



Present and Future of Pharmaceutical Education and Pharmacy Profession in India

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COMMENTARY

Please cite this paper as: Rakesh Patel. Present and Future of Pharmaceutical Education and Pharmacy Profession in India. *IJPTP*, 2012,3(4),384-386.

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GENERAL

Pharmacy education introduced in India in 1937 by Prof MM Malaviya and Prof ML Schroff in BHU has undergone dramatic changes over the past few decades but yet nowhere near the international standards. In India, the profession of pharmacy is still in its developing stages and is yet to bloom to its fullest extent. It covers opportunities in pharmaceutical industry – research & development, manufacturing & retail, healthcare sector, pharmacy education, and regulatory bodies. The current availability of pharmacists in terms of pharmacist to population ratio compares favourably with that in developed country. However, the number of registered pharmacists does not reflect the actual number of pharmacists currently involved in pharmacy practice. Pharmacy education in India is largely industry oriented. Indian pharmaceutical industry with its tremendous growth capacity has several job opportunities. However, the graduates who pass out do not get employment easily due to their poor training, lack of in depth knowledge of fundamental concepts and practical skills. The quality of training provided during their education is inadequate. They require on job training of 6-18 months before they can match the requirements of the industry. The role of Pharmacist is highly significant in the sustainable growth and health care system of the country. Here the pharmacist performs a job of a drug seller and does not practice the profession independently and depends on a doctor who is the decision maker. To cater to these needs presently, B. Pharm. & M. Pharm. is available and D. Pharm. being the minimum need. The community expects more professional services from pharmacists and not as just drug sellers. The Pharmacy Council of India (PCI) defines Pharmacy as a profession which is concerned with the art and science of preparing from natural

and synthetic sources, suitable and convenient materials for distribution and use in the treatment and prevention of disease. It embraces knowledge of the identification, preservation, combination, analysis and standardization of drugs and medicines besides synthesis of new drug molecules, manufacturing of various dosage forms. All the operations in the profession of pharmacy, may it be industry, community or hospital have the lives of patients at the receiving end. Hence quality and excellence are of paramount in this profession. The course content of diploma or degree programmed provided in the country still does not cater to the above requirement. Very few institutes are providing such training where the pharmacist becomes directly involved in providing health care to the patients.

PHARMA EDUCATION – PRESENT

Pharmaceutical education plays a very prominent role in attaining sustainable and equitable development of a country. The formal pharmacy education in India two year diploma, four year degree and two year master degree programme.

Table 1: Pharmacy Education in India

Course	Entry level	Duration	Regulation
D. Pharm.	10+2	2½	PCI
B. Pharm.	10+2	4	AICTE, PCI
M. Pharm.	B. Pharm.	2	AICTE

As per PCI 2010-2011 diary calendar, at least the total numbers of recognized degree institutions are 626 with intake something of 37560 students and as per AICTE 2010-2011 total numbers of recognized degree institutions are 1102 with intake of 103867 students. The growth of pharma education initiatives taken during successive five year plans.



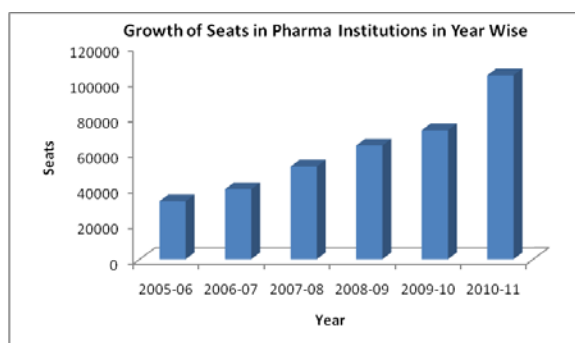
Table-2 Growth of Pharma Institutions in Year Wise

S.No.	Year	Pharmacy Institutes	Added in Year
01	2005-06	629	29
02	2006-07	665	36
03	2007-08	854	189
04	2008-09	1021	167
05	2009-10	1054	33
06	2010-11	1102	48

Table-3 Growth of Seats in Pharmaceutical Institutions in Year Wise

S/No.	Year	Seats	Added in Year
01	2005-06	32708	4680
02	2006-07	39517	6809
03	2007-08	52334	12817
04	2008-09	64211	11877
05	2009-10	72836	8625
06	2010-11	103867	31031

Note: Mention above data near about



FUTURE OF PHARMA EDUCATION

The spectrum of pharmacy profession in India is very wide. So, PCI and AICTE needs to Strengthen the implementation of the monitoring mechanism for improving quality of education & training system in pharma programme such as,



- There exist a mechanism to regularly monitor the infrastructure, manpower and other critical inputs for delivering quality education and training,

- There exists a system of teachers training & skill enhancement to develop teaching faculty in the pharmacy sector.

The quality of education and training in pharmacy institution can be effectively improved through accreditation. The process of accreditation helps in assuring minimum quality in education and training. Currently the pharmacy programmes (diploma, degree & post graduate programmes) are accredited by National Board of Accreditation (NBA) constituted by the AICTE. The PCI is exploring the option of tying up with the US Accreditation Council for Pharmacy Education (ACPE) with a view to help Indian Pharmacists get job openings in the US. The spin off benefits of updating curriculum, training, and improving the quality of education, would also help recognition of Indian pharmacy education in other countries of the world. Hope that the PCI controls and regulates the standards for a better pharmacy education in India.

PHARMACY PROFESSION IN INDIA

The spectrum of pharmacy profession in India is very wide. It covers opportunities in pharmaceutical industry – manufacturing & retail, healthcare sector, pharmacy education, and regulatory bodies. Currently there are over a million pharmacists in India with around 55% of them in community, 20% in hospital, 10% in industry and regulatory and 2% in academia In India, While more than 98% of individuals with D.Pharm degree are mainly engaged in dispensing medicine at retail or hospital pharmacies, those with B.Pharm or higher degree have a variety of opportunities to choose from. Some of these areas are given below:

Table -04 Career Options for Pharmacists

Research & Development	Production & Manufacturing	Marketing	Retail & Hospital Pharmacy
Chemist/Chemical Engineer/Pharmacologist: In new drug discovery, Process development, F&D,Clinical Trials, Bioequivalence study, Toxicological study, analytical testing	Production & Analytical Chemist/Q.C. Chemist/Q.A. Officer	Marketing Exec.-M.R. involve in pharma sales & supply.	Retail & Hospital Pharmacist involve in dispensing & store magt.
Academic : Faculty in pharmacy institute involve in teaching, training & research		Regulatory: In Govt. & Private sector involve in DRA, IPR such as copy right, trademarks etc.	



Conclusion

Over all ultimate analysis is that pharmacy profession faces an acute need to maintain (change) the quality parameter in educational and training system for recognized standard. This change deliver the quality assured product to market for challenge the present Academia, R & D and Health care system.

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AUTHORS' CONTRIBUTIONS

Authors contributed equally to all aspects of the study.

PEER REVIEW

Not commissioned; externally peer reviewed

CONFLICTS OF INTEREST

The authors declare that they have no competing interests