

Pharmacy education:

Focus on Challenges and Knowledge creation

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Key note address by Dr. Muhammed Majeed at the 7th APTI Annual National Convention held at Panjim in Goa



At the outset, I must say that some of the opinions expressed by me are based on my US experience and while they may not be relevant to the Indian Scenario now, I am certain that it will be in the future.

For over ten years now, the Harris Poll in the US has shown that pharmacists are the “most trusted” among health care professionals. The future pharmacists must be trained to maintain this trust.

The Pharmacist’s mediatory role is complex and involves moral, legal and ethical issues in addition to technical expertise. It begins with the drug development process and continues through the process of ensuring the medication’s ultimate benefit to the individual and to society in general. The Pharmacist’s expertise has its foundations in the pharmaceutical sciences and related research and is focused on the welfare of the individual. This translates into practical roles in the formulation, manufacture, storage, dispensing, counseling and control of medications. Pharmacy educators therefore need to adopt a complicated alignment of research, teaching and practical roles.

In the rapidly changing global health scene, the World Health Organization estimates that the health trends are likely to be dominated by four factors in the future: the ageing of the world's population, the unfolding of the HIV epidemic, the epidemic of tobacco-related mortality and disability, and the expected decline in childhood mortality from infectious diseases. This would necessitate a paradigm shift in the training of healthcare professionals at large. To this, I would like to add the iatrogenic diseases, that is diseases brought forth by modern medical practices and life styles, which is gaining alarming grounds.

Pharmacists provide their services in a variety of environments, in response to a rapidly evolving set of local health care priorities and needs. The pharmacist must therefore be also an entrepreneur, inventor and innovator, successfully using his expertise to serve the immediate and long term health needs of his/her community.

The information superhighway adds to these challenges, generating dangerously half-knowledgeable patients bent on self-medication.

Recent developments in medical sciences are mind boggling, rendering the traditional academic focus grossly inadequate. There is, therefore, an increasing need to re-orient educational programs for future pharmacists towards knowledge assimilation, knowledge dissemination and most importantly, knowledge creation.

In addition, pharmacists are becoming increasingly involved in direct patient care and are taking responsibility for the resolution of drug therapy problems of individuals. In these ways, the pharmacist shoulder broader responsibilities relating to the immediate health needs of the community. In many advanced countries, the course work now extends to 6 years with a focus on clinical management of patients as part of the patient care group

On another note, advances in biotechnology are beginning to increasingly influence the course of medical science. Just as the microchip in the last century transformed the way we live, the mapping of genes is set to revolutionize medical science in the 21st century. The day is not very far off, when the corner pharmacy may be dispensing individualized medicine.

It is also true that there is a revised interest in the herbal medicines through out the world. India, with its Ayurvedic Tradition has a leading role to play. While the advances in medical and biotechnological areas are great, a system that cannot be afforded by more than 80% of the world's population is worthless in the larger interest of the human race. I call upon my fellow pharmacists to "reinvent Ayurveda" for the human race, realizing fully well that traditional Ayurveda failed to live upto the modern testing and evolved into Industrial Ayurveda with no real relevance to the scientific basis in which Ayurveda was founded. As Indians and as healthcare providers, pharmacists must take additional initiatives and take the research in Ayurveda to new heights. Substantial amount of work and information is generated by the various RRL's and CDRI, and several other government institutions. Till today, we have not made a concerted effort to bring Ayurveda to modern standards.

It is my firm belief that Ayurveda has stood the test of time and at the end, after decoding all the genes and developing gene based therapies, and introducing pharmacogenetics etc. etc. we may find that Ayurveda has already had answers to many of these, except that we did not look at it seriously and carefully.

Another emerging reality is the increasing use of dietary supplements across the world. Unlike conventional drugs, these are very often not supported by comprehensive documentation from the manufacturing companies or specific guidelines from healthcare professionals or from regulatory authorities. The pharmacist therefore needs to be equipped to evaluate associated safety and efficacy concerns and to advise other healthcare professionals on safe and rational use of these dietary supplements. This activity contributes both to the welfare of the individual and the overall improvement of public health. It is also important that the regulatory machinery looks at the growing trend.

In light of their evolving role in the healthcare system, pharmacists are increasingly being called upon to use their clinical training to improve drug therapy treatment. There must therefore be a greater focus on student learning, rather than faculty teaching alone, where the student is an active participant in the learning process. Developing problem solving and critical thinking skills in students is very important. Ideally, pharmacy students should be taught in academic environments in which they are in contact with students in other healthcare professions to allow early establishment of the concept of the "healthcare

team” and professional collaboration, particularly in pharmacotherapy. Research demonstrates that the inclusion of a pharmacist on a patient care team reduces medication-related errors, decreases overall health care costs, and improves the quality of care a patient receives.

In order for pharmacist to succeed, he or she must develop excellent oral and written communication skills and I would encourage that to be made part of the curriculum. Especially today, the critical evaluation of existing information and the ability to synthesize contrasting information related to diseases and pharmacotherapy needs to be developed. This is extremely important in view of the plethora of accessible information available to patients and healthcare professionals, equally.

Developments in IT and biotechnology are integrated in Nanotechnology, understood as ‘the ability to control and manipulate organic and inorganic matter at the level of atoms and molecules’, leading to future applications such as “pharmacy on- a-chip”, such as novel drug delivery systems. These offer the potential to allow proteins, genes and other exciting drug candidates to be delivered directly to their site of action within a cell. Diagnostic tools and vaccines based on this technology would also be made available.

The future pharmacist needs to be well acquainted with these developments.

To meet the challenges of the future, pharmacy program content should focus on updating knowledge and skills, building perspectives, contextual problem solving, case studies, and networking. In addition to classroom instruction, conference-like settings and interaction with “expert” faculty should be made available on a regular basis. Students should be actively involved with faculty and experts in research and knowledge creation.

I am grateful to the organizers for inviting me to deliver this keynote address.

Jai Hind