

The changing pharmacy profession and the development of the Faculty of Pharmacy at Kuwait University

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The profession of pharmacy has a long history alongside medicine. However, it has undergone dramatic changes in the past century as pharmacists have taken on increasing responsibilities in patient care other than the traditional tasks of compounding and dispensing. In pharmaceutical care, the pharmacist is ideally involved in all decisions related to medicines for a patient, including monitoring of outcomes. The Faculty of Pharmacy at Kuwait University was established in 1996 to provide a local center for the training of professional pharmacists to international standards. The first intake graduated in 2002. The profession and other partners in health now need to ensure

This paper will present a brief history of the development of pharmacy, highlighting the recent changes that have occurred in its professional practice from a focus on compounding of medicines to one of patient-centered care as a health care team member. The establishment of the Faculty of Pharmacy at Kuwait University will be described in the light of these changes, and the challenges for the future for both the Faculty and pharmacy in Kuwait in general will be discussed.

Early History of Pharmacy

Medicine undoubtedly started with early man experimenting with his environment in an attempt to fend off ill-health which may well have been seen as much a mystical event as part of the natural cycle of life and death. As civilization developed, ancient therapeutics saw a collective role of prescriber and dispenser of medicines, usually also in conjunction with a magical or religious role. Some of the earliest recorded details of medical interventions come from Mesopotamia (c. 2600 BC) in present-day Iraq with a clay tablet detailing symptoms, prescriptions, directions for com-

their skills are used to the full as members of the health care team thus improving the quality of patient care. There are challenges to be faced in planned evaluation and accreditation of the training program, development of postgraduate courses and organization and implementation of continuing professional development to maintain and improve the knowledge base of pharmacists in Kuwait.

Key words: Pharmacy education, Kuwait, pharmacy, pharmacy practice

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pounding and a prayer to be said during treatment by a combined healer and priest.^{1,2} Understanding of medicine grew through the development of the Greek and Roman civilizations as Asklepios, Dioscorides, Hippocrates and Galen sought wisdom through science. Their ideas were known and developed through the important influence of Arabic philosophers, physicians and apothecaries such as Ibn Sarabiyun (also called Serapion), Al-Razi and Ibn Sina (Avicenna) around the 9th century AD (3rd century AH). In fact, it was in the Arabic world that the separation of the roles of physician and pharmacist was delineated through Ibn Al-Jazzar³ and Al-Biruni^{3,4} in the 10th century (4th century AH), although apothecary shops had been opening in Baghdad and other Arab cities since the 7th century (1st century AH)^{2,5}. Islam spread through the Ottoman Empire disseminating this concept, which became popular in Medieval Europe with the establishment of apothecary shops. It was the guilds of the apothecaries which were the precursors of professional bodies regulating the practice of compounders and dispensers of medicines in western countries, a practice which developed separately in the Arab world with its longer history. From the apothecaries arose the chemists and druggists (in some countries the term 'chemist' is still applied to pharmacists) and the more recent terminology of 'pharmacist' has been widely accepted, coming from the Greek *pharmakon* meaning something which purges and restores

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to health. The Arabic word for pharmacy is *al-Saydah*, a distortion of *al-Saydanah* originating from *al-Sandalah* meaning the profession of a person who collects and deals in sandalwood and expanded to one who deals with all other herbal and other natural products.

Recent History of Pharmacy

Al-Biruni, in his treatise *Kitab al-Saydanah fi al-Tibb* (10th century AD/4th century AH) described the pharmacist as “the professional who is specialized in the collection of all drugs, choosing the very best of each simple or compound, and in the preparation of good remedies from them following the most accurate methods and techniques as recommended by experts in the healing arts”.³ The pharmacist also became known as a specialist in the effects and uses of the preparations which he compounded.

The role of the pharmacist as a “maker of medicines” changed with the advent of the modern pharmaceutical industry in the first half of the 20th century (14th century AH). The successful use of penicillin in the Second World War and industrial expansion following the war led to an explosion in the types and numbers of medicines available as technology was applied to both drug synthesis and dosage form design.⁶ Antibiotics, antidepressants and oral contraceptives, amongst many others, started to be mass produced at central locations and distributed to community retail pharmacies for dispensing as required with much less preparation of medicines on an individual patient basis (“compounding”). For example, in the 1930’s approximately three quarters of prescriptions in the United States required some degree of compounding, but twenty years later that proportion was less than a quarter.⁶ Greater medicine availability led to higher prescribing and patients demanded a “pill for every ill”. Patient loads increased for physicians and the reduction in the need for compounding by pharmacists was offset by an increased number of prescriptions to dispense. However, pharmacists were also called upon to advise and provide treatment for minor illnesses to alleviate the pressure on physicians. Thus over-the-counter medicines became more common⁶ and the role of the pharmacist as a health care provider became more pronounced. By the end of the 20th century this role had dramatically shifted from a product-oriented towards a patient-centered profession.

Extended Role of the Pharmacist

The profession of pharmacy has been going through a process of change to meet the new challenges as modern health systems have developed.⁷ Today the mission of the pharmacy profession is focused on outputs that assure the development, production, distribution and appropriate use of safe and effective drug products in the prevention, treatment and diagnosis of disease. Reflecting these changes the World Health Organization (WHO) described the role of the pharmacist in the health care team beyond the traditional functions of compounding and dispensing to one of also educating, monitoring and directly caring for patients in collaboration with physicians and other health care team members⁸ – the so-called ‘extended role’. Perhaps the most convincing evidence of this extended role is the different ways it has been developed and recognized by its sister professions and national governments.

In some countries, the clinical or ward pharmacist is an essential member of the medical team, rounding with physicians on wards, performing full patient workups, recommending drug therapy and monitoring drug-related outcomes.⁹ Activities led by pharmacists for monitoring adverse reactions and medication errors are often required for hospital accreditation procedures.^{10,11} Pharmacist-managed clinics for chronic diseases such as hypertension are becoming common where the pharmacist, acting within a hospital or group practice environment, can alter dosages or extend prescription refills according to set monitoring parameters and treatment protocols.¹² Community pharmacists are also involved in domiciliary visits to homes and care centers for the elderly to identify medication-related care issues which they can either address directly or through community nursing services or physicians.^{9,13} Integral to some of these activities as well as through specialist units is the provision of drug information, therapeutic drug monitoring services and operation of total parenteral nutrition and intravenous care units. Development of these extended patient care services has been paralleled with development of the philosophy of ‘Pharmaceutical Care’ which has been defined as “the responsible provision of drug therapy for the purpose of achieving definite

outcomes that improve a patient's quality of life"¹⁴ and involves identifying, resolving and preventing potential and actual drug-related issues (Fig. 1). Pharmaceutical care exists as an integrated part of health services and the pharmacist must work in close collaboration with physicians, nurses, and other allied health care providers.

Figure 1: Key elements of pharmaceutical care¹

- Participation in the process of drug use decisions
- Selection of drug product dosage form
- Selection of drug product source of supply
- Determination of dose and dosage schedule
- Preparation for drug product for patient use
- Providing drug product for patient
- Supplying drug information to the patient
- Monitoring the patient to maximize adherence
- Monitoring patient for adverse drug reaction and drug/food/disease interactions
- Following up the patient to ensure that therapy proceeds according to patient care objectives

¹AACP (2002)¹⁷

Pharmacy in Kuwait

Early medical practice in Kuwait was based on traditional remedies¹⁵ and derived largely from practice in surrounding regions and from experiences brought from passing traders. Foreign missionary services introduced 'modern medicine', and the first British and American clinics in the early 1900's probably included the services of 'chemists and druggists'. Around 1927, the first large shop to distribute herbal medicines was established ('The Islamic Pharmacy') by a pioneer herbalist or *attar* opening a new area for early pharmacy practice. By the 1940's community pharmacies were starting to be established¹⁵ and the first hospital pharmacy operated and supervised by a professional pharmacist was opened in 1948 in the Old Amiri Hospital. Later, several government pharmacies were established in the Old Chest Hospital and Al-Sabah Hospital. Kuwait has limited manufacturing capacity for modern medicines and imports its medicines from regional and international markets. However, the development of the health services in Kuwait has seen an increased need for pharmacists in hospital and community pharmacies, importing and distribution companies and in regulatory and policy roles at the Ministry of Health.

Apart from small numbers of Kuwaitis trained in other countries, most of the human capacity needs were initially served through expatriate pharmacists and the services of locally trained pharmacy technicians. Currently, pharmacy services in Kuwait are provided mainly through the ministries (Health, Social Affairs and Defence) and partly by the private sector. There are now about 140 pharmacies operating in hospitals (47%), specialized centers (13%) and health centers (40%). In addition, there are 14 private hospital pharmacies and about 130 community pharmacies. The total number of practicing pharmacists in the state of Kuwait is 1242¹⁸ (Table 1). As part of the capacity building of Kuwait for the future and improving the quality of the expanding medical services in Kuwait, planning for the local training of pharmacists started through a joint committee of the Ministry of Health and Kuwait Pharmaceutical Association.

Table 1. Distribution of registered pharmacists in Kuwait

	No. of Pharmacists (Kuwaiti/Non-Kuwaiti)	
	Male	Female
Public Sector	46/127	49/298
Private Sector	16/249	21/436
Total	62/376	70/734

Establishment of KU Faculty of Pharmacy

When Kuwait University was established in 1966, there were original plans to develop faculties of medicine, dentistry, pharmacy and allied health. Staff development started in the 1970's with several scholarship candidates being sent to the United States. The Pharmacy Program was initiated primarily by a group of deans in regional pharmacy colleges but, due to unclear reasons, the proposal was suspended. Meanwhile, the Faculty of Medicine was the first faculty of the Health Sciences Centre, established in 1976, followed by Faculty of Allied Health Sciences and Nursing in 1982. During the mid-1980's, pharmacists in Kuwait, through their professional association, organized several campaigns to influence both Kuwait University and the Ministry of Health authorities to establish the pharmacy program.

The effort brought its result when a Ministerial Decree established the Faculty of Pharmacy in 1989. The primary proposal was updated to meet the current trends in pharmaceutical education. The program of the Faculty was evaluated by three Colleges of Pharmacy, namely Queens University, Belfast, University of Buffalo, New York and University of South Carolina. In February 1996, the Faculty of Pharmacy officially became the third faculty in the Health Sciences Centre. The founding Dean and Vice Dean were tasked to further update the program and created collaborative links with regional and international pharmaceutical institutes. This should lead not only to general recognition of the Faculty and its program but also ultimately to accreditation by a relevant professional institution.

The first students entered the program in September 1997 and graduated in June 2002. A 5-year program is offered leading to a Bachelor of Pharmacy (B.Pharm.) degree through Departments of Pharmaceutical Chemistry, Applied Therapeutics, Pharmaceutics and Pharmacy Practice. The program was developed to train pharmacists capable of assuming their professional responsibilities in Kuwait or abroad taking into consideration the extended role of the pharmacist. A firm grounding is still provided in pharmaceutical chemistry and dosage form design in recognition of pharmacists who may be employed in pharmaceutical industries in new drug development and formulation. However, since the principal mission of the today's pharmacy profession is patient-centered pharmaceutical care, the curriculum has an increased emphasis on developing skills necessary for making clinical judgments and decisions on avoidance, initiation, maintenance and discontinuation of drug therapy. Communication skills are developed and students are trained in social and ethical aspects of practice as well as being introduced to management and economic facets. An important feature of the program is the practice-based placements of students to health centers during their penultimate and final years of study in which they are exposed to and participate in drug management and dispensing activities, ward rounds and identification and resolution of patient care issues as part of a health care team.

The Faculty faces various tasks in its development. The most important for its future is

the validation of the outputs of the curriculum, i.e. the validation of competencies of students according to evolving national standards and existing international benchmarks, ideally in partnership with an accrediting body. However, national standards, norms or competencies have not been formally defined. This should be addressed in the near future. Whilst initial steps for evaluating the program has begun through exit surveys of graduates and their supervisors, a comprehensive assessment strategy still needs to be formulated and adopted. Such a strategy will also ensure that the curriculum is kept in line with international trends as well as national requirements. Secondly, there is the importance of developing postgraduate programs at Certificate, Masters and Doctorate level for those who wish to specialize and further their pharmacy career. This will also ensure the continuity of the Faculty by providing a resource of appropriately trained citizens of the State of Kuwait who can become academic staff members. At present (August 2003), only two out of 22 academic staff are Kuwaiti citizens, with a further two presently on doctoral studies in the USA on university scholarships. They should join the Faculty as Assistant Professors after they finish their studies. All teaching assistants are citizens of Kuwait. Additionally, the Faculty will contribute to establishing a foundation for continuing professional development of pharmacists. This will be done in collaboration with the Kuwait Institute of Medical Specialization (KIMS) and the Kuwait Pharmaceutical Association (KUPA) through providing graduates with the skills necessary for life-long learning as encouraged by the WHO¹⁶ and in organizing courses and symposia appropriate for practicing pharmacists to maintain and expand their professional knowledge base.

Future for Pharmacy in Kuwait

Pharmacy in Kuwait finds itself with a precious opportunity now that it has a local university-based training center for professional pharmacists. Which path will it take as it absorbs the new graduates and sees its human resources expand each year? At present, pharmacy services in hospitals are still largely confined to the dispensary apart from a few isolated initiatives at individual institutions, which have been warmly welcomed by our professional associates. With the co-operation and

collaboration of professional societies, the Faculty and the Ministry of Health, it is possible to extend the activities of pharmacists to use the skills which they acquire during training so as to share the clinical responsibilities for the betterment of the patient. There is scope for the recognition of specializations within Pharmacy, e.g. ambulatory care, cardiovascular, drug information, regulatory pharmacists, which would require setting of training and accreditation standards and development of the curriculum along appropriate lines. Redefining the clinical roles of pharmacists in Kuwait's institutions would also require the re-evaluation of the advancement structure and salary scales for pharmacists in the Ministry of Health to provide incentive for advancement. Community pharmacy services could also be enhanced in line with pharmaceutical care and Good Pharmacy Practice principles through appropriate training programs and assessment procedures. To decide on the future direction and to recognize and address perceptions and concerns that there might be for such developments, a national convention of interested parties will need to be held with all stakeholders. Change need not be wholesale, it can come in small steps – but the need for change and the benefits it can bring need to be stated and recognized for development and advancement to occur.

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