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Experiences in Teaching and Learning

## Development and evaluation of an overseas clinical rotation program for undergraduate pharmacy students in Japan

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## ABSTRACT

**Background and purpose:** Internationalization of pharmacists, as well as pharmacy students, in terms of both the knowledge to care for international patients and to have medical information literacy, is a current concern in Japan.

**Educational activity and setting:** Keio University Faculty of Pharmacy has developed an elective course for pharmacy students, based on written agreements with the United States and Thailand that establish a student clinical rotation exchange program. The exchange program lasts for four to six weeks and involves clinical rotations in hospitals abroad during the students' sixth year. Rotations follow a four-week didactic preparatory course. The course objectives are to acquire the knowledge, skills, and attitude needed to function as leading pharmacists with an international perspective.

**Methods:** We asked students to complete a feedback survey inquiring about the usefulness of preparatory courses, self-evaluation pre- and post-rotation satisfaction with the program, and overall self-assessment.

**Findings:** Twenty-four out of 41, i.e., 58.5% of the students replied with feedback. All respondents replied that the preparatory course was useful. They also replied that, based on their self-evaluation, they were satisfied with their level of English language skill improvement after the rotation. Pharmaceutical knowledge satisfaction, however, was slightly decreased. All respondents replied that this program was of a satisfactory nature, with 71%, 63%, and 92% of the respondents replying that they could acquire the knowledge, skills, and attitude program objectives respectively.

**Summary:** It is possible to successfully develop an overseas clinical rotation program. Students were quite satisfied upon completion and achieved the expected objectives.

## Background and purpose

The Japanese Ministry of Education, Culture, Sports, Science, and Technology (MEXT) implemented the "Project for Promotion of Global Human Resource Development" in 2012. In this project, 30 universities, including Keio University, were nominated as "Type-A" super global universities. This requires them to promote university-wide internationalization and to contribute to the promotion of the globalization of other universities.<sup>1</sup> In addition, the Ministry of Economy, Trade, and Industry (METI) also

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encourages and has funded projects to welcome "inbound" patients as a part of a medical tourism program. Moreover, the number of tourists visiting Japan is dramatically increasing in recent years, reaching 134 million in 2014<sup>2</sup>; this trend is considered to be accelerated by factors such as Tokyo's nomination as a candidate city for the 2020 Summer Olympics. All of these previously mentioned factors increase the inherent demand for pharmacists to possess international knowledge, skills, and attitudes.

In Japan, the pharmacy education curriculum consists of six years following high school graduation. Most students that enroll in the pharmacy track course do not hold bachelor degrees. Therefore, the first and second years of the pharmacy course correspond to the pre-pharmacy coursework in the United States. Third and fourth-year coursework is mainly for didactic classes and preparatory lab work. After passing examinations (computer-based tests [CBT] and objective structured clinical examinations [OSCE]) at the end of the fourth year, students participate in mandatory hospital and community pharmacy rotations for 11 weeks each, totaling 22 weeks, during the fifth year.

Keio University had an extracurricular program for graduate students to obtain training at hospitals in the United States and Thailand before the introduction of the six-year pharmacy education system in 2006. Initially, this was an cocurricular activity in some divisions of our faculty members and did not afford any credits. It was also for graduate-level students already possessing a Japanese pharmacy license. Furthermore, the outcome and effects of the program were not systematically evaluated. Based on this extracurricular program, we developed an overseas clinical rotation program for undergraduate students in the six-year regular curriculum. The course objectives are to acquire the knowledge, skills, and attitudes needed to become a "leading" pharmacist. We define this as an individual capable of taking initiative, guiding fellow pharmacists and other allied healthcare professionals forward in a broad variety of disciplines, and incorporating international perspectives to improve healthcare and its delivery.

To date, it has been reported that a majority of U.S. colleges and schools of pharmacy offer international advanced pharmacy practice experiences (APPE). Graduating class participation stands at 6.1%.<sup>3</sup> Some international APPE opportunities utilizing Japan as a destination were established in the United States.<sup>3,4</sup> The University of Tennessee Health Sciences Center College of Pharmacy is one example that routinely sends U.S. students to Hiroshima University Hospital based on the written exchange agreements.<sup>5</sup> Similarly, some Japanese colleges and schools of pharmacy have also implemented programs to send their students abroad. Kobe Gakuin University offers an experience-based program for pharmacy students to learn pharmacoconomics in a didactic class and experience cultural exchange at Duquesne University School of Pharmacy in the United States.<sup>6</sup> International clinical rotation programs at Japanese universities, however, have not yet been reported or evaluated. In this study, we aimed to evaluate our present program by analyzing exchange student questionnaires.

## Educational activity and setting

### *Development and operation of the program*

The program consists of two preparatory didactic courses and one overseas rotation practice, as shown in [Table 1](#). They are included in the six-year curriculum as an elective program. Students are required to submit a written application form during the fourth year. Candidates were selected by academic record, application form, and oral interviews with three faculty members. Before going abroad, students are required to take two preparatory classes. Each is 2.5 hours per day for two weeks (1.5 credits) and is conducted in winter of the fifth year and spring of the sixth year (i.e., after mandatory 22-week domestic rotations). Preparatory classes total 18 days and are conducted mainly in English with students learning foreign customs, pharmacotherapy, case study practice, and pharmaceutical/medical terminology. Students learn from international U.S. Doctor of Pharmacy (PharmD) and U.S. Medical Doctor (MD) lecturers with little Japanese language usage in class. Other than an initial lesson, taught by a Japanese professor with minimal Japanese language usage for orientation purposes, the remainder of the coursework is conducted in English so that students become well prepared to learn and function effectively during the remainder of their rotation, which are taught entirely in English.

The specific objectives listed in the syllabus of our preparatory classes are shown in [Table 2](#). In addition to preparatory classes, students are also required to achieve a Test of English for International Communication (TOEIC<sup>7</sup>) score of 700 or more. In the summer (between the months of May to September) of the sixth year, students visit specific rotation practice sites. We have signed memorandums of understanding (MOU) for rotation sites with American and Thai universities, specifically the University of Washington, The University of Iowa, Texas Tech University, University of North Carolina, and Khon Kaen University, for student exchanges. Although the content of the rotation practices differs somewhat among sites, they are not merely observatory roles. They include a variety of tasks including patient counseling, warfarin dose adjustments, and fluid management under the supervision of preceptor pharmacists. Furthermore, the students' venture abroad is without the accompaniment of any Japanese faculty members, while all other international programs operated at Japanese universities are conducted with the accompaniment of Japanese faculty members. The rotation practice is a two-credit course lasting four to six weeks (depending on the site). Upon return to Japan, students give post-rotation oral presentations entirely in English.

Students were graded based on evaluations by international site preceptors and post-rotation oral presentations. The rotation site evaluation categories include the following: 1) communication and general attitude (general English communication, English communication in pharmaceutical/medical practice, appearance, attitude and interest, reliability, punctuality, professionalism and ethics, improvement); 2) basic professional knowledge and its application (pathology and physiology, clinical pharmacology and therapeutics, pharmacokinetics and pharmaceuticals, lab data, pharmacotherapy regimen of specific patients); and 3) professional skills (finding problems in pharmacotherapy, problem-solving, use of drug information resources, development and implementation

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