

VIEWPOINTS

PharmD or Needs Based Education: Which Comes First?

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As much as 50% of medicines are incorrectly sold or supplied.¹ Healthcare cannot be adequately provided without medicines and a competent pharmacy workforce to supply them. Health workforce levels and quality are associated with improvements in health outcomes.²⁻⁴ However, there is a lack of academic and clinical training capacity in many countries. The recent work of the Pharmacy Education Taskforce of the World Health Organization (WHO) United Nations Educational Scientific and Cultural Organization (UNESCO) International Pharmaceutical Federation (IFP) has advocated for a needs-based education and workforce development approach to build adequate skilled human resources for the procurement and distribution of medicines, as well as clinical pharmacy services, that are aligned to local health service and labor market needs.^{5,6}

There is an increasing trend in developing countries towards doctor of pharmacy (PharmD) level education. Pakistan, India, Bangladesh, many African countries, and parts of the Middle East are changing their entry-level qualification to a PharmD. PharmD courses are characterised by a considerable number of precepted clerkships with measurable outcomes. Many of these countries do not yet have a trained and available workforce practising clinical pharmacy who are competent to act as preceptors. In most of Europe, the entry-level qualification remains a master's degree, which is arguably similar to a PharmD and requires, for example, a 6-month internship (Denmark), or a 1-year internship/preregistration year at the end of the university course with measurable competency-based outcomes and a registration examination (UK and Ireland). In Australia, New Zealand, and South Africa, students usually complete a 4-year bachelor of pharmacy (BPharm) program, with course very similar to those required in the UK's program for the master of pharmacy (MPharm) degree, followed by a 1-year internship.

Even in the United States, there are difficulties in providing adequate numbers of hospital-based preceptors. Many respondents to a recent US survey cited a lack

of readiness or competency of practitioners to be preceptors.⁷ In order for practitioners to be successful and effective preceptors, they need time to receive appropriate training and preparation, which then becomes a staffing and human resources issue as well. Similarly, when forecasting their future capacity to accommodate students, respondents indicated that their projections were highly dependent on the number of hospital pharmacists. Many respondents noted that their capacity projections were tied to their ability to expand clinical services. This, the authors state, comes at a time when hospital patient volumes and related pharmacy service demands are continuing to grow.

There are a number of reasons for changing to a more clinical degree, as more complex drugs come onto the market, with an increasing aging population with more diseases and conditions requiring more complex therapies along with the growth in tertiary care and hospital-based care. There is also a greater threat of litigation for inappropriate use of medicine. Much more attention has been given to the magnitude of medication-related problems, highlighting the need for interventions to improve patient outcomes and safety and to improve cost effectiveness. Hospitals pharmacy has changed and pharmacists have moved out of their dispensaries and into wards and clinics. Now that their value is becoming more appreciated by other members of the health care team, the path to their future has been set in concrete. More pharmacists are needed to feed the rapidly growing market for complex medicines. There are also economic reasons with downward pressures on budgets, and changes in payments for supply of medicines and services have also caused a decline in the perceived status of the profession. The one-person professional pharmacy is being replaced by chains. The entrepreneurial motive, traditionally a preserve of professions, has been largely removed. However, there is often no professional fee to reward pharmacists for making high-risk clinical decisions or motivate them to keep up-to-date with drug information. This is exemplified in Hungary where the entry-level qualification recently has been changed to PharmD because the number of applicants to pharmacy had markedly declined due to

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changes in the pharmacy contract that made it a less financially attractive career. It was thought that the prospect of graduating with the title "doctor" would make careers in pharmacy attractive again.

A recent posting on E-DRUG (www.essentialdrugs.org/edrug/) from Pakistan, talked about the issues in that country. In 2003, the PharmD degree began being offered as a 5-year program in Pakistan, focusing mainly on clinical pharmacy. Some 2587 pharmacists have graduated every year.⁸ With the current population, this number is not sufficient to provide optimal health care delivery. However, less than 25% of pharmacists in Pakistan actually work in hospital or community pharmacy, and more than 50% work in the pharmaceutical industry. There has been a shift in education from the traditional role of pharmacist in industry and marketing, which have been Pakistan's strengths, towards community and clinical pharmacy. But this change is facing resistance from a number of stakeholders such as the drug sellers and medical doctors. In short, the writer stated, Pharmacists in Pakistan are undergoing an "identity crisis" with almost 90% of pharmacy graduates leaving Pakistan soon after getting their degree.

In Bangladesh, where there is a great need for pharmacists, we are working on 2 projects around rational-use medicines, one on injection use and one on antibiotic use, where pharmacist input is clearly needed. We were told that they were shifting to a PharmD so that Bangladeshi pharmacists would be able to go and work in the United States. The new Indian PharmD program being offered in a number of pharmacy schools to 30 students in each intake, has internship or residency training during the sixth year involving posting in speciality units. This internship is defined as a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services and acquires skill under supervision so that he or she may become capable of functioning independently. The curriculum appears to retain a high pharmaceutical science input, which is crucial for the increasingly important Indian pharmaceutical industry, as well as clinical subjects. However, there is still a shortage of suitably qualified preceptors. A number of Indian schools of pharmacy have been running masters programs in clinical pharmacy for the last decade. However, many of the graduates of these courses, like their BPharm colleagues, have gone to work in the pharmaceutical industry and not in clinical practice as there was no clear career path available to them. This balance will hopefully start to be redressed as the first PharmD students move to clinical practice in 5 years' time.

In a recent address⁹ Victor Yanchick talked about the opportunities to learn with and from professionals in other

countries and to determine what part of the new and evolving North American educational model might be useful to others. He stated: "I believe it is our responsibility to become engaged with those countries and their academic leaders who find themselves poised to significantly change the model of pharmacy education in order to meet the needs of the citizens of their country or region."⁹ Instead of just trying to offer our models of education wholesale to developing countries, we need to work with these countries to identify their local needs and to develop their own models for pharmacy education. We wonder if it is more important to first tackle these issues before instigating new qualifications. However, it may already be too late as many countries are adopting the PharmD as the entry-level qualification without having the physical infrastructure or economic resources to provide adequate pharmaceutical services and therefore adequate internships.

We wonder what evidence would be needed to be satisfied that the PharmD degree was the way to go for everyone? Surely we would need to see evidence of an overall decline in the number of medicine-related problems, fewer prescription errors, fewer medicine-related hospital admissions, increased medicines adherence, and perhaps an increase in life expectancy coupled with a decline in the national spending on these issues? In developing countries, critical indicators would include increased access to, availability of, and appropriate use of safe, efficacious, and quality medicine. It would currently be very difficult to develop a convincing argument to support a relationship between these indicators and the introduction of the PharmD degree. Perhaps we should develop a framework, a set of indicators to measure and monitor and gauge the impact of the PharmD degree and other curricular changes to help countries who are considering whether to introduce a PharmD program. Maybe we should actually view the introduction of the PharmD degree as a transformational process, rather than a one-off event. Perhaps, as in India, the PharmD might be introduced in parallel with the traditional course as the capacity of the health system to support advanced clinical roles is developed. Rather than considering whether countries need a PharmD program or not, maybe steps could be taken to examine what kind of curricular outcomes are required to adequately prepare pharmacists in a particular country. The issue of academic award could come afterwards rather than before. We would be very interested in further discussion of these issues.

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