23. Kumwenda B, Dowell J, Daniels K, Merrylees N. Medical electives in sub-Saharan Africa: a host perspective. *Med Educ.* 2015;49(6):623-633.
24. KAKENHI. Mid to long-term impact of overseas elective programs on Japanese medical graduates: a mixed methods study. Published March 29, 2019. Accessed February 8, 2022. <https://kaken.nii.ac.jp/en/report/KAKENHI-PROJECT-15H04753/15H04753seika/>
25. Stys D, Hopman W, Carpenter J. What is the value of global health electives during medical school? *Med Teach.* 2013;35(3):209-218.
26. Hayashi M, Son D, Nanishi K, Eto M. Long-term contribution of international electives for medical students to professional identity formation: a qualitative study. *BMJ Open.* 2020;10(8):e039944.
27. Nagoya University Graduate School of Medicine. Office of International Affairs. <https://www.med.nagoya-u.ac.jp/intltxch/english/report/index3.html> Updated October 4, 2018. Accessed July 3, 2022.
28. Juntendo University. Clinical Observership Program. <https://www.juntendo.ac.jp/english/comments.html> Updated April 8, 2022. Accessed July 3, 2022.
29. Lumb A, Murdoch-Eaton D. Electives in undergraduate medical education: AMEE Guide No. 88. *Med Teach.* 2014;36(7):557-572.
30. Wisikin C, Barrett M, Fruhstorfer B, Schmid ML. Recommendations for undergraduate medical electives: a UK consensus statement. *Med Educ.* 2018;52(1):14-23.
31. Takeda Y, Hori H, Hori Y, et al. A modifiable overseas elective handbook. <http://hinohara-fellows.umin.jp/A%20Modifiable%20Overseas%20Elective%20Handbook-%202018-2.pdf> Published February 28, 2018. Accessed July 3, 2022.
32. Watson DA, Cooling N, Woolley IJ. Healthy, safe and effective international medical student electives: a systematic review and recommendations for program coordinators. *Trop Dis Travel Med Vaccines.* 2019;5(1):4.
33. Reuland DS, Slatt LM, Alemán MA, Fernandez A, Dewalt D. Effect of Spanish language immersion rotations on medical student Spanish fluency. *Fam Med.* 2012;44(2):110-116.
34. Ammon U. English and other international languages under the impact of globalization. *Neuophilologische Mitteilungen.* 2010;111(1):9-28.
35. Japan Accreditation Council for Medical Education (JACME). <https://www.jacme.or.jp/en/> Updated June 1, 2022. Accessed July 3, 2022.
36. Burdick WP, van Zanten M, Boulet JR. The shortage of clinical training sites in an era of global collaboration. *Acad Med.* 2016;91(5):615-617.
37. Reich MR, Shibuya K. The future of Japan's health system — sustaining good health with equity at low cost. *N Engl J Med.* 2015;373(19):1793-1797.
38. Institute for Economics & Peace. Global Peace Index 2021. <https://www.visionofhumanity.org/wp-content/uploads/2021/06/GPI-2021-web-1.pdf> Published June 17, 2021. Accessed July 3, 2022.
39. Bentata Y. The COVID-19 pandemic and international federation of medical students' association exchanges: thousands of students deprived of their clinical and research exchanges. *Med Educ Online.* 2020;25(1):1783784.
40. Guitier GE, Sapia S, Wright AI, Hutchins GGA, Arayssi T. Development of a remote online collaborative medical school pathology curriculum with clinical correlations, across several international sites, through the Covid-19 pandemic. *Med Sci Educ.* 2021;1-8.