

Insights into Clinical Pharmacy Program in Iraq: Current Trends and Upgrading Plans

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ABSTRACT

Clinical pharmacy is a patient-centered health practice in which the pharmacists work in collaboration with other healthcare providers for better treatment outcomes and improved patients' quality of life. The introduction of clinical pharmacy as a remarkable health science discipline has necessitated a change in the curriculum of pharmacy education. The changes include, in addition to the curriculum, the introduction of several clinical pharmacy programs and professional practice-based models. This commentary highlights an overview upon the current trends in clinical pharmacy curriculum and practice in Iraq. The current clinical pharmacy curriculum in the academic platform is well designed and implemented alongside the currently introduced clinical pharmacy training programs. However, there is still a need to upgrade the entire pharmacy curriculum in the country in order to direct pharmacy profession towards more responsible and effective provision of direct patient care in Iraq.

Keywords: Clinical Pharmacy Board, Clinical Pharmacy, Curriculum, Iraq, Pharm-D.

INTRODUCTION

The Philadelphia College of Pharmacy (PCP) North America was the first educational institute to come up with the Bachelor (BSc) degree in pharmacy, a two-year proficient course, which was later turned into a four years program ^[1]. The introduction of clinical pharmacy, as one of the considerable health science disciplines started at the University of Michigan in the mid-1960s. The program evolved out of the dissatisfaction with old pharmacy practice standards and traditional medicines dispensing to have extensive learning of pharmaco-therapeutics and necessitated a change in the curriculum of pharmacy education ^[2]. A continuous progress in pharmacy education and clinical pharmacy practice has been observed in

Middle Eastern countries, Saudi Arabia, Jordan, and Kuwait, particularly starting the introduction of Pharm D degree courses. As a part of clinical pharmacy program in Egypt, clinical pharmacy courses have been introduced in the curricula of undergraduates alongside clinical pharmacy training courses for postgraduates. In Jordan, residency program in clinical pharmacy was introduced in collaboration with other health care professionals for the provision of high quality medical services ^[3-6]. Clinical Pharmacy is a health science discipline in which pharmacists have to become crucial members of medical teams through the provision of patient care that optimizes medication therapy. The aim of the clinical pharmacy programs is to train pharmacy students to provide patient-oriented healthcare rather than medication-oriented one, which in turns will improve the quality of healthcare services. The clinical pharmacists' activity in collaboration with other multidisciplinary team led to a safer and more effective medication use, lower costs of drugs, better health

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outcomes and higher patients' quality of life [7-11]. The clinical pharmacists are more involved in assuring appropriate drugs prescribing and administration, evaluating medication adherence, providing drug information consultation, monitoring and following up patient responses, and rational provision of patient and health team education [12]. Later, several clinical pharmacy programs and professional practice-based models have been introduced. These include pharmacy residency and/or fellowship training programs, continuing pharmaceutical education program (CPE) and the professional six-year Doctor of Pharmacy (Pharm D) degree [13]. The aim of this paper is to provide an overview upon the current trends in pharmacy education, clinical pharmacy curriculum and practice considering the implementation of clinical pharmacy program as an integral part of the healthcare system in Iraq.

Academic Discipline

Undergraduate Studies

In Iraq, there are around 39 public and private pharmacy colleges, and the completion of BSc degree in pharmaceutical sciences is accomplished over 5 years comprising ten semesters whether the study is at the public or private pharmacy colleges. BSc curriculum involves courses that consist of mixed basic and primary pharmacy topics which are the same across all the country pharmacy colleges, except those in Kurdistan region of Iraq. Both semesters of the fourth and fifth year within undergraduate study start with the topics of clinical pharmacy (Figure 1). The first semester of the fourth year includes community pharmacy topics with total units of 3 hours; 2 hours theory and 1 hour practice. The second semester includes clinical pharmacy and therapeutics topics with total units of 3 hours; 2 hours theory and 1 hour practice. The second semester includes only 2 hours theory communication skills lessons [14-16].

In the fifth year of the first semester (Figure 1), students start learning applied therapeutics topics which

involved with the treatment and care of a patient for the purpose of both preventing and combating disease, which continued throughout the second semester with total units of 2 hours theory in each semester. During the fifth year, students will also have learning topics regarding therapeutic drug monitoring (TDM) with total units of 3 hours (2 hours theory and 1 hour practice) as well as pharmaco-economics topics with total units of 2 hours theory. Furthermore, fifth year students have to get weekly visits to the public teaching hospitals for a period of one-month for clinical training and round table discussions in each of the principle hospital wards (medicinal, surgical, gynecological and pediatrics wards) for a total of 4 months duration [14-16].

Post-graduate Studies

At the governmental pharmacy colleges and in order to become a clinical pharmacy specialist high diploma, master (MSc) and/or doctorate (PhD) programs, (Figure 1), are accessible post-graduation which are awarded by the clinical pharmacy department in certain pharmacy colleges of public universities (such as Baghdad University and Al-Mustansiriyah University). The entrance requirement for such programs requires passing a competitive process which includes evaluation of the class rank upon graduation followed by an examination that is usually performed between July and August. The post graduate curriculum involves advanced clinical pharmacy topics such as advanced therapeutics, advanced clinical pharmacokinetics, advanced pathophysiology, research design and biostatistics alongside clinical trainings in each of the principle hospital wards (medicinal, surgical, gynecological and pediatrics wards).

The one-year high diploma degree is offered to postgraduate students and includes one semester of specialized course and 6-months of research. The two-year master's program includes two semesters of specialized theoretical and practical courses followed by one year of research study. Doctorate studies in clinical

pharmacy comprise of three specialized theoretical and practical semesters followed by a comprehensive examination and then 18 months of research study [14-16].

Clinical Pharmacy Practice- Post-Graduation Programs

One-Year Clinical Pharmacy Program

The Ministry of Health established a practical initial program of clinical pharmacy in Iraq (Figure 1). Despite being a successful program, it is neither highly specialized nor it covers the advances in clinical pharmacy trends and hospitals residency. Moreover, the program is not recognized by the Iraqi Ministry of Higher Education (not awarded any degree) and other academic institutes and references. The newly graduate pharmacists have the opportunity to be enrolled in a one-year clinical pharmacy training program as primary practices at the public hospitals within the principle hospital wards (medicinal, surgical, gynecological, hematology, oncology and pediatrics wards) rather than the traditional duties of medicines dispensing, thereby preparing clinical pharmacists to be eligible for in work with the medical teams for more provision of clinical pharmacy services. The registered pharmacists have to go through a competitive process, including exam evaluation degrees. Those clinical pharmacists have more practices and activities that focus on pharmaceutical care and better patient outcomes such as supplying medications to inpatients, educating patients about the proper use of medications, providing physician and nurse consultations and clinical activities [17, 18].

Four-Years Clinical Pharmacy Program-Certification Board of Clinical Pharmacy

Another highly specialized clinical pharmacy program is the Iraqi Board of Clinical Pharmacy that is approved by the Iraqi Board of Medical Specializations, one of Iraqi Ministry of Higher Education and Scientific Research' institutes (Figure 1). It was approved in 2011 and presented in 2012 as the ultimate successful

collaboration between Iraqi Ministry of Health and Ministry of Higher Education and Scientific Research and considered to be equivalent to a PhD degree. A total number of 14 specialized pharmacists were board certified since 2016. This board certification program is considered as a major step in upgrading clinical pharmacy profession to introduce highly advanced patient-oriented and pharmaceutical care alongside improving the health system in Iraq [17-19].

As it recently introduced, the program offers only a limited number of positions (around 8 students every year). The registered pharmacists have to pass through a competitive process which includes evaluation of the class rank upon graduation followed by written examination. The four-year specialized program consists of preliminary coursework and clinical trainings under the supervision of a professional multidisciplinary team of consultant physicians and pharmacists. The candidates are in direct contact with the patients and have to prepare reports, attend lectures and medical meetings in Baghdad Teaching and Research Hospital only, one of the biggest and principle teaching hospitals in Iraq and the Middle East. Iraqi Board of Medical Specializations will grant the clinical pharmacist practitioners the specialist degree (Iraqi Board of Clinical Pharmacy) when they fulfill the requirements of residency in the clinical training program, fellowship with thesis, and passing the specialty examination. The first year involves specialized theoretical courses alongside clinical trainings based on a period of three-month in each of the principle hospital wards (medicinal, surgical, gynecological and pediatrics wards) followed by a comprehensive specialty examination for the application of highly advanced pharmaceutical care. During the second year, the clinical pharmacist practitioners start another specialized clinical training based on a period of two-month in the oncology, hematology and renal dialysis departments. This year also involves one-month training in the intensive care unit, respiratory unit and psycho-neurological units.

In the third year, the clinical pharmacist practitioners start trainings based on a period of one-month in the departments of intensive care, respiratory, orthopedics, ENT, premature newborns, burns, catheterization, anesthetic and pediatric intensive care. This year also involves 3-month training in therapeutic drug monitoring (TDM) and total parenteral nutrition (TPN) departments. During this year, the students have to prepare and achieve a thesis dissertation. In the last year, the clinical pharmacist practitioners start retraining the same program they have achieved during the first year followed by another comprehensive specialty examination.

Introduction of Pharm-D as Upgrade Program

As we mentioned earlier, in Iraq, the BSc pharmacy curriculum majorly involves courses of mixed basic and primary pharmacy topics which are regarded to have little practical value in terms of patient care and overall competent health outcomes. Improving the quality of pharmacy education and the advancements in pharmaceutical sciences in order to further upgrade and enhance the roles and skills of pharmacists for an advanced patient care could be achieved with new updated courses and pharmacy training modules which can equip the future pharmacists with advanced knowledge [20]. A remarkable update in pharmacy curriculum is achieved through the introduction of Pharm-D program. It has a tremendous impact in the current practice through increasing the diversity in the curriculum since it evolves from industrial and compounding pharmacy to enhance the role of pharmacists in the provision of more patient-oriented

healthcare. The six-year curriculum of this program includes multidisciplinary courses; therefore students will have the ability to distinguish the essential roles for pharmaceutical care provision instead of traditional drug dispensing. The students will also develop the technical skills, professional judgments and competencies necessary for entry into the pharmacy profession [21, 22]. In comparison to some of the Middle Eastern Countries, the pharmacy colleges in Iraq are still lacking Pharm-D program as more is needed to implement this professional program into Iraqi pharmacy colleges. This in part is attributed to the relatively lack of academic staff in clinical pharmacy discipline and a shortage of qualified advanced degree pharmacy academics, PhD degree staff and/or Clinical Pharmacy Board staff, and in another part to the postgraduate resources and facilities in clinical pharmacy which should be further elevated alongside further enhancing institutional infrastructure in almost all aspects.

Conclusions

The current clinical pharmacy curriculum, whether for under and post graduate studies, is well designed and implemented. The one-year clinical pharmacy program alongside the Iraqi Board of Clinical Pharmacy provides highly qualified pharmacy staff to be involved effectively in the provision of direct patient care. However, as Pharm-D program has not started yet, there is a strong need for further redesigning contents and upgrading in primary pharmacy education to be in harmony with the international standards in clinical pharmacy practice to cope with the advances in all medical fields.

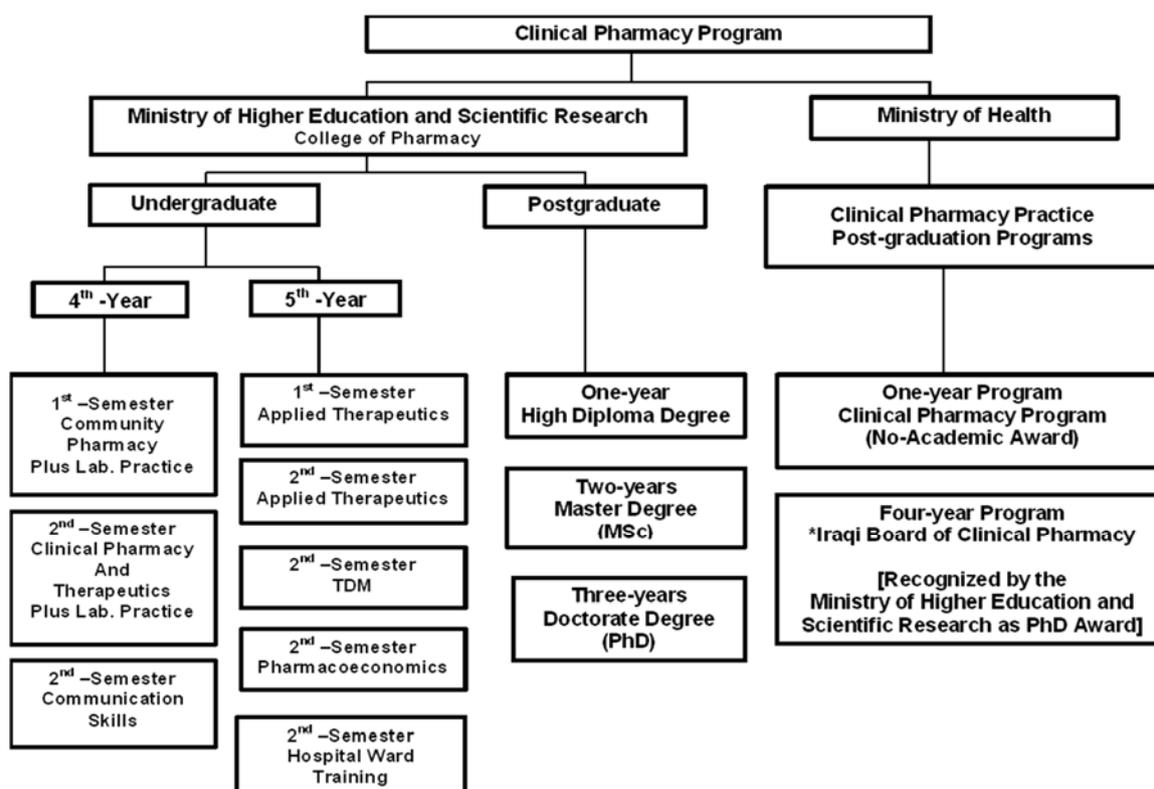


Figure1. Categorization of Clinical Pharmacy Program in Iraq

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رؤى حول برنامج الصيدلة السريرية في العراق: الاتجاهات الحالية وخطط الترقية

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الصيدلة السريرية هي ممارسة صحية تتمحور حول المريض حيث يعمل الصيادلة بالتعاون مع مقدمي الرعاية الصحية الآخرين لتحقيق نتائج علاجية أفضل وتحسين نوعية حياة المرضى. استلزم إدخال الصيدلة السريرية كتخصص بارز في العلوم الصحية تغييرًا في المنهاج الدراسي والتعليمي في الصيدلة. تتضمن التغييرات ، بالإضافة إلى المنهاج ، إدخال العديد من برامج الصيدلة السريرية والنماذج القائمة على الممارسة المهنية. يسلط هذا المقال الضوء على نظرة عامة على الاتجاهات الحالية في مناهج وممارسات الصيدلة السريرية في العراق. في الخلاصة تم تصميم وتنفيذ مناهج الصيدلة السريرية الحالي في المنصة الأكاديمية بشكل جيد إلى جانب برامج التدريب على الصيدلة السريرية التي يتم تقديمها حاليًا. ومع ذلك ، لا تزال هناك حاجة أكثر إلى تطوير مناهج الصيدلة بأكمله في البلاد من أجل توجيه مهنة الصيدلة نحو توفير رعاية أكثر فعالية ومباشرة للمرضى في العراق.

الكلمات الدالة: مجلس الصيدلة السريرية، الصيدلة السريرية، مناهج الدراسة، العراق