



Opinion

Current challenges in pharmacy education in Bangladesh: A roadmap for the future

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Abstract

Global pharmacy education has dramatically shifted away from its original product-oriented focus toward a patient-oriented clinical curriculum. Accordingly, many developing countries have introduced the Doctor of Pharmacy (PharmD) program without securing adequate infrastructure and resources that align with health care policy. Several challenges in the current pharmacy education in Bangladesh have been identified. Over 90% of the entry-level Bachelor of Pharmacy (BPharm) curriculum emphasizes on product-oriented knowledge whereas only ~5% of the total course credits are allocated toward clinical pharmacy. This curricular framework indicates a minimum emphasis on patient care education. Furthermore, two universities of Bangladesh (University of Dhaka and North South University) are currently considering offering the PharmD program. This attempt appears to be highly ambitious, given the lack of infrastructure, clinical educators, curricular alignment with clinical education and practice, and an appropriate health care policy. Moreover, as of now, there are no patient care roles of BPharm graduates in clinical or community practice settings in the country. Thus, a number of issues need to be addressed prior to considering PharmD programs in Bangladesh. This article assesses the current status of pharmacy education in Bangladesh, identifies the challenges toward implementation, and proposes a transitional model for the development of a PharmD program.

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Introduction

Bangladesh, a relatively small country of South Asia, introduced its first pharmacy degree program in 1964 at University of Dhaka as a three-year Bachelor of Pharmacy (BPharm). The University of Dhaka remained the sole institute offering pharmacy education for two decades thereafter.¹ An additional one-year Master of Pharmacy (MPharm)

degree program was introduced at the same university in the late 1960s.¹ In 1985, Jahangirnagar University became the second institution in the country to participate in pharmacy education. Until the early 1990s, higher education in Bangladesh was solely imparted by six public universities. Subsequently, the emergence and phenomenal growth of both public and private universities,² as well as the rapid industrialization in the pharmaceutical sector, contributed to the dramatic expansion of pharmacy education in Bangladesh. At present, pharmacy degrees are offered by seven public and 22 private universities.³ In 1996, the three-year BPharm program was upgraded to a four-year program.⁴

In line with the recent trends in global pharmacy education, Bangladeshi pharmacy schools are now

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considering the possibility of introducing the PharmD program. This article discusses the current status and challenges of pharmacy education in Bangladesh while providing a roadmap for introducing a patient-oriented PharmD program. Information on various pharmacy programs in Bangladesh was collected from university websites, as well as through e-mail and/or telephone inquiries as necessary.

Current pharmacy programs in Bangladesh and their curricular structure

BPharm is the current entry-level professional pharmacy degree offered by Bangladeshi universities. After the completion of formal higher secondary (12th grade) education with a science concentration, a student can apply for admission in the four-year BPharm program. A four-year BPharm program requires completion of a total of 154–164 credit hours. **Figure 1** shows the curricular structure of the four-year BPharm program at University of Dhaka,⁵ which was largely modeled on other pharmacy programs in the country. Over 90% of the BPharm courses emphasize pharmaceutical chemistry, basic biomedical sciences (physiology, pharmacology, pathology, biochemistry, and microbiology), and pharmaceutical technology. Most courses include a laboratory component that comprises 15–18% of the course load. Clinical science courses are largely absent in the curriculum. Only ~5% of the total credits have been assigned toward pharmacy practice-based courses such as clinical pharmacy, hospital, and community pharmacy (**Fig. 1**). Experiential education includes a brief three- to four-week internship, in most instances, in a pharmaceutical production facility. This internship program is not well-defined nor does it follow any standardized curriculum.

In 2010–2011, University of Dhaka upgraded its four-year BPharm to a five-year BPharm professional program. In the new program, more than 85% of the five-year curriculum is devoted to courses focusing on basic and industry-based pharmaceutical sciences. The curricular

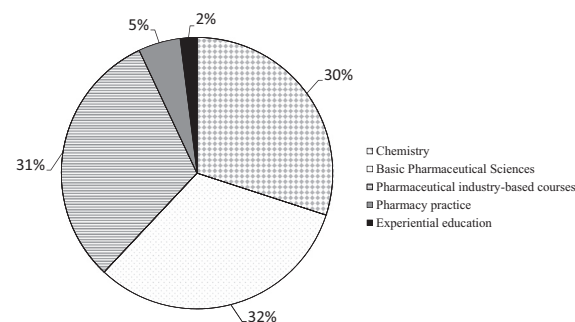


Fig. 1. The curricular content (by percentage of total credit hour) of the four-year BPharm program in Bangladesh. This curricular structure was originally developed by University of Dhaka (2008–2009) which was largely modeled on other pharmacy schools in the country.

changes included incorporation of several pharmacy practice-based courses (12% of the curriculum) and a three-month hospital internship at the end of the fifth year. Pharmacy practice/clinical courses that have been embedded into the five-year BPharm professional program include (i) Introduction to Pharmacy, (ii) Functional Foods, Nutraceuticals, and Herbal Medicine, (iii) Biostatistics and Bioinformatics, (iv) Disease Management, (v) Clinical Pharmacokinetics, and (vi) Pharmacy Practice. Interestingly, the driving force for such curricular changes is to prepare graduates to work in the United States.^{3,6} The revised program aligns with the United States National Association of Boards of Pharmacy (NABP) requirement of five-year of entry-level pharmacy education for foreign pharmacists applying for Foreign Pharmacy Graduates Equivalency Certificate (FPGEC) examination.

Postgraduate degrees that are offered include MPharm, Master of Philosophy (MPhil), and Doctor of Philosophy (PhD). To pursue a MPharm degree, a student may choose either a general (non-thesis) pathway or a research pathway to complete the one-year program that relies heavily on advanced pharmaceutical science- and industrial pharmacy-based courses. The MPhil (two-year) and PhD (four or more years) programs are highly research intensive.

Launching of PharmD in Bangladesh: Implications and challenges

With the advent of patient-centered pharmaceutical care,⁷ the global approach in pharmacy education has shifted toward a more inclusive clinical focus. This approach ensures that future pharmacy graduates are competent in a highly functional multidisciplinary health care team with expanded roles in patient care.⁸ The PharmD program in the United States is the archetypical practice-based model that evolved from a “product-based” pharmaceutical science curriculum to a more “patient-oriented” curriculum.⁹ Similarly, other developed countries including the United Kingdom,¹⁰ Canada,¹¹ France,¹² and Australia¹³ have all blended clinical pharmacy and practice-based courses in their curriculum with experiential training at practice sites. With the upsurge in clinical pharmacy, India,¹⁴ Nepal,¹⁵ Pakistan,¹⁶ and several Middle Eastern countries¹⁷ have also launched PharmD programs. Following the same trend, Bangladesh pharmacy schools are also planning to launch a PharmD program. The current five-year BPharm professional program in the University of Dhaka is in the process of changing its name to a “PharmD” program.³ North South University, a top-rated private university that has been offering four-year BPharm and one-year MPharm, is also planning to introduce a six-year PharmD program.¹⁸

The introduction of a PharmD program in developing countries is an enormous undertaking.^{19,20} From Bangladesh perspective, the current status of pharmacy practice and lack of government awareness of the profession

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