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## The Pharm.D. in Pakistan: A Curricular Innovation in Health Systems Instruction

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The profession of pharmacy in Pakistan is rapidly emerging as the backbone of the healthcare system. Pharmacists are demanded not to be mere dispensers, but are considered to be competent and skillful enough to administer and counsel for safe, cost effective and judicious use of medicines.

The World Health Organization (WHO) recommends a pharmacist/population ratio of 1:2000 for the best possible healthcare delivery. To meet this ratio, there is gargantuan need of pharmacists around the globe. Pakistan is not an exception and has been far short of the WHO recommendation. Within two decades a large number of pharmacy educational institutions emerged to cope with the national and international need for a larger pharmacist workforce. The recent change of professional qualifications from Bachelor of Pharmacy (BPharm) to Doctor of Pharmacy (Pharm D) has raised important questions with regard to curricular contents and their implementation. Much had been written about the pharmacy education system, curricular contents, and their practical applications.<sup>1,2</sup> A major issue that has emerged is to train Pakistani pharmacists in a manner which can fulfill the societal demands.

In Pakistan where 77% of medicine expenditures are out-of-pocket and more than 65% of the population earns less than US\$ 2 per day, affordability of medicines is a critical issue. Like many other developing countries, pharmacists are the first point of contact to patients in Pakistan and thus, training of the pharmacist according to the need of the healthcare system must be the core of pharmacy education and professional training. In order to make the pharmacist aware of the healthcare system and the availability of the vital components like essential drugs and generic drugs, which can serve as cost-effective modalities to a highly vulnerable population of Pakistan, we, in the capacity of Dean and our Executive officer, Faculty of Pharmaceutical Sciences, Baqai Medical University, would like to bring to the notice of interested readers the development of a highly important and timely, relevant lecture on the Healthcare System of Pakistan with special emphasis on Generic Medicine Utilization. This two-hour didactic lecture will occur in our

final year of the Pharm D program. The topics and subtopics to be covered will be followed by a one-hour interactive discussion. This initiative is an innovative curricular component that will be in place in the near future. This will help to build a **'Prescribe and/or Dispense Cost-Effective Regimen Program'** as an approach to increase affordability of medicines. A summary of the topics and subtopics is outlined in Table 1.

We duly acknowledge the contribution of the Discipline of Social and Administrative Pharmacy, Universiti Sains Malaysia in selecting our institution as the site for conducting a study on 'Understanding and Perception of Generic Medicines among Final Year Pharm D students', which made us aware and sensitized us to the utility of teaching healthcare system components to our students. We thank Professor Mohamed Izhah Mohamed Ibrahim, Mohamed Azmi Hassali (research guides) and in particular Ms Shazia Jamshed (principal investigator) for developing and executing an interventional lecture on Generic Medicines and their Quality Utilization in the Healthcare System of Pakistan. An educational outreach to future practitioners was recommended in the research proposal of this project<sup>3</sup>. The successful execution and implementation of a part of this project, both qualitatively<sup>4</sup> and quantitatively will prove to be a milestone in the nascent pharmacy practice system of Pakistan. Moreover, this innovative approach, if adopted by other developing countries, will help to build a program to prescribe and dispense cost-effective regimens to economically vulnerable masses in those regions.

In summary, to initiate and implement a curricular change, which is itself a multifaceted matter, the incorporation of the above-mentioned strategy of didactic lecture and discussion, will be of assistance to many schools. To augment the faculty's current instruction, a study is in offing which will address student needs for information on access to medication in Pakistan.

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TABLE 1: Lecture and Discussion Topics

S.No.	TOPICS/SUBTOPICS	CONTENTS
1.	<b>Healthcare System</b>	A brief outline of healthcare system of developing countries Special emphasis is being placed on Pakistan National Drug Policy Essential Drug list
2.	<b>Access and affordability of medicines</b>	Division of population with reference to income group,socioeconomic condition Scenario of Social Health Insurance in Pakistan
3.	<b>Pharmaceutical Industry</b>	Multinational pharmaceutical industry Local pharmaceutical industry Market share of local pharmaceutical industry
4.	<b>Cost-effective modalities</b>	International Nonproprietary Names (INN) Innovators Patent Case study (alprazolam) Generic medicines Classification and their utilization Medicine prices in Pakistan Generic prescribing Generic dispensing
5.	<b>Healthcare Professional</b>	Role of the pharmacist Special emphasis on cost-effective regimens