

## LETTERS

### Current State of Pharmacy Education in the Sudan

*To the Editor.* The last decade has witnessed a great interest among Sudanese regarding pharmacy education. This resulted in establishment of a large number of pharmacy schools and continued submissions for approval of new ones. Currently there are 14 schools (5 public and 9 private), all but one of which are located in Khartoum. Their combined annual admission is about 1800 students (60-400 students per university), with fewer male students than female students (1:4). The undergraduate admission policy of these schools is governed by the Board of Higher Education of Sudan, which sets the minimum admission requirement as a "predetermined percentage" in Sudan High School Certificate (SHSC). Now pharmacy has become second only to medicine among students' choices for university education.

The top SHSC students (about 700 out of 423,000) are usually admitted to the faculties of medicine, pharmacy, and dentistry at the University of Khartoum. Established in 1902, the University of Khartoum is the oldest and largest university in the country and graduates about 16,800 bachelor and 6,000 postgraduate students annually. The Faculty of Pharmacy at the university was established in 1964 and remained the only one for 3 decades. Before 1991, the number of students enrolled in the 5 years bachelor program was less than 200. As of 2009-2010, there were approximately 860 pharmacy students (330% increase) and about 170 graduate each year. The undergraduate curriculum follows the traditional full academic year system. The total number of hours for the bachelor of pharmacy degree (BPharm) is 3960 hours (4 years, excluding the preliminary year) and consists of 1680 hours of theory (42.4%) and 2280 hours of experiential work (57.6%). Additionally, students have 200 hours of training at a community or a hospital pharmacy after the second and third years, and 200 hours of pharmaceutical industry training at the end of the fourth year. Although some clinical aspects are taught sporadically throughout the curriculum, the majority of the teaching and practical training is product focused. Teaching methods are confined to large group lectures using the white board and multimedia projection and small group practical sessions. Traditional written, practical, and oral examinations and assignments are used to evaluate students' learning. The curricula and methods of teaching and evaluation are more or less similar at all pharmacy schools in the Sudan. The only exception is that some schools follow what is called a modified semester system where the academic year is divided into 2 semesters and each semester is evaluated separately.

The challenges facing Sudanese pharmacy schools are finding the means with which to keep pace with recent developments in pharmacy education given the actual needs of our country and the facilities available. At present, the facilities, manpower and other resources available do not allow full operation of a patient-focused doctor of pharmacy (PharmD) or master of pharmacy (MPharm) degree program in Sudan. The most suitable alternative is to start by offering 2 options for the first pharmacy degree: bachelor of pharmacy (BPharm) or master of pharmacy (MPharm) to allow for a smooth transition between them.

Clinically oriented teaching involves the availability of qualified clinical pharmacists for the supervision and follow-up of clinical activities as part of the curriculum. The country lacks such human resources. Accordingly, a 2-year master in clinical pharmacy (MCP) was established by the Faculty of Pharmacy, University of Khartoum, in 2004 before modification of the undergraduate curriculum. The program is the first of its kind in the country and attracts 70-100 applicants annually. Although class size is initially limited to 20 students, high demands on the program, especially by the Ministry of Health and other universities, have forced the Faculty to extend to 30 students. To date, the program has graduated 141 clinical pharmacists. Parallel to establishment of the MCP degree, restructuring of the pharmacy at the University of Khartoum-affiliated Soba Hospital to introduce modern services for clinical pharmacy training and practice was initiated. This was considered as a major breakthrough in hospital pharmacy service upgrading which was unprecedented by any other development for the past decades.

Unfortunately, undergraduate curriculum development is held back by many constraints such as interdepartmental conflicts regarding the belonging of clinical pharmacy, fear among some academics that patient-focused teaching will replace their subjects, and shortage of qualified academic staff members. These difficulties need to be resolved in order to provide an educational program that can appropriately address contemporary and foreseeable future changes in the pharmacy profession. This requires a high level of collaboration between all involved parties.

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### Social Pharmacy Courses Are Often Neglected in the Developing World

*To the Editor.* Contemporary pharmacy professionals are one of the major contributors to health care systems in

developed countries. Increasing demands for pharmacy trained professionals in response to the rapid growth of the health care and pharmacy industry are reminders of the beneficial roles of pharmacists in health and health care issues. This is probably due to the fact that in these countries, the role of the pharmacist has transformed from being merely a medicine compounder and dispenser to one having importance in many other areas. Besides providing manufacturers with technical information on drug composition, counseling health professionals, ie, physicians and nurses, on how to select and use drugs, pharmacists' responsibilities in the developed world include patient wellness, health promotion and education, disease prevention, and family planning. This ability to assume a pivotal role in the health care sphere and act as a watchdog over the well-being of people requires appropriate skills. In fact, in recent years, there have been exciting changes in pharmacy education in developed countries. Difficulties in meeting health care needs and inadequacies in patient services among others have led to the redirection of pharmacy education from a product to a patient orientation. Also, continuously innovating and incorporating components of pharmaceutical sociology as advocated by the Nuffield Foundation<sup>1</sup> has played an important role in the progression of academic and practice orientation in developed countries.

Over the last 30 years, pharmacy institutions and pharmacy training in the developed world have increasingly involved commitments in upgrading education through modernizing facilities, well-trained senior staff members, emphasizing subjects including hospital pharmacy, clinical pharmacy, biopharmaceutics and toxicology, and pharmacy practice. This provided opportunities for active and continuous interaction and collaboration between industries and academic institutions. Pharmacy curricula also have been changed by incorporating pharmaceutical sociology components, ie, social pharmacy, to provide pharmacy undergraduates with more opportunities and exercises that promote constant interaction with communities. Pharmacy practice continues to move from a focus on products to a focus on patients in the developed world and in countries such as the United Kingdom, the system for pharmacy education is predicted to continue evolving over the coming years to meet and anticipate changing roles for pharmacists within the health care system.<sup>2</sup>

In contrast to the developed world, an substantial proportion of the population of developing countries has a higher level of unmet health needs.<sup>3</sup> Factors associated with this situation include some specific challenges, ie, societal factors, health care deficiencies and more importantly a shortage of health care professionals. The World Health Organization (WHO) has long believed that pharmacists

could make a greater contribution to the provision of health care.<sup>4</sup> To this end, this institution has launched many strategies for developing countries. Addressing the strategies by which primary health cares can be improved, the World Health Organization has argued, since the last decade, for the need to focus on strategies towards using pharmacists as active health professionals.<sup>5</sup> It also has been suggested for the need to increase the participation of pharmacists in all levels of the public health system, which is fundamental to achieving substantial improvement in the health status of populations as well as to achieving full preparedness to respond to any type of mass casualty event. There is a close relationship between the training received and the type of pharmacy practice. Indeed a pharmacy student trained with more health care dispositions will tend to play an important role in the health care system than a student trained with less emphasis on health care management. In an effort to address strategies on which to base the preparation of future pharmacists, WHO has suggested the need for graduate level education followed by one year of practical training before one is capable of effectively performing the role of a pharmacist. In another attempt to promote the production of future pharmacists with social responsibilities, WHO pinpointed seven roles to which education and professional development of pharmacists should aspire; these are caregiver, decision-maker, communicator, leader, manager, life-long learner and teacher<sup>6</sup>.

Overview on the recent literature on pharmacy education has shown that while in the developed world ideal frontline pharmacists of the future (or 7 star pharmacists) are increasing in number, efforts to incorporate social pharmacy in pharmacy training are just in the curtain-raiser in many developing countries. The notion of social pharmacy, the key course that has rendered pharmacists of the developing countries to become active health care managers, is still unknown in most parts of the developing world. A common characteristic of these countries is that health care systems are generally deficient and the number of health care professionals is insufficient to meet increasing health needs. One way to overcome this impediment would be the provision of health care by pharmacists trained with more social and behavioral aspects of illness and health as well as opportunities of constant interactions with communities; this is mandatory to the incorporation of more pharmaceutical sociology components in current pharmacy curricula.

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## REFERENCES

1. Nuffield Committee of Inquiry into Pharmacy (NCIP). Pharmacy: A report to the Nuffield foundation. London: Nuffield Foundation, 1986.
2. Sosabowski MH, Ingram MJ. 21st century issues in pharmacy education in the United Kingdom. *Am J Pharm Educ.* 2003;67: Article 122.
3. Mohindra KS. Healthy public policy in poor countries: tackling macro-economic policies. *Oxford J Med Health Promot Intl.* 2007;22:163-169.
4. Capper SA, Sands CD. The vital relationship between public health and pharmacy. *Int J Pharm Educ.* 2006; 2:1-3. Available: <http://www4.samford.edu/schools/pharmacy/ijpe/206/capper.pdf>. Accessed October 25, 2010.
5. World Health Organization (WHO). The role of the pharmacist in the health care system. Geneva: World Health Organization; 1988.
6. World Health Organization (WHO). The role of the pharmacists in the health care system preparing the future pharmacy: Curricular Development, Report of a third WHO consultative group on the role of the pharmacist. Vancouver, Canada, August 27-29, 1997.