



Caleb Wright

Pharm D Student, University of Findlay
Findlay, OH, USA; email – wrightc1@findlay.edu

COMPARISON OF PHARMACY EDUCATION AND PHARMACIST'S ROLE IN UNITED STATES AND INDIA

Changing healthcare landscape:

Healthcare in both developed and developing countries is changing rapidly. These changes pose many challenges to pharmacists and other health professionals. Currently, the World Health Organization views pharmacists as professionals with specialized knowledge of the management and properties of medicines who not only work with doctors as a source of information about therapy options and treatment, but also a bridge to patients in the community as dispensers of medicine and health-related information.¹ A pharmacist should be able to offer advice on treatment of minor illnesses and development of healthy lifestyles. These rules set by WHO should act as an international foundation in which a pharmacist's education should be modeled on. There are, however, many inconsistencies in education and roles in practice among pharmacists in the U.S. and India. These can lead to suboptimal patient care along with decreased recognition of pharmacist as a member of healthcare team. Because of this, changes need to be made in both government regulations and education to adapt to the rapidly changing healthcare system so pharmacist's can fulfill their responsibility as a valuable member of healthcare team.

Comparing pharmacist education between India and United States

Education in the U.S. has evolved into a Pharm D only requirement while India continues to offer multiple degrees. The number of pharmacy schools in the U.S. has drastically increased from 72 in 1987 to 140 as of

June 2016.² The Bachelor of Pharmacy degree (B. Pharm) was phased out in 2000 and replaced by a 6 year Pharm D program. Those pursuing a less intensive career in pharmacy must still complete the long Pharm D. program by paying for years of extra training that may never be actually utilized. As nearly 80% of current pharmacy graduates work in retail, the Bachelor of Pharmacy degree could have been adjusted and offered exclusively for those pursuing a career in either Industrial or retail pharmacy. Pharm D degree currently offered in US certainly provides a more solid foundation to practice as clinical pharmacist in various settings.

Unlike the U.S., India offers a wider variety of pharmacy degrees. Until the early 1980's, there were only 11 universities and 26 colleges offering a pharmacy degree in India.³ With a population of over 1.2 billion people, the number of pharmacists did not cover their high demand, especially in rural areas. The number of pharmacy programs have increased to 854 institutions that admitted over 52,000 students for the Bachelor of Pharmacy degree and 583 institutions admitting over 34,000 students for 2- year Diploma in Pharmacy Degrees in 2007.³ In the current model, students desiring to work in retail can obtain a Pharmacy Degree requiring 2 years of school and 500 hours of training. This degree makes up the large majority of current pharmacists working in medicine shops and hospitals in India. The 4-year Bachelor of Pharmacy degree is pursued by students interested in manufacturing, drug rep, and graduate studies. The 6 year Pharm D program was introduced in 2008, and most institutions offering this degree are largely located in South India and more than 50% in the states of Andhra Pradesh and Telengana. Skewed distribution itself raises questions about the practical usefulness of this degree in the Indian scenario. India currently has no requirements for a Pharm D. as a minimal requirement for pharmacy practice. Because of this, many pharmacists lack the necessary knowledge and training to properly treat and care for patients.

Additional problems for pharmacy practice

Current pharmacists are dealing with number of issues in both countries. In the U.S., clinical pharmacists are underutilized by physicians when making decisions on patient's medication therapy. Current hospital rules limits pharmacist involvement in managing patient's



therapy, leaving them on the back end to catch dangerous interactions after prescriptions have been written. This causes a delay of therapy, and the pharmacist must then contact the physician to correct the offending medication. Instead, hospitals should have pharmacists involved in initial planning of patient specific treatment. This method may help identify errors earlier in the process and result in timely therapy and a better experience for the patient. Similarly, most Pharmacists working in the US in a retail setting are being underused. The current chain retail pharmacies resemble a busy market instead of a clinic, which is why the phrase “fast-food pharmacy” may correctly label this type of practice. This setting has developed into a system that often focuses on number of scripts filled instead of number of patients counseled and educated on their prescription. Currently, there is little time for pharmacists to review patient history, educate patients on how to take their medication, and explain what side effects may occur. This can lead to medication errors and increased adverse events. According to the FDA, medication errors cause one death per day and over 1.3 million adverse events every year.⁴ Another problem is that all incoming retail pharmacists are required to have a Pharm D, however many will not use the extra training in practice. A specialized B Pharm degree geared towards retail could save these pharmacists years of over-training and additional expenses. Similar to the clinical setting, retail pharmacists are required to catch dangerous drug interactions on the back end of the process. This leads to an inconvenience for all parties as the pharmacist must then contact the physician while the patient spends a longer time at the pharmacy. Granting pharmacists in retail setting power to make minor modification on a written prescription based on their professional expertise and intimating the physician, as is currently practiced in an hospital setting may help alleviate this problem.

Many community pharmacists in India today are two-year pharmacy degree holders. Unfortunately, these pharmacists lack even the basic training on pharmaceuticals they dispense to be able to counsel and educate patients on medications. Another problem is many pharmacies are run by people with no degree or training at all. This was a result of the first registry in the 1980's where pharmacists were required to register

in order to practice.⁵ Unfortunately, many people entered their names who had no pharmacy degree and little knowledge in health. This may have been due to lack of regulation and oversight of the registration process. A 2005 study showed that nearly 50% of pharmacies across India function without pharmacists.⁵ Because of this, there are many pharmacies that dispense medications without a proper prescription. Patients can go to a pharmacy and walk out with medications without ever seeing the doctor or having a record kept. Many pharmacy workers without a degree will dispense medications with an indication and mechanism that they do not understand. An additional study showed that pharmacy degree holders lacked proper training to counsel patients on commonly sought advice covering sexually transmitted diseases, menstrual disorders, contraceptive methods, and minor illnesses.⁵ Without proper records, no national data on the extent of medication errors in India are available, however, one can expect very high healthcare burden human suffering with this very casual approach for handling these powerful agents.

One step that could be taken to help improve the current situation is the elimination of the two-year pharmacy degree and upping the minimum requirement of a pharmacist to a Bachelors of Pharmacy degree in order to practice in India. The current roles and responsibilities pharmacists have in healthcare make it difficult to learn in 2 years. Much of the clinical knowledge, training, and experience are not available compared to the 4 and 6 year programs. The 2-year degree can be transformed into a certification program utilized by workers who would act as pharmacy technicians. Technicians play a vital role in working with pharmacists in clinical and retail settings, and will allow pharmacists to spend more time with the patient. The current 4-year B Pharmacy can be changed to focus on industrial and retail pharmacy. This leaves the 6-year Pharm D for all pharmacists desiring to work in a clinical setting. This transition will help individualize degrees towards a specific pharmacy practice, and will allow pharmacists to receive the necessary training to properly treat and educate patients on their medications and reduce overall adverse events associated with them.



Unique challenges in India pharmacy

Pharmacists in India face unique challenges providing healthcare to the population. India has 28 states and 7 unions with a population of over 1.2 billion people speaking over 400 tongues with 800 dialects.⁵ The number of pharmacies in India is roughly 550,000, many of them located in cities. The greatest need for pharmacies and health professionals are in rural parts of India. Unfortunately, much of the population will not receive proper medical treatment outside of cities. This problem stems from several causes. The first is that many students receiving pharmacy degrees end up leaving their rural homes to work in the city for additional pay and opportunities. Few degree holders return home to practice after graduation. The government has taken steps towards alleviating this problem by implementing a nation-wide drug formulary called Jan Aushadhi in 2008. The purpose of the program is to provide people in rural areas access to medications for common diseases at an affordable price. Part of the problem is that India lacks health insurance seen in the United States. 90% of patients pay cash for their medications and drug prices are driven up without the help of insurances trying to control cost. This program is the first step towards a national healthcare system that could provide millions of people medications that they did not previously have access to. Current problems with Jan Aushadhi need to be fixed in order to maximize the benefits. There are currently only 697 Jan Aushadhi stores available to the public with less than half of them fully functional.⁶ Another problem is the list of provided medications are redundant and wasteful. Many medication combinations on the list are irrational, and include combinations that do nothing but increases risk and costs to the patient. These same combination problems expand beyond Jan Aushadhi to the majority of pharmacies across India and contribute to many adverse events and deaths. In order to combat this problem, we must push to overhaul the education system to provide professionally trained pharmacists to take over pharmacies and help revise and eliminate unnecessary drug combinations. This will help reduce adverse events and cost, making healthcare more affordable for all in India.

Another challenge is the overwhelming population in India. The ratio patient per physician is much higher

than in other countries. Therefore, it would be too expensive and time consuming to treat illnesses after they occur like the current U.S. model. Because of this, pharmacists in India should play an important role in preventing diseases and educating patients and not just limit themselves to dispensing medications. Because of the large population and rapid development of healthcare, India has an opportunity to become one of the first countries to adapt to these issues by changing the roles of pharmacists. In this aspect, India would be regarded as at the forefront of pharmacy practice. Other countries will need to adapt in the same way as the global population continues to increase, making India a valuable resource in helping model what this kind of pharmacy looks like in the future.

Conclusions

In conclusion, both the United States and India face unique challenges when it comes to the roles of pharmacists in a rapidly changing healthcare. The US healthcare system is the current model for many countries around the world, yet they fail to fully utilize the expertise of pharmacists both in hospitals and retail settings. Pharmacists must convince the public to recognize their importance with medication safety, and the public must convince government entities and physicians to allow pharmacists to take on more responsibilities in the management of people's health through legislation and trust. India has come a long way in their healthcare since gaining independence in 1947 and now that they have gained number 1 position in providing modern generic drugs for the world's population, it is time their pharmacist and their training and education now focus on delivering the same drugs to Indian patient in a safe manner to improve patient's outcome. New approaches must be taken in order to combat unique challenges such as lack of pharmacies with a properly trained pharmacist, useless drug combinations causing adverse events, and a population too large for current hospitals and pharmacies to manage. India must revisit the roles of their pharmacists in order to educate the public on their health and medications, eliminate medication waste and errors, and help reduce costs to patients by eliminating useless combinations from formularies around the country.



References

1. Abe M, Egboifo E, Singh H, Gupta P, Kashemsent P, Kolopaking D, *et al.* The Role of the Pharmacist in the Healthcare System [Internet]. The WHO Essential medicines and Health Products Information Ports. 2016 [Cited 2017 Feb 22]. Available at: <http://apps.who.int/medicinedocs/en/d/Jh2995e/1.1.html>.
2. Academic Pharmacy's Vital statistics [Internet]. American Association of Colleges of Pharmacy. 2017 [Cited 2017 Feb 22]. Available at: <http://www.aacp.org/about/Pages/Vitalstats.aspx>.
3. Basak S, Sathyanarayana D. Pharmacy Education in India. American Journal of Pharmaceutical Education. 2010 [Cited 2017 Feb 21];74(4):1-8.
4. Medication Error Reports [Internet]. U.S. Food and Drug Administration. 2016 [Cited 2017 Feb 21]. Available at: <https://www.fda.gov/Drugs/DrugSafety/MedicationErrors/ucm080629.htm>.
5. Basak S, Sathyanarayana D. Community Pharmacy Practice in India: Past, Present, and Future. Southern Med Review. 2009 [Cited 2017 Feb 22]; 2(1):11-14.
6. Jan Aushadhi Stores [Internet]. Bureau of Pharma PSU of India. [Cited 2017 Feb 21]. Available at: http://janaushadhi.gov.in/jan_aushadhi_stores.html.