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DOI: 10.2146/ajhp120415 · Source: PubMed

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Pharmacy in Iraq: History, current status, and future directions

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AND BERNARD SOROFMAN

Am J Health-Syst Pharm. 2013; 70:368-72

The Pharmacy Abroad section of AJHP features brief, informal, and topical communications related to pharmacy in other countries. Contributions are welcomed from pharmacists abroad or from pharmacists who have traveled abroad.

AJHP also encourages pharmacists from outside of the United States to submit traditional manuscripts (e.g., scientific studies, descriptions of practice innovations), which are evaluated for publication in the primary sections of the journal.

Iraq is a Middle Eastern country with a population of approximately 32 million.¹ Arabic is the first and Kurdish is the second official language of Iraq; the most commonly spoken foreign language is English.

Iraqi medical personnel commonly use English for communication during their practice activities in hospitals, and English is used for all teaching, writing, and communication in colleges of the medical sciences (medicine, pharmacy, and dentistry). These institutions use medical and pharmaceutical references (texts and journals) that are written by authors in the United States and the United Kingdom.

At the time of writing, there were 25 government-operated and 27 private universities in Iraq.² The largest university is the University of Baghdad, which comprises 25 colleges with a total of 70,000 undergraduate and 10,000 graduate students (the university's first college, the college of law, was founded in 1908).³ The second largest university in Iraq is the University of Mosul, founded in 1967, which has 23 colleges.⁴

Contemporary pharmacy in Iraq. The history of modern pharmacy in Iraq began in 1936, when the first college of pharmacy was founded; at the time, it was called the Royal College of Pharmacy and Chemistry.

Administratively, it reported to the Ministry of Health (MOH), which was founded in 1920. Throughout the first decades of pharmacy in Iraq, practitioners were called "chemical pharmacists" because they graduated from the college as specialists in both pharmacy and chemistry. In 1957, the college was merged with the University of Baghdad and renamed as the college of pharmacy. After that, new graduates received a bachelor's degree in pharmaceutical sciences. Master's- and doctorate-level studies in the college of pharmacy were first offered in 1972 and 1975, respectively.⁵

Many students from other Arabic countries have graduated from the University of Baghdad college of pharmacy's undergraduate and graduate programs. The majority of those Arabic students were Jordanians, Yemenis, Syrians, and Palestinians. From 1936 to 1991, there was only 1 college of pharmacy in the country. Beginning in 1992, another 16 colleges of pharmacy (12 governmental and 4 private institutions) were founded (Table 1).² Education at the governmental colleges is free, which is not the case at private colleges. Iraqi high-school graduates who earn an average score of not less than 92% on the preadmission baccalaureate exam can enter one of the governmental colleges of pharmacy. The completion of a bachelor's degree in pharmacy takes 5 years. Hence, the average age of Iraqi pharmacy school graduates is 23 years.

The periods of study required for master's and doctorate degrees in pharmacy are two and three years, respectively. The two-year master's program at the University

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The authors have declared no potential conflicts of interest.

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DOI 10.2146/ajhp120415

of Baghdad's college of pharmacy includes two semesters of specialized courses and one year of research. Doctorate studies comprise three semesters, a comprehensive examination, and 18 months of research. Graduate students of pharmacy can choose one of six disciplines: clinical pharmacy, clinical laboratory sciences, pharmaceuticals, pharmaceutical chemistry, pharmacognosy, and pharmacology and toxicology. All administrative and financial aspects of both undergraduate and graduate studies are governed by the Ministry of Higher Education and Scientific Research, which requires that doctorate applicants have a master's degree.

Pharmacy work force in Iraq. The ratio of pharmacists to the population in Iraq is approximately 1:2887; unfortunately, there are no accurate data about the ratio of male to female pharmacists in Iraq. Most of the pharmacists who graduated from 1990 to 2003 were men because, during that time, the admission policies of colleges of pharmacy required lower admission scores for men than for women. Since such policies were abolished in 2003, the majority of graduates have been women.

As of April 2011, there were around 10,380 registered pharmacists in the Syndicate of Iraqi Pharmacists (SIP), a professional organization whose purview encompasses 15 provinces, or governorates.⁶ Furthermore, as of May 2012, there were 968 registered pharmacists in the Syndicate of Iraqi-Kurdistan Pharmacists, whose purview includes 3 provinces in the Kurdistan region of Iraq.⁷ Thus, the total number of registered pharmacists in Iraq is about 11,347 (Table 2). There are approximately 6,220 pharmacists in Baghdad practicing in different fields.⁶ The primary practice sites are the governmental hospitals, followed by community pharmacies, teaching institutions, and the pharmaceutical industries. After graduation, each pharmacist can be qualified as a reg-

istered pharmacist in SIP. Almost all of the newly graduated pharmacists serve a one-year rotation at one of the governmental hospitals, with two more years of service at one of the MOH health centers in remote villages or towns, before they become practicing pharmacists.

The pharmacist's workday in public hospitals is generally 7 hours (from 8:00 a.m. to 3:00 p.m.). After 3:00 p.m., pharmacists may have their own private business in a community pharmacy; this is known as part-time community pharmacy practice. Retired pharmacists and

Table 1.
Colleges and Schools of Pharmacy in Iraq²

Institution	Year Founded
College of Pharmacy, University of Baghdad	1936
College of Pharmacy, University of Mosul	1992
College of Pharmacy, Hawler Medical University	1997
College of Pharmacy, University of Basrah	1999
College of Pharmacy, University of Kufa	1999
College of Pharmacy, University of Mustansiriyah	2000
Baghdad College of Pharmacy ^a	2000
College of Pharmacy, University of Tikrit	2002
School of Pharmacy, University of Sulaimania	2004
College of Pharmacy, University of Karbala	2006
Department of Pharmacy, Al-Yarmouk University College ^a	2006
School of Pharmacy, University of Duhok	2009
College of Pharmacy, University of Babylon	2010
Department of Pharmacy, Al-Rasheed University College ^a	2010
College of Pharmacy, University of Al-Anbar	2010
College of Pharmacy, Thi-Qar	2012
Department of Pharmacy, Al-Rafidain University ^a	2012

^aPrivately operated.

Table 2.
Registered Pharmacists in Iraq, by Province^{6,7}

Province(s)	No. Pharmacists
Baghdad	6,220
Nainawa	776
Basrah	488
Babylon	452
Al-Najaf	383
Karbala	319
Kirkuk	288
Dhi Qar	245
Wasit	235
Salahaddin	228
Diyala	208
Al-Anbar	182
Al-Qadisiyyah	146
Maysan	113
Al-Muthanna	96
Arbil, Duhok, Sulaymaniyah	968 ^a
Total	11,347

^aCumulative number for three provinces.

those who have no governmental job are permitted to practice in a private business (a pharmacy, a “drug store” [see below], or a scientific bureau) for 24 hours a day if they are licensed to practice full-time.

Iraqi drug stores—essentially equivalent to drug wholesalers in the United States—are the major distributors of drugs and other pharmaceutical products, with connections to national pharmaceutical companies, private community pharmacies, and “scientific drug bureaus” (Figure 1). The functions of the scientific drug bureaus are the trading and scientific promotion of pharmaceuticals and medical appliances; pharmacists must have a specific license to practice within these entities. There are 5336 community pharmacies, 311 drug stores, and 296 private scientific drug bureaus registered with SIP.⁶

All pharmacists in Iraq are members of SIP, which is a nongovernmental organization. The syndicate was founded in 1967 in Baghdad and authorized to license community pharmacies, drug stores, and scientific drug bureaus; after a pharmacist has completed three years of practice in public hospitals or other MOH institutions, he or she can apply for a license to practice in one of those

three settings. When applying for such a license, the pharmacist must satisfy the requirements for practicing within a private business, as stipulated by laws governing pharmacy practice in Iraq.

Community pharmacy practice. The majority of community pharmacies in Iraq are distributed within the big cities. The total number of community pharmacies in Baghdad, Mosul, and Basrah exceeds the number of pharmacies in all other Iraqi cities combined. SIP requirements for community pharmacies specify that the size of the pharmacy must be at least 20 m² and the distance between pharmacies at least 25 m. Moreover, a community pharmacy should have glass-doored cabinets at least 10 m long for storing medicines, a refrigerator, air conditioners, a compounding bench, full water and electricity supply facilities and sewages, a personal computer, official labels, a bar-code scanner or reader, adequate furniture for patients, and the required facilities for compounding, mixing, and weighing compounded prescriptions.⁶ Iraq does not have chain pharmacies.

At any given time, a pharmacist is allowed to have a license for only one private business (e.g., a community pharmacy). Before getting a license,

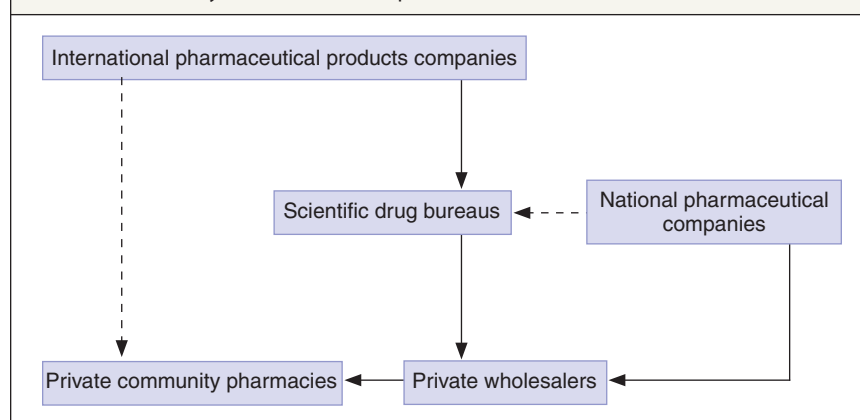
a pharmacist can work in a community pharmacy as an assistant under the full supervision of a licensed pharmacist. Furthermore, a community pharmacy may employ one or more “pharmacy technicians,” or assistants, who must earn a two-year limited diploma in pharmacy.

Hospital pharmacy practice. As mentioned previously, the second most common pharmacy practice setting in Iraq is the public hospital system. In public hospitals, there are four pharmacy practice roles: (1) manager of the drug store (these inhouse drug stores are different from the wholesaler-type facilities described above), which contains all of the hospital’s stock of drugs, (2) “internal pharmacy personnel,” with responsibility for the distribution of medicines to the hospital inpatient wards, (3) outpatient pharmacist, with responsibility for dispensing medicines to ambulatory care patients, and (4) clinical pharmacist, whose practice activities center on patient-focused pharmaceutical care rather than dispensing.

The number of clinical pharmacists in a given hospital depends on the hospital’s size, number of floors, and capacity. Usually, there are one or two clinical pharmacists for each hospital ward. At Baghdad Teaching Hospital, one of the biggest hospitals in Iraq, there are many clinical pharmacists.

Clinical pharmacy practice. The opportunities for Iraqi pharmacists to assume clinically oriented practice roles have grown over the last 20 years. In order to become clinical pharmacy specialists, pharmacists must have a master’s or doctorate degree in the field. Those specialized degrees are awarded by the clinical pharmacy department of the University of Baghdad’s college of pharmacy; the department was founded in 1992. In 2011, a process of certification by the Iraqi Board of Clinical Pharmacy was approved. This certification requires 4 years of

Figure 1. Distribution of medications approved by Iraq’s Ministry of Health in the private sector. Solid line indicates more commonly used distribution channel; dashed line indicates less commonly used channel. Adapted with modifications from reference 8.



preliminary coursework and clinical training in teaching hospitals. This recognition, similar to board certification of medical specialists, is considered to be equivalent to a doctorate degree and is being offered for the first time during the current (2012–13) academic year.

Clinical pharmacy programs offer a limited number of positions for newly graduated pharmacists every year. Pharmacists apply for a clinical pharmacy program by a competitive process (an examination plus their class rank upon graduation). A clinical pharmacy program is training and does not result in an additional degree. Unlike other pharmacy school graduates, clinical pharmacy practitioners have the privilege of choosing the city and the hospital where they intend to work.

Functions of clinical pharmacists in Iraqi hospitals include supplying medications to inpatients, educating patients about the proper use of medications, providing physician and nurse consultations, and other patient-focused activities.

Regulation of pharmacy practice. The practice of pharmacy within community pharmacies in Iraq is regulated by SIP and MOH. In public hospitals, pharmacy practice is governed by laws enacted by MOH, which has since its creation been managed exclusively by physicians. MOH is responsible for the administration of all Iraqi hospitals and health care institutions.

SIP and MOH conduct regular inspections and other oversight activities in order to ensure community pharmacies' compliance with government regulations and laws. Sanctions imposed on pharmacists who violate the law can range from temporary closure of a pharmacy to revocation of a pharmacy practice license.

Regulation and distribution of drug products. Iraqi pharmacists are involved in many MOH committees and directorates, such as the

National Committee for Drug Selection (NCDS), the Drug Registration Committee (DRC), the Quality Control Department (QDC), and the State Company for Marketing Drugs and Medical Appliances (KIMADIA). Their activities include medication approval, registration, quality assurance, and distribution. NCDS, whose members are pharmacists and physician specialists in various disciplines, controls the approval of medications for marketing in Iraq according to the needs of patients. Approved medications are regulated by DRC (part of the Department of Registration within the MOH Directorate of Technical Affairs), which is responsible for registration of drugs by MOH. QDC, which also operates under the aegis of the Directorate of Technical Affairs, includes 107 pharmacists⁹ and is responsible for premarketing quality-control evaluations of medications.

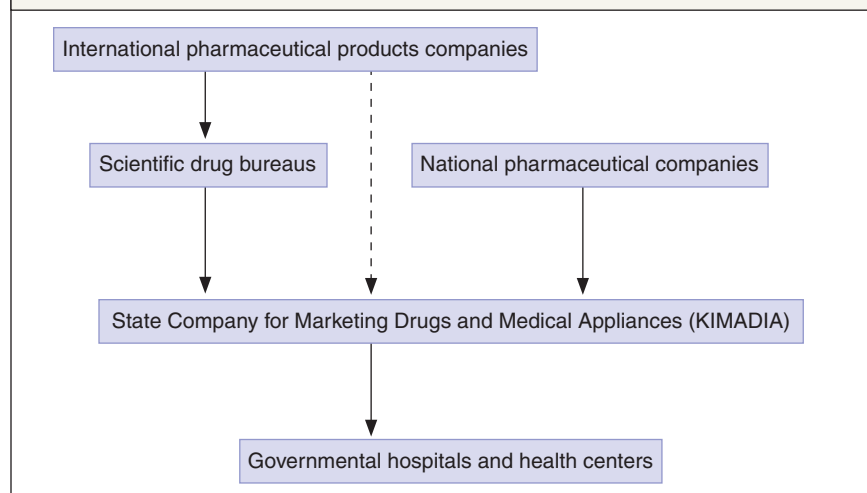
From its founding in 1964 until 2003, KIMADIA was responsible for importing, storing, and distributing medications in both the public and private sectors. Starting in 2003, KIMADIA assumed responsibility for supplying drugs and medical

appliances to public hospitals and health centers only.¹⁰ KIMADIA can buy medications either directly from international and national pharmaceutical companies or through Iraq's scientific drug bureaus.

Scientific drug bureaus are the main source of medications and other pharmaceutical products used in the private sector. These bureaus are agents of national and international pharmaceutical companies. They provide medications to drug stores (i.e., wholesale outlets) and some pharmacies (Figures 1 and 2); in addition, pharmacists who operate private pharmacies can order their medication supplies from the drug stores.

Pharmaceutical industry and market. Today, the Iraqi medication market includes about 8648 trade names registered with the MOH Directorate of Medical Affairs.⁹ Medications available in Iraq are produced by both national and international pharmaceutical companies. There are 28 registered national pharmaceutical companies in Iraq.⁹ The biggest domestic producer is the Samarra Drug Industry (SDI), which was founded by the government in 1957. SDI has the country's

Figure 2. Distribution of medications approved by Iraq's Ministry of Health in the public sector. Solid line indicates more commonly used distribution channel; dashed line indicates less commonly used channel.



largest pharmaceutical production facilities and the greatest share of the Iraqi drug market. In addition, there are approximately 1026 international companies registered by MOH.⁹ After 2003, the Iraqi private pharmaceutical sector was opened to all international companies. Companies operating in Iraq are based in Arab countries, Asia, Europe, the United States, Canada, and Australia. All international companies exporting medicines to Iraq must be registered with MOH.

Future of pharmacy in Iraq. Pharmacy in Iraq has undergone dramatic changes in the last two decades. The number of Iraqi pharmacists has greatly increased, especially during the last two decades, with 15 new colleges of pharmacy established during that period.^{11,12} The pharmacy profession in Iraq has achieved many advances, especially in the field of clinical pharmacy. As in the United States, in Iraq pharmacists are now looking for more opportunities to improve patient care as members of the health care team. As the number of pharmacists in Iraq continues to rise, their role in health care will become more prominent.

A major challenge for pharmacists in Iraq relates to health care funding

mechanisms. The concept of health insurance is not yet popular in Iraq. In contrast to health systems in the United States and many other countries, Iraqi health care institutions do not operate within an insurance-driven system; indeed, there are no health insurance companies operating in Iraq.

Iraqi medical centers are either government run or privately operated. Governmental institutions that serve the public provide services free of charge, while private institutions require cash (out-of-pocket) payment. In Iraq, the public sector is considered the major health care provider because it offers relatively good services at no charge. Since Iraqi patients have depended on free public medical services for more than a century, they will not easily accept the concepts of privatization and health insurance.

If health insurance plans are established in Iraq, it is likely they will initially cover only the services of private hospitals, clinics, and pharmacies. That scenario would require that pharmacists in Iraq continue to take the initiative in developing practice roles and promoting regulations to advance the practice of pharmaceutical care by making a personal

investment in advanced education and ongoing skills development.

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