

Doctor of pharmacy internship module in paediatrics at a Teaching Hospital in Lalitpur, Nepal- A preliminary report

Dhakal AK¹, Ravi Shankar P², Shrestha D³

¹Ajaya Kumar Dhakal, Lecturer, Department of Paediatrics, KIST Medical College, Lalitpur, Nepal; ²P Ravi Shankar, Professor, Xavier University School of Medicine, Aruba, Kingdom of the Netherlands; ³Devendra Shrestha, Associate Professor, Department of Paediatrics, KIST Medical College, Lalitpur, Nepal

Abstract

Doctor of Pharmacy is a relatively new academic course in Nepal. The course is divided into two phases. The first phase includes first and second academic year with two semesters in each year and second phase has mandatory hospital internship in different clinical departments for 12 month during third year. Doctor of pharmacy is the highest degree offered in clinical and hospital pharmacy and aims to produce professionals well versed in pharmacotherapy. We developed an internship training module for these students in paediatrics and believe that such module will help in production of trained pharmacy manpower and assist other clinical departments to develop internship training modules for doctor of pharmacy students.

Key words: Doctor of Pharmacy, PharmD, PharmD Internship

INTRODUCTION

A three year Post-Baccalaureate Doctorate of Pharmacy (PharmD) programme was started in 2010 for the first time in Nepal by Kathmandu University¹. The course is divided into two phases. Phase I includes first and second academic year with two semesters in each year and Phase II hospital internship for 12 months during third year. The prerequisite for admission in PharmD programme is a bachelor degree in Pharmacy from an institution recognised by Nepal Pharmacy Council with minimum CGPA of 2.5 or equivalent². The first batch of students recently completed their course including their internship.

The core curriculum of PharmD under Kathmandu University includes an understanding of clinical pharmacology and pharmacy, pharmacotherapeutics, research methodology and pharmaceutical jurisprudence focused around a patient followed by compulsory rotatory internship for 12 months in different clinical departments². The main theoretical course is held at the Department of Pharmacy, Kathmandu University while for internship the services

of different specialty hospitals all over Nepal are utilised. One of the hospitals is KIST Medical College (KISTMC). There is a written agreement between KIST Medical College and Kathmandu University regarding using the services of the hospital and medical school for training PharmD students. KISTMC has been involved in Pharmacovigilance activities, is a regional center under the national Pharmacovigilance programme^{3,4} and conducts medication counselling for selected medicines at the medication counselling centre and is in a strong position to offer training in pharmaceutical care and clinical pharmacy to PharmD students⁵. The main objective of the course is to produce trained manpower in clinical pharmacy who can be important members of the health care team.

In developed nations PharmDs and clinical pharmacists have an important role in the healthcare system. In the United States, clinical pharmacy interventions conducted by PharmDs are associated with quality/safety improvement, antibiotic stewardship, discontinuing medications and preventing adverse drug reactions, which has resulted in substantial cost savings⁶. In United States, PharmDs were spending more time on educational and clinical activities and less time in prescription processing compared to bachelor degree pharmacist⁷. The Ohio State University College of Pharmacy has described 100 ability-based outcomes

Address for correspondence

Dr. Ajaya Kumar Dhakal
Lecturer

Department of Paediatrics, KIST Medical College, Lalitpur, Nepal.
E-mail: ajayakdhakal@gmail.com

which a person completing a PharmD should possess and the outcomes are in three main areas, viz., providing population-based and patient-specific pharmaceutical care, managing and using health system resources, and promoting health improvement and disease prevention⁸. Thus PharmDs and clinical pharmacists play an important role in health systems in developed nations, especially the United States.

INTERNSHIP PROGRAMME

Seven out of 13 first batch PharmD students started their internship at KISTMC on October 28th, 2012 and completed their training on April 26th, 2013. After this period they underwent training in various other super specialty hospitals. Faculties from each clinical department were identified as preceptors before the start of internship and they were responsible for supervision and evaluation of these interns. Interns rotated through Anaesthesiology, Dentistry, Emergency & Family Medicine, Pharmacy, Medication Counselling Centre, Pharmacovigilance Centre, Research, Pharmacology, Paediatrics, Internal Medicine, Nephrology and Obstetrics-Gynaecology⁹. The students maintained a log book during internship that was used to record the student activities and observations during rotation.

The positive aspect was that students learned clinical pharmacy in a holistic manner with a direct relation to patient care. However the main challenge was that there were no prepared teaching modules and framework for internship in our region as this was relatively new course. These were developed by consultation just before the start of the internship. We also needed to develop tools for evaluation of these students to ensure that the requisite skills and competence had been achieved.

The first batch of PharmD students are presently working in Nepal in different hospitals or pursuing further studies. An important issue to consider is if Nepal does not provide them enough opportunities, they may migrate to developed nations⁹. In one study from Pakistan, 90% of pharmacy graduates left the country after graduation¹⁰. The solutions to this problem may be integration of this trained manpower into the present health care system, providing support and opportunity for further trainings in a timely fashion. The government has also recognised the need of this trained manpower both at policy level and implementation level. The role of Nepal Pharmacy Council is also immense for regulation and professional development of this category of manpower. However Nepal Pharmacy Council at present is more focussed on undergraduate and diploma programmes¹¹.

Kathmandu University had enrolled thirteen students in the first batch taking into consideration of availability of the hospital facilities and the opportunities for teaching-learning, however decided to admit only six students from the second batch onwards. The second batch of six interns started internship on November 10, 2013 and will be completing the same on May 9, 2014. The students will rotate through Pharmacology, Paediatrics, Obstetrics and Gynaecology, Dentistry, Family medicine, Dermatology, Anaesthesiology, Internal Medicine, Nephrology and Surgery.

We developed a teaching-learning module for students rotating through Paediatrics so that they learn effectively in a holistic way during the duration of three weeks of posting in the department. The other clinical departments have also developed their own modules based on inputs obtained from PharmD programmes in other countries. Expert from Saudi Arabia and Malaysia provided an intellectual support in developing teaching-learning activities and assessment criteria during the internship. The framework was developed under the guidance of the programme coordinator and the clinical coordinator and in discussion with faculties of clinical departments of our hospital. The inputs of the department of Pharmacy at Kathmandu University were also considered. The greatest challenge of this teaching framework was not only to devise method to evaluate skill of these intern but also a novel approach to evaluate the effectiveness of these internship modules.

The objective of rotation in Paediatrics is to help intern learn to integrate pharmacological principles in the management of childhood illness.

TEACHING AND LEARNING ACTIVITIES:

1. The intern will
 - Attend Paediatric morning conference.
 - Participate in rounds at paediatric ward, neonatal intensive care unit, nursery and postnatal wards.
 - Review the drug doses prescribed, potential drug- drug interactions and monitor adverse drug reaction.
 - Review the drug doses prescribed on discharge of inpatients and educate the parents about possible adverse drug-drug and drug-food interactions.
 - Provide drug counselling to paediatric outpatients.
 - Help in administration of oral medicine in difficult patients.

2. Theoretical Knowledge

- Understand the basic pathophysiology and aetiology of common paediatric conditions like pneumonia, diarrhoeal diseases, tuberculosis and nephrotic syndrome.
- Understand the indication and contraindications of commonly used drugs in paediatric patients.
- Recognise drug dose variation in neonate, infant and child.
- Understand ethics in Paediatrics.

3. Departmental Presentations

- Paediatric drug dose calculations and drug formulations for children.
- Reducing medication errors in children.
- Use of appropriate drugs and dose adjustment in children with renal failure and liver disease.

4. Fortnightly presentations at Pharmacology Department.

- Medicine counselling and consulting in pharmacy
- Medicinal drug promotion
- Pharmaco-epidemiology
- Principles and practices of pharmaceutical care
- Drug dispensing and medication errors
- Investigational new drugs
- Pharmacovigilance and Adverse drug reaction reporting
- Good clinical practice guidelines
- Drug interactions
- Therapeutic drug monitoring
- Management of Hypertension
- Management of Diabetes mellitus

5. Log book

- Important drug interaction, adverse drug reaction witnessed in different patients should be written in log book.

The PharmD course is relatively new in South East Asia but is gaining popularity¹². The development of clinically oriented PharmD curriculum including internship programme will be bringing change in hospital pharmacy system with pharmacist visiting wards and clinics to become active member of health care team¹⁰. Internship in community pharmacies and in hospitals is common in PharmD programs throughout world. In Jordan, for example, PharmD is

a six year programme after students complete twelve years of schooling and during the sixth year students spend 14 weeks in community and hospital pharmacies followed by consecutive six week rotations in various medical specialties¹³. In India, the PharmD programme is of six years duration with admission criteria of twelve year school education while the post-baccalaureate programme is of three years duration like in Nepal which includes six months of the internship and residency in general medicine and two months each in three other specialty departments¹⁴. China offers a variety of programmes in clinical pharmacy and students undergo a clinical medical theory and practice course in the areas of diagnosis, internal medicine, surgery, obstetrics and gynaecology, paediatrics, respiratory, cardiovascular, and gastrointestinal medicine¹⁵. They also spend two to three weeks in various specialty areas of practice. Thus the PharmD programmes offered by Kathmandu University seems to offer comparable training opportunities in clinical pharmacy compared to similar programmes elsewhere in the world. Introducing an internship in community pharmacies can be considered to further strengthen the programme. The incorporation of clinically oriented learning modules during academic course as well as in internship will develop positive learning attitude. Teaching learning modules developed to train students during internship in any clinical discipline of medicine lead to improvement in learning skills in students¹⁶ which can be applied in other health professions. Even a traditional drug information centre has been used as a hub for learning evidence based medicine¹⁷. It is important to highlight that such learning modules should be developed using local resources, addressing needs of students and evaluating periodically for effectiveness.

Internship is a very critical phase in the shaping of a career in the health sciences including PharmD. The major purpose of internship training is to prepare for professional life in future and transfer of medical knowledge and experiences from elder generation to young generation¹⁸.

These objectives of internship are easy to achieve with the help of experienced and committed preceptors with effective guidance to interns who have positive attitude of learning and the working environment for intern should also be supportive without overburden of work for successful training¹⁹.

A number of factors including lack of discipline, excessive work responsibilities and fear of legal

litigations in interns, untrained and inexperienced preceptors, uncooperative staffs, and lack of appropriate academic environment, infrastructures and equipments can significantly undermine the training of intern during their internships¹⁹. So every department and the institution should reduce these hindering factors.

CONCLUSION

PharmD is a backbone of clinical pharmacy and should be integrated with health systems. PharmD students should be provided enough opportunity for learning. Every clinical department therefore should work towards making internship a pleasant skill acquiring

experience with minimization of factors that hinders learning opportunities. There should be coordination between departments in the same hospital and different institutions for sharing experiences and difference in teaching methods used by preceptors for training of PharmD interns as well as creation of teaching- learning modules for successful training.

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