

## 原著

デュケイン大学との教育研究交流について

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### 1. 背景

本学の教育目的である「実践能力の高い薬剤師の養成」を達成するには、より患者指向の教育を行っていく必要がある。米国の薬系大学においては、2000年より「ファーマシューティカルケア」実践を教育目標とする薬学巨行く認定評議会（ACPE）の認定基準に基づき、6年制 PharmD へ教育課程が一本化され、薬物治療の専門家としての薬剤師養成に特化している。本学の臨床教育研究の向上のためにも、海外の大学との教育研究交流が必要となっている。

### 2. 経緯

平成24年9月2日九州大学薬学部において、「国際シンポジウム：6年制実務実習向上を目指して」が、ミシガン大学とデュケイン大学から演者を招き開催された。本学からは、大光准教授がシンポジストとして、エップ講師が通訳として参加した。その翌日にシンポジウムに参加した、デュケイン大学のトーマス・マッティ副学部長が本学に来学し、吉武副学長と原学部長、エップ講師との会食、学内見学、関連の福岡赤十字病院・九州中央病院の視察に同行した。その際に、「本学と大学間協定を結べれば」という旨の発現がなされた。

その後、エップ講師を介して、デュケイン大学との打ち合わせがなされ、教育研究交流に関する協定書の素案が作成され、平成25年3月25日に吉武副学長とエップ講師がデュケイン大学を訪問し、協定書が締結された。

### 3. デュケイン大学 (Duquesne University, Mylan School of Pharmacy)

1878年に開学した、米国ペンシルバニア州ピッツバーグ市にある私立カトリック系大学で、薬学、看護、法律、ビジネス、教育、音楽、健康科学、環境科学、教養学部等の10の学部を持つ。

薬学部は1925年に設置され、6年間の PharmD 課程に約1000人が在籍している。2011年の米国薬学部ランキングで46位であり、米国国立衛生研究所 (NIH)

からの研究費獲得は私立薬学部では第3位であった。大学が運営する地域薬局を、米国で最初に設置し、健康増進と慢性疾患に対する薬剤師による管理や、低所得者への低額サービス等を行っている。また大学間協定として、イタリア（ペルージャ大学）、日本（神戸学院大学）、中国、アフリカの薬学系大学との提携を結んでいる。

#### 4. まとめ

デュケイン大学薬学部は、医学部（大学病院）を持たないが、臨床教育研究に定評のある私立大学であり、薬学部の学生数も本学と同程度である。協定締結により、教員や学生の交流を行い、本学の教育研究活動の向上に資するものになると考えられる。

(吉武 毅人)

#### Introduction

On March 25, 2013, Duquesne University's Mylan School of Pharmacy and Daiichi University of Pharmacy entered into a partnership agreement for faculty, student, and research exchange. This partnership was initiated after the international symposium on "Enhancement of Pharmaco-Practical Education" held at Kyushu University in September 2012. It was at this symposium that some of the professors of Daiichi University met Dr. Thomas Mattei, Associate Dean of Mylan School of Pharmacy, who was giving a presentation about their clinical pharmacy education. Through a continuing friendship with him, we were able to directly connect the schools. The Mylan School of Pharmacy, like Daiichi, is a private institution and shares our interest in academic collaboration and clinical pharmacy education. A recommendation made by Columbia University and Kyushu University as being one of the best clinical pharmacy schools in the United States encouraged us to initiate a partnership with Duquesne.

This partnership will provide greater learning and educational development for both schools in the clinical pharmacy training, physical assessment education, program expansion projects and research. We will begin the first stage of this exchange program in March 2014 with an observation tour to the Duquesne University campus in Pittsburgh with twenty Daiichi students.

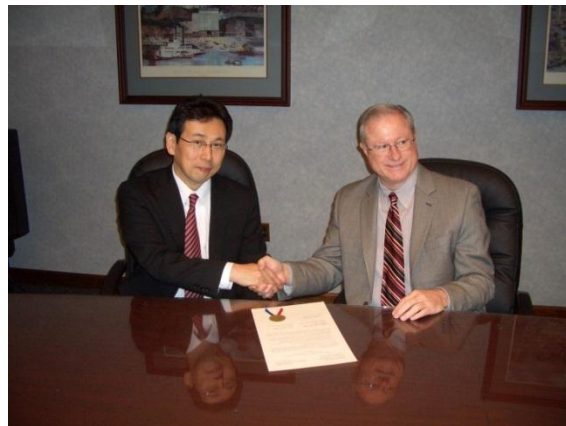
(Epp, D.)



President of Duquesne, Dr.C.Dougherty and Dean of Pharmacy, Dr.D.Bricker



Dr. Yoshitake and Dr. T. Mattei



Shaking hands after signing



A KURODA BUSHI doll was presented by Daiichi University to commemorate the partnership of the schools.

# 覚書

Duquesne University  
Mylan School of Pharmacy  
Pittsburgh, Pennsylvania  
United States of America

Tsuzuki Gakuen  
Daiichi University of Pharmacy  
Fukuoka, Japan

## Agreement for Academic Collaboration/Exchange Memorandum of Understanding March 2013

The purpose of this agreement is to establish relations between the Mylan School of Pharmacy at Duquesne University and Daiichi University of Pharmacy of Tsuzuki Gakuen. This collaboration will broaden the international perspectives of our respective faculties and students through scholarly, educational, and cultural opportunities and further enhance the research and education programs of both pharmacy schools.

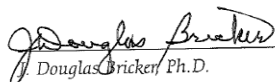
The following activities are recommended to initiate this agreement:

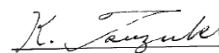
1. Exchange of faculty members and students for visitation and/or research collaboration.
2. Foster exchange of scholastic publications and research data and information.
3. Engage in additional academic activities of mutual agreement in the future.

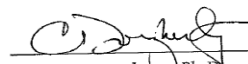
This agreement does not, in and of itself, obligate either university to any financial expenditure.

Details of visits and exchanges are to be determined on an individual basis according to guidelines in the Memorandum of Understanding.

This renewable agreement shall remain in effect for at least five (5) years from the signature date or until terminated with a six (6) month notice by either institution to the other. Changes and/or revision of the terms of this document may be made at any time by mutual agreement.

  
\_\_\_\_\_  
Douglas Bricker, Ph.D.  
Dean, Mylan School of Pharmacy and the  
Graduate School of Pharmaceutical Sciences  
Duquesne University

  
\_\_\_\_\_  
Kimiko Tsuzuki  
Chancellor, Tsuzuki Gakuen  
President, Daiichi University of Pharmacy

  
\_\_\_\_\_  
Charles J. Dougherty, Ph.D.  
President, Duquesne University



Running head: PHARMACY EDUCATION OBSERVATION TOUR

**A Tour of Duquesne University's School of Pharmacy:  
Observations of a Visiting Teacher**



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## Abstract

In this article, I would like to share my observations of the pharmacy school facilities of our partner university, Duquesne University Mylan School of Pharmacy, as observed by a non-pharmacist, now studying about pharmacy education. For the first few nights after returning from a business trip to the United States in March, 2013, I dreamt about drug monitoring and patient care schemes of the American pharmacists. In these dreams, for example, I would be in the airport, and the officers would be monitoring the passengers, making sure that their vitals were okay before flying that long flight back to Japan. My mind was filled with new things I had seen and learned there. The impact of this visit led to my personal desire to learn more about pharmacy practice here in Japan and overseas, and I realized that seeing what is done in pharmacy education elsewhere could help me in teaching the students more here at Daiichi University of Pharmacy, too. This is an introduction to the pharmacy facilities of Duquesne University.

A Tour of Duquesne University's School of Pharmacy:  
Observations of a Visiting Teacher

While visiting Duquesne University's Mylan School of Pharmacy in Pittsburgh, Pennsylvania for the signing of a partnership agreement between our schools, I had the opportunity to tour their various pharmacy-related facilities, such as the Center for Pharmacy Care, the various laboratories within the school, the community pharmacy called Center for Pharmacy Services, the Center for Pharmaceutical Technology, and their graduate school. I am not a pharmacist or a science researcher, but as a previous school teacher, now teaching various English courses at Daiichi University of Pharmacy, I would like to summarize my observation tour of these university facilities, and what this top level school of clinical pharmacy is doing in the United States with pharmacy education. This tour of the pharmacy education facilities and programs gave me the desire to learn more about clinical pharmacy and to share what I learned with the students and faculty.

**The Center for Pharmacy Care**

The tour began at The Center for Pharmacy Care, which is located near the university campus and employs a pharmacist, resident pharmacist and several students. The director explained the center's practices used by the pharmacy department and university. For example, all employees of Duquesne University are encouraged to sign on with the center for medical service, receiving an incentive of US\$250 if they continue for a year with four visits to the pharmacists to maintain active health plans. Presently, there are about 200 employees who are a part of this patient care program. Most employees already have family physicians, so the purpose of the center is to assess their health and make recommendations for a better quality of life (Higginbotham, personal communication, March 25, 2013). Students from the university can opt to do their practicum here in their final year of study and are able to practice patient care in real-life situations, rather than just case study practice, which provides unique experiences in essential care that they can use in the future.

At the center, an initial meeting with a pharmacist involves a discussion about the patient's lifestyle, health risks, and any medications being taken. After basic blood tests and physical assessments are completed, the pharmacist discusses further medication and lifestyle improvements for better health. They focus on the main health issues of hypertension, dyslipidemia, diabetes, and osteoporosis (Duquesne, 2013). A doctor from a nearby clinic supervises the medical practice at the center, and reviews the prescriptions and tests the center has recommended. In cases of vaccinations, for example, there are specific medical guidelines that must be followed: the patient must be over 18 years of age and not have any other health risks, like allergies or reactions. Because insurance liability is an issue, permission to give the vaccination must be received by a doctor. In case of an emergency, Epi-pens are available in all rooms, and there is quick access to several hospitals nearby.

The center is now in its third year of operation and will apparently be viable and self-supporting within the next year or two. It is also open to university students and walk-ins from the community, which has two women shelters nearby, for reduced fees, and is considered "community outreach" for the school, providing free services with some charges for tests and vaccinations. The main source of income for the center comes from being hired by outside companies to do patient care and evaluation for the employees there. In these cases, after testing and determining a patient's medical issues and recommending medicine or lifestyle changes, the patients are able to make further appointments at the center. Not only does this generate more revenue for the center with each person seen, but it recruits more patients to their center who want continuing care.

### **A community pharmacy for people of need**

In the continuing weak US economy, it seems like the public has become increasingly unable to receive necessary health care and medical assistance. In January, 2013, TIME Business and Money Online, ran an article that stated, "Economic growth has averaged less than 2.25% since the recovery began and is



estimated to have slowed to less than 1% in the recent quarter....The discouraging note is that this recovery will most likely continue to be weak. That won't do much to help those who are unemployed or underemployed, or who have lost their homes" (Sivy, 2013). A year later, the same online magazine ran a summary of the year with a dim forecast of 2014 that said, "There has been slight improvement to the recovery of the US economy, (but) more than 47 million Americans are stuck on food stamps, only marginally fewer than a year ago" (Schuman, 2013). As a result, there are some areas in any city with poor, sick people, who live in inadequate housing and are unable to take safety measures to prevent the spread of disease. For example, the elderly may be immobile or lack retirement money (income) to cover necessary health costs. It is in such a needy area of Pittsburgh that the university has set up the Center for Pharmacy Services, a community pharmacy to reach out and help the poor and elderly.

The pharmacy building itself was previously a church set in a warehouse, with a large open work area and a kitchen for preparing medicines, plus a loading area to store materials and medicines, and several smaller rooms that serve as consultation rooms. Situated next door to the pharmacy is a counseling office for the public, and a supermarket is being built in front of the pharmacy, which will provide greater exposure and access to the pharmacy. The goals of this pharmacy project are to build personal relationships with the regular patients and provide a charitable service to the needy in the community.

The Center for Pharmacy Services fills about 150 prescriptions a day. Of the 1000 regular repeat patients, about 200 have HIV and are on assisted payment government programs. Because of the large cost to pharmacies for HIV medicines, it is sometimes difficult for these patients to get medicines at a reduced cost or for free. At this outreach pharmacy, they can receive the support that they need.

There are several full-time pharmacists, a resident, a fellowship student, and several students on their clerkships working on staff. In talking to them, they all seemed to share the desire to help people in need within this community and

expressed that it is their personal contact with patients that makes this pharmacy unique. The students there are graduate students doing research with Duquesne, undergrads on their fourth year clerkship or part of the weekend study program, or on practice sessions with the ABLe labs (Ability Based Learning), in which second-year students go once a week to a pharmacy to put into practice what they are studying in class.

Once a month, the staff and students go into the community in a van to perform medical screening and to deliver medicines, also encouraging people of that area or building to bring their medicines to them for identification. They have an opportunity then to assess the general health of the patients, to determine immediate medical problems, to provide necessary care, and to provide medicines for free to those in need of it, especially to the elderly who are unable to leave their homes. The funding of this program comes from donations of local Catholic churches and organizations, plus from the services it provides in the pharmacy. This limited income will still allow the center to become self-sufficient and completely independent of university funding by 2014.

As a side note, I would like to explain about the generic medicines and laws of Pennsylvania. According to Pennsylvania State generic drug equivalency law, most of the dispensed medicine is generic medicine, and it is prohibited to replace a generic with a brand name drug (Commonwealth of Pennsylvania, 1988). About 85% of all dispensed medicine is said to be generic in the State of Pennsylvania. The pharmacists must dispense generic medicine, unless there is prior authorization by the doctor in agreement with the insurance company (Commonwealth of Pennsylvania, 1990), which could take from two days to two weeks to receive. In the case that a generic drug is proven to be ineffective for a patient and to be replaced with another generic drug, a set of steps is followed for dispensing, beginning with the most inexpensive generic medicine, and then “grading up” through about ten steps of generic medicines. If the generic drugs are still determined to be ineffective after this process, then the more expensive brand name medicine may be dispensed with a doctor’s authorization. It is under

the state health law that generic drugs must be dispensed, unless a customer asks specifically for a brand name or if authorization is given by the doctor (*Pennsylvania's Generic Drug Law*, 1990).

### **ABLe Labs and SimMan**

To train the students further in their clinical pharmacy practice, they attend weekly ABLe labs (Ability Based Learning). On the second floor of the Mylan School of Pharmacy Building, the Giant Eagle drug company has sponsored a practice lab facility, complete with a research lab, a practice pharmacy counter with various drugs, media equipment, and a SimMan (simulation mannequin). This research lab houses the Academic Research Pharmaceutical Information Center, where students, faculty, alumni, and even the public, can receive advice and information regarding medications, drug safety and usage, and side effects. Classes and seminars are held regularly in this laboratory facility, where pre-clerkship training and drug monitoring are taught.

The SimMan is an expensive tool used to train the future pharmacists in a controlled environment. One of the pharmacy professors specializes in programming this high-tech mannequin for the students to practice and be tested on, by changing the adverse effects of the mannequin patient or adjusting its vital signs. The students also can practice injections and physical assessment on the doll. In advanced classes, the students may have to first assess the health condition of the mannequin, before determining accurate dosage of a medicine, and then performing an injection, if necessary. If a mistake is made, the mannequin will demonstrate the adverse effect, and the students will need to then perform the necessary steps to prevent its "death".

The seminar lab that I observed in the facility one afternoon was a continuation of the lecture the students had had previously on rheumatoid arthritis. In the morning lecture, they had learned about the disease itself and the drugs that help or prevent it. Here in the lab time, the students further studied related case studies, and through small group discussion, they developed health and dosage

plans. The students are required to bring computers or iPads to the lab, in order to receive the worksheets and assignments, which are downloaded and uploaded there in class for immediate study and grading.

### **The Center for Pharmaceutical Technology**

As part of the graduate school of pharmaceutical sciences, there is a pharmacy research technology center in the basement of the pharmacy school building. The focus is on industrial pharmacy research where students work on projects sponsored by drug companies, the government, or other third-party companies, and make instruments or develop technology to be used in the pharmacy industry. For example, at the time of our visit, they were working on a machine to check the contents and ingredients of unknown medicines. This research center previously took on mainly pharmacy students, but recently has become dominated by biology, chemistry and engineering majors. After working in this center doing research, these students can join drug companies or work for the government (FDA).

### **The Graduate School**

The Duquesne University Graduate School of Pharmaceutical Sciences is a well-renowned school that pushes a high level of pharmacy research. The tour of the graduate studies floor began with a large bulletin board that held the latest research and publications of the faculty members. All the walls were covered with poster displays of the various labs' research. The classrooms and labs were well-equipped and displayed unique equipment and projects. These individual labs do not receive funding from Duquesne for the research projects, but rather support themselves through sponsorship received from drug companies or government departments. There was a high security rat and other small animal laboratory in the basement of the building for doing necessary research and tests on animals. One of the graduate students explained that they have pressure to obtain results of their research and are tested on their research in the third year of study to show progress, and have to produce regular reports and posters of their research before the final presentation.

## Summary

Through the tour of Duquesne University School of Pharmacy, I received a rare opportunity as a non-pharmacist to see firsthand and learn more about pharmacy practice and education in the United States. I am slowly beginning to grasp this world of pharmacy practice and education, which was an unknown world to me before. I now find it a fascinating topic of study that encompasses the medical world, science, education and society. Every pharmacy school offers something unique to the learning that can be taken and applied into our pharmacy education in Japan. In March 2014, twenty Daiichi University of Pharmacy students will gain some unique experience overseas at Duquesne University and also begin to understand the pharmacy practice of Japan and the United States. I look forward to sharing this opportunity with them because I believe that this will inspire the students to further explore their pharmacy studies, and as future pharmacists, lead the way to initiating positive change in pharmacy practice in Japan.

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## Photo Gallery of the Tour

1. Center for Pharmacy Care
2. A Message from Great Eagle drug company (entrance to practice lab, Mylan School of Pharmacy)
3. Practice pharmacy counter
4. Lecture to introduce topic for seminar lab
5. Seminar lab
6. A laboratory classroom
7. A laboratory classroom
8. Dispensing equipment in the Center for Pharmacy Services
9. Signs used in community outreach services
10. Faculty Publications board
11. Research equipment in the Center for Pharmaceutical Technology
12. Research equipment in the Center for Pharmaceutical Technology

