



Opinion

Bridging pharmaceutical education

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Abstract

The Pharmabridge program was started in 1999 by Dr. Agathe Wehrli and is organized within the International Pharmaceutical Federation (FIP). The Pharmabridge program offers training for pharmacists and faculties from developing countries to strengthen pharmaceutical services with partial financial support. The purpose of the training program was to enhance the knowledge and skills needed to advance pharmacy practice education and collaborative research opportunities for pharmacists and faculties. The training was provided at various international universities for a period of one month. Exposure at the training sites was either pharmacy education focused or practice focused. In this article, the authors have expressed their views and experience during the training. This will be helpful for the prospective aspirants to understand nature of training given by the various centers. The authors conclude that the international Pharmabridge training program offered invaluable learning opportunities for a foreign pharmacy practitioner.

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The Pharmabridge program was started in 1999 by Dr. Agathe Wehrli and is organized within the International Pharmaceutical Federation (FIP), where it is a component of the FIP Board of Pharmaceutical Practice.¹ The Pharmabridge program has established a practice exposure training program for pharmacists from developing and transitional countries to strengthen pharmaceutical services and pharmacy education through support from pharmacists in developed countries.^{2,3} Typically, partial financial support is provided from the Pharmabridge program to the candidates undergoing the training exposure, and in exceptional cases, in-kind support is provided by the training sites. Under this program, teaching and practicing pharmacists from various countries like Chile, Egypt, Ethiopia, Ghana, India, Kenya, Nepal, Nigeria, Peru, and Uganda have

undergone the practice exposure in various countries like USA, Canada, Finland, Ghana, and UK, and also in India (instrumental analytical chemistry).^{4,5}

The purpose of the training program (typically four weeks) described in this article is to enhance exposure in advanced clinical pharmacy practice and education and to establish collaborative research opportunities between pharmacists, faculty, and Universities, contributing to the knowledge and skills needed to advance practice and education in the developing country.²

Faculty members from Manipal College of Pharmacy were selected by Pharmabridge for the training program at various centers like University of Southern California (USC) School of Pharmacy, California, USA; University of Michigan College of Pharmacy in Ann Arbor, Michigan, USA; and Children's Hospital of Eastern Ontario (CHEO), Ottawa, Canada, for a period of one month.

USC School of Pharmacy was one of the first in the United States to establish a Doctor of Pharmacy (PharmD) program in 1950 and continues to be a pioneer in innovative

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education and preparing practicing pharmacists of tomorrow. The exposure at USC covered during the period of our training included observing integrated, interdisciplinary approaches, small group lectures, discussions, case studies, and exercises related to clinical pharmacy education and practice and principles of clinical thinking, utilizing the Central Nervous System (CNS) as an example. In addition to these didactic lectures, we had visits to various pharmacies and other practice sites affiliated with the school of pharmacy to learn about advanced clinical pharmacy practice.

The USC School of Pharmacy follows a module-based, multidisciplinary teaching approach in PharmD training. We had an opportunity to observe the teaching methodology in the CNS module (Therapeutics III). Each module starts with a general introduction (outline and structure of module), relevant diseases, diagnosis, etc. A multidisciplinary approach is followed while teaching individual diseases, starting with a Clinical introduction, Pathophysiology, Pharmacology, Medicinal Chemistry, and Clinical Pharmacokinetics and Therapeutics, followed by case-based exercises of that particular disease. Unlike the Indian system of yearlong subject-based approach, this multidisciplinary teaching increases the integration of knowledge by the student, as relevant Pathophysiology, Pharmacology, Medicinal Chemistry, and Clinical Pharmacokinetics and Therapeutics are covered simultaneously in a sequence. Lecture notes (handouts) are available in advance through an online learning management system for downloading and reading. Lecture classes consisted of PowerPoint slides and video for presentation, as well as quizzes during and at the end of the lecture so as to enhance the learning through involvement and participation of the students. Students were asked to answer the questions collectively so that the teacher will know the percentage of students who correctly arrived at the answer or students who were unable to do so. Small group exercises related to case studies for each disease are conducted once theory classes are over, which involves 5–6 students. Residents (post graduate pharmacists) co-ordinate the case, and active participation by each student is necessary. Cases are analyzed by Subjective, Objective, Assessment, and Plan (SOAP) format, starting with subjective findings, objective findings, assessment, and the therapeutic plan. Assessment involves thorough discussion of treatment and presentation of recently published articles on a particular treatment or drug.

The training program at University of Michigan College of Pharmacy in Ann Arbor, MI, was provided in various areas including pediatric medication safety meeting, ward round participation that included the neonatal intensive care unit (ICU), solid organ transplant service, bone marrow transplant, neurology/neuro ICU, and cardiothoracic ICU. In addition to this, we were also exposed to investigational drug services, infectious diseases pharmacy practice (specifically antimicrobial stewardship), medical ICU pharmacy practice, ambulatory care pharmacy practice, emergency

department, dialysis center overview, and nuclear pharmacy. We also had various visits to hospital pharmacy and community pharmacy and exposure on the design and analysis of clinical studies. In addition, we were also given an opportunity to interact with the University of Michigan School of Pharmacy faculty members.

Children's Hospital of Eastern Ontario (CHEO), Ottawa, Canada, offered excellent training at the area of hospital pharmacy and clinical pharmacy services in pediatrics. The main schedules of the training includes clinical rotation in the areas like general pediatrics, neonatal ICU, pediatric ICU, pediatric Oncology, pediatric HIV, pain clinic, infectious disease, pediatric emergency department, and medication reconciliation, among others. The trainees were also posted in hospital pharmacy wings like IV preparation sites, total parental nutrition (TPN) preparation area, narcotic drug handling, and unit dose dispensing area. Faculties were trained to use the various pediatric literature resources for the purpose of providing drug information. Apart from this, pediatric dosage calculations and dosage adjustment are one of the key components of the training.

All the centers, USC, Michigan, and CHEO, offered excellent training opportunities. In our opinion, all of these opportunities provide invaluable learning opportunities for a foreign pharmacy practitioner. However, each of these was distinct in its own way. At USC, the focus was more on didactic teaching (including lectures and small group discussion of case studies) and utilization of critical thinking. In contrast, at Michigan, we had the opportunity to participate in the ward-rounds with the clinical pharmacist and health care team and to observe the expanded role of pharmacist in specialized practice area like organ transplant area, dialysis area, and nuclear pharmacy. Thus, the experience received at Michigan was more "experiential learning," whereas USC was more "didactic." As both are important, it would be hard to choose one over the other. CHEO is an excellent training center for pharmacists who are willing to specialize in the pediatric patient care area. A candidate should decide well in advance regarding the type of exposure needed considering his profession.

Outcome of Pharmabridge program

Implementation of the Western view of clinical pharmacy in an Indian setting is challenging. This is mainly due the organizational differences and policy variations in the Indian health care system, as compared to that found in the West. To overcome these issues, whenever faculty returns after the Pharmabridge training, a meeting is called at the department level. At that time, the faculty members discuss the nature of the training received, and an action plan is developed for implementation in our setting. A collective decision is then made by all of the members of the team related to execution of the learning as it relates to practice, and approval by head of the department is sought. Some of the implementation strategies are discussed here.

We constituted an academic committee and clinical rotation mentor team to look after several activities. The academic committee selected some of the main therapeutic topic like hypertension, diabetes, and decided to frame a problem-based teaching and learning methods. We have developed teaching modules for the above topics and implemented module-based teaching at the postgraduate level. This elicited a positive response from the pharmacy students, and good results were reflected in the students' assessment performance. The next step is to implement this problem-based teaching and learning at the undergraduate level. Our academic committee is presently working to get approval from the institutional board of studies.

Apart from the active ward-rounds participation, a bedside teaching method is also implemented in our teaching system. This improved the level of understanding of students about disease management and helped to correlate what they learned from the theory class with practical situations.

Another major impact of the Pharmabridge training is related to the improved communication with the hospital pharmacy department. Earlier, the pharmacy practice department and hospital pharmacy department were working as separate entities. Now collaborate steps were taken to improve the patient care and safety. This provided an opportunity to conduct a combined meeting between these two departments on a regular basis. During these meetings issues related to drug usage was discussed. As a result, medication errors and dispensing errors were reduced and overall pharmacy services improved. Our department is a part of national Periodic Safety Update Reporting (PSUR) system. This PSUR program for new drugs is an ideal example of combined initiative of pharmacy practice and hospital pharmacy departments.

Some of the key activities incorporated in our settings from the Pharmabridge training are medication reconciliation and review, pictogram development, pediatric care,

development of treatment protocol, and antibiotic stewardship. A patient diary was introduced for chronic disorders.

Since half of our departmental staff had undergone Pharmabridge training program, this helped us to develop training modules for international pharmacy students. Now our pharmacy practice department offers clinical pharmacy training even to the foreign pharmacy graduates, with standards at par with international levels. Presently, some of the pharmacy students from the Seychelles are undergoing clinical pharmacy and hospital pharmacy rotation in our training center.

The Pharmabridge training program helped the Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences, Manipal University, to achieve excellence in clinical pharmacy practice and become forerunner of innovation. Pharmabridge training has empowered the faculty members in an array of areas of clinical pharmacy practice, which improved their overall quality of clinical skills and teaching skills. The program enhanced the capacity building, and this has now helped us to establish a student and staff exchange program and collaborative research at an international level.

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