



# Implementation of a novel train-the-trainer program for pharmacists in China

Hoan Linh Banh, Andrew Cave

## Abstract

Clinical pharmacy services in North American are well implemented both in community pharmacies and in hospital pharmacies. In 2009 the Chinese government mandated the implementation of clinical pharmacy services in all secondary and tertiary hospitals by 2020. The mandate would require adequately trained clinical pharmacists. However, most pharmacy education programs in China have not yet incorporated clinical pharmacy into their curricula. Many pharmacists have been sent to countries, including the United States and Canada, to receive clinical pharmacy training. Because of different health care systems, medical team dynamics, and language barriers, it became difficult for the returning pharmacists to apply the skills gained from this type of training. As a result, the Second Xiangya Hospital of Central South University initiated an international academic-run train-the-trainer program. The objectives are to provide adequate training for pharmacists to provide pharmaceutical care to patients, conduct clinical pharmacy-related research, and engage in scholarly activities. After evaluation of local readiness, the course commenced in 2014, and to date four trainers have received personalized one-on-one training by an advanced pharmacist with 15 years of experience of delivering similar curricula in North America. We present the initial process evaluation and learning that will contribute to the development of clinical pharmacy courses at Central South University.

**Keywords:** Train the trainer; clinical pharmacists; clinical pharmacy; clinical pharmacy research; China

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## Introduction

According to the American College of Clinical Pharmacy, clinical pharmacy is defined as “a health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention” [1]. Clinical pharmacists practice both in community settings and in hospital settings. It has been well documented that clinical pharmacists have been effective in reducing medication errors, improving medication use,

enhancing medication adherence, promoting and providing immunization, and engaging in antibiotic stewardship [2–6]. In 2009 the Ministry of Health of the People’s Republic of China mandated clinical pharmacy services be integrated into all hospitals by 2020 [7]. As a result, all secondary and tertiary hospitals are required to have at least three to five full-time clinical pharmacists [7]. In response to the mandate, clinical pharmacy services are emerging in hospitals throughout



China. Unfortunately, most pharmacists are not adequately prepared to assume clinical activities. This is, in part, because most university pharmacy education programs continue to provide basic science curricula and only a few have implemented some clinical pharmacy education into their curricula [8]. Although the government provides abundant opportunities for pharmacists to be educated and trained overseas, they have difficulties in fully implementing clinical services. As a result, the Second Xiangya Hospital (SXH) of Central South University in Changsha, Hunan, invited a pharmacist faculty member with a doctor of pharmacy degree and advanced training from the University of Alberta to visit Changsha for 8 months over 3 years to train the trainers. The objectives are to provide adequate training for pharmacists to provide pharmaceutical care to patients, conduct clinical pharmacy-related research, and engage in scholarly activities. The goal is for the trained pharmacists to provide clinical training for pharmacists from all over Hunan province.

## Train-the-trainer program

### Needs assessment

An on-site needs assessment visit before the start of the training program provided an opportunity to evaluate the existing clinical services in the hospital and the pharmacists' educational background, training, and experience. The assessment was used to determine the length of the training and the number of visits required to optimize the time spent at the hospital. In addition, the visit allowed the assessment of residence in China for the duration of the training.

### Implementation of the training program

**Clinical:** Five pharmacists were identified to receive the training. Two of these pharmacists had spent 2–3 years in the United States or England to complete their postdoctoral training in basic science. This made communications with them less challenging, and they also served as interpreters for the other pharmacists. Before training starts, it is essential to appreciate the organizational structure of the medical services or departments. For example, at SXH the medical team consists of about 20 physicians, including an attending physician, medical residents, and medical students. Pharmacists are not considered part of the medical team and they are not permitted to

write progress notes in patient records. This limited the ability of pharmacists to communicate or interact with the physicians and other health care providers. The Clinical Pharmacy Department of SXH provides its services mostly on a consultation basis. This is the only way the pharmacists could add notes to the patient records. Almost 40% of the consults are for antimicrobial use.

The pharmacy education that the pharmacists had received did not include clinical pharmacy. Also, the pharmacists' experience differed significantly. The train-the-trainer program consisted of the basic pharmaceutical care process: assessment, care plan, and evaluation. Initially, the training included the pharmacists attending daily patient care rounds in the morning. However, the team structure made it difficult for the pharmacists to provide any input or participate. It was proven to be not a good use of the training time. The consult requests were then used as the basis for the training. The pharmacists were shown how to assess all of the potential drug therapy problems rather than just focusing on antimicrobial therapy. Assessment is the most difficult part to teach the pharmacists as they have very limited clinical pharmacy knowledge and have difficulty in applying their knowledge. It is essential to include daily discussions on therapeutic topics as part of the program to facilitate the pharmaceutical care process.

Also, weekly lectures on core therapeutic topics, such as antimicrobial use, asthma, and chronic obstructive pulmonary disease, were provided to all of the pharmacists and students. The therapeutic topics presented were relevant to the pharmacists. Even though cardiovascular disease is considered a core topic in pharmacy, there is no demand for pharmacists in the Cardiology Department at SXH. This is because there are so many cardiologists in the hospital and pharmacists are not requested by that department. All of the training pharmacists were expected to present a therapeutic topic to their peers and the students as part of their training. This provided them with the opportunity to engage in peer teaching.

The other factors to consider are the complex health care system, some medications which are available in Canada or the United States are not available in China, and some physicians combine the use of Western medicine with the use of traditional Chinese medicine. Currently, most people in China



still have to pay for a portion of their medical expenses. This affects the recommendation of medication use by pharmacists. In some cases, patients essentially cannot afford certain medications. Because alternative medications may not be available in China, this limits their recommendation. Most physicians use traditional Chinese medicines concomitantly, therefore this makes it very difficult to determine drug–drug interactions and rule out which medications caused the adverse drug reactions.

**Research:** Most of the pharmacists at SXH have a master's or a PhD degree, but in basic science. There is an expectation for all clinical pharmacists to engage in research but they focus mostly on bench laboratory research. It was a struggle to help them embrace clinical research. The best way is by example. The pharmacists were given a presentation on how to conduct clinical pharmacy research and the impact clinical pharmacy research has on clinical pharmacy practice. Furthermore, examples of major publications by pharmacists were presented to identify the major significant contributions these studies had on how clinical pharmacists in Canada and the United States practice. The presentation effectively motivated many clinical pharmacists to brainstorm for potential research projects. Currently, 12 research projects have received ethics approval and have started.

### Scholarly activities

For the last 4 years, SXH has organized an annual clinical pharmacy conference. The presentation topics were determined by the invited foreign speakers. As a result, the topics were not always relevant to the pharmacists. For the conference in the fall of 2015, the Pharmacy Department was encouraged to select the pharmacy topics that were of interest and clinically relevant to its clinical pharmacists, and then foreign speakers were carefully selected on the basis of the topics chosen. Also, the clinical pharmacists were encouraged to give a presentation at the conference. By doing so, they inspired pharmacists in China to give a presentation at the conferences they organized at their hospital.

All clinical pharmacists are expected to publish work in English-language medical journals. The biggest obstacle is the language barrier. The initial step was to select a familiar topic

for a review article. The ideal approach was to help them write an outline for the review article. They were coached to write the article in Chinese first and then translate it into English. This was effective as they are currently completing two manuscripts in English.

**Outcomes to date for the three objectives:** To date, four pharmacists have been trained and are providing pharmaceutical care to patients in the cardiovascular surgery, neurology, and oncology departments and the neonatal intensive care unit. They are collaborating with the attending physicians on research projects. The pediatric pharmacist presented a poster at a pediatric conference in Xiamen and all four pharmacists gave presentations at their own provincial conference. The key to successful implementation of the train-the-trainer program in China is to be flexible and adapt training to the local Chinese context. The program is ongoing, with follow-up and maintenance visits planned for 2016 and 2017.

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### Conflict of interest

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