

Pharmacy Workforce: a Call for Professional Cohesion to Meet the Rising Healthcare Demand

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Abstract Demand for healthcare services in Thailand are in transition, resulting from social changes within the nation and globally. The need for equality, efficiency, quality, and continuity of care requires combined efforts from a variety of stakeholders in the health workforce. Pharmacists responsible for ensuring access to medicines need reformation as well. There has been an increase in the number of pharmacy schools and graduates. Additionally, the pharmacy education curriculum has been gradually adapted to align to the changes. The pharmacy curriculum has transformed from 5-year to 6-year programs, offering three specialty tracks aiming to develop qualified pharmacists to fit with the needs of the job market. However, with the rapid changes in social contexts and the labor market, and limited information regarding pharmacy manpower, professional leaders in the Pharmacy Council of Thailand, pharmacy schools, and professional organizations are urged to work together to set long-term and continuous actions on workforce development in order to develop competent pharmacists for current and upcoming demand.

Keywords: health workforce; pharmacist; manpower; professional

Introduction

A competent, motivated, and well-managed health workforce is critical for a well-functioning health system. Therefore, the Sustainable Development Goal (SDG) 3c highlights the need to “substantially increase health financing and the recruitment, development, training and retention of the health workforce”.⁽¹⁾ The

Ministry of Public Health, Thailand, has set people excellence, a part of the human resource development plan, as one of the four core strategies for its 20-year strategic plan 2017–2021.⁽²⁾

The health workforce involves a wide range of people delivering healthcare services. In the pharmaceutical system, which is a part of the health system,

the health workforce comprises not only pharmacists, but also other allied health professionals and supporting personnel, such as pharmacy technicians, public health professionals, engineers, scientists, and administrative staff. Although they do not directly deliver pharmaceutical services, they are essential to the access to effective and safe use of medicines. However, because of limited information regarding the workforce of the Thai pharmaceutical system, this article highlights only the pharmacist workforce.

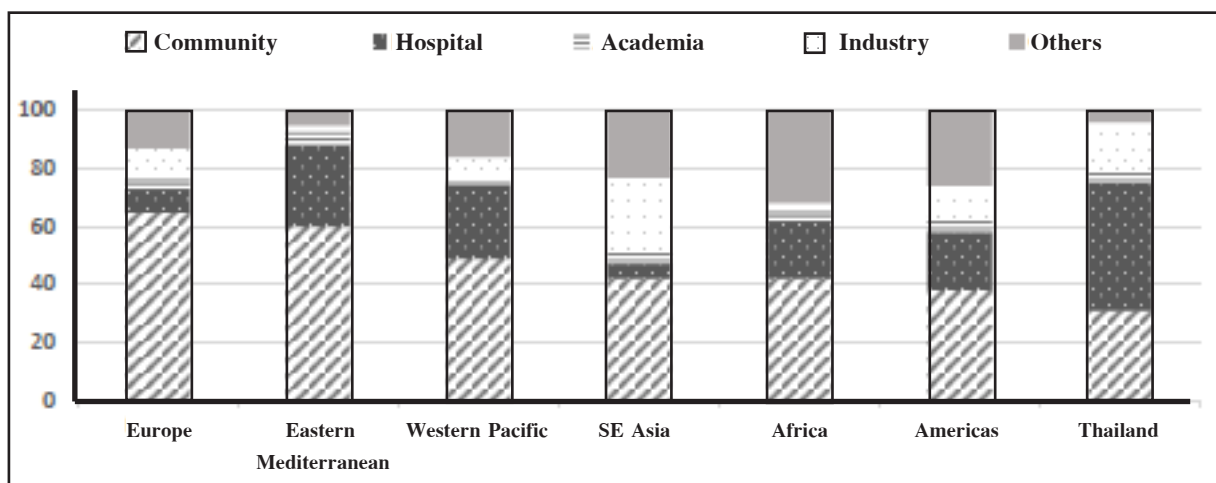
In Thailand, pharmacists are responsible for all activities regarding the country's access to medicines throughout the drug supply chain: the manufacturers who develop drugs, the pharmacies and hospitals that distribute them, the government agencies that oversee the process, and the primary care units that empower people to use them properly. Therefore, the needs for Thai pharmacist workforce are unique. For example, in Thailand, the majority of pharmacists work in hospitals, community pharmacies, and the pharmaceutical industry⁽³⁾ (Figure 1), whereas in many developed countries, such as Europe and America, the majority work in community pharmacies, while in

Southeast Asian countries, the majority work in community pharmacies and the pharmaceutical industry.⁽⁴⁾ The exceptional practice and distribution of Thai pharmacist manpower, therefore, requires the careful integration of the Thai pharmaceutical system context into pharmacist workforce planning and management.⁽⁵⁾

Analysis Framework

In this situation analysis, the Systems Framework of the Commission on Education for Health Professionals for the 21st century⁽⁶⁾, the Availability, Accessibility, Acceptability, Quality (AAAQ) dimensions of universal health coverage pertaining to human resources for health,⁽⁷⁾ the WHO's working lifespan,⁽⁸⁾ and the International Pharmaceutical Federation's (FIP) needs-based educational model⁽⁹⁾ were used. The integrated framework suggests health workforce planning as a complex and dynamic interaction between the demand for health services and the supply of education system, which have been driven by population and social needs. As such, healthcare and social contexts of the country are crucial factors to

Figure 1 Proportion of pharmacy workforce by sector, displayed by WHO regions compared to Thailand^(3,4)

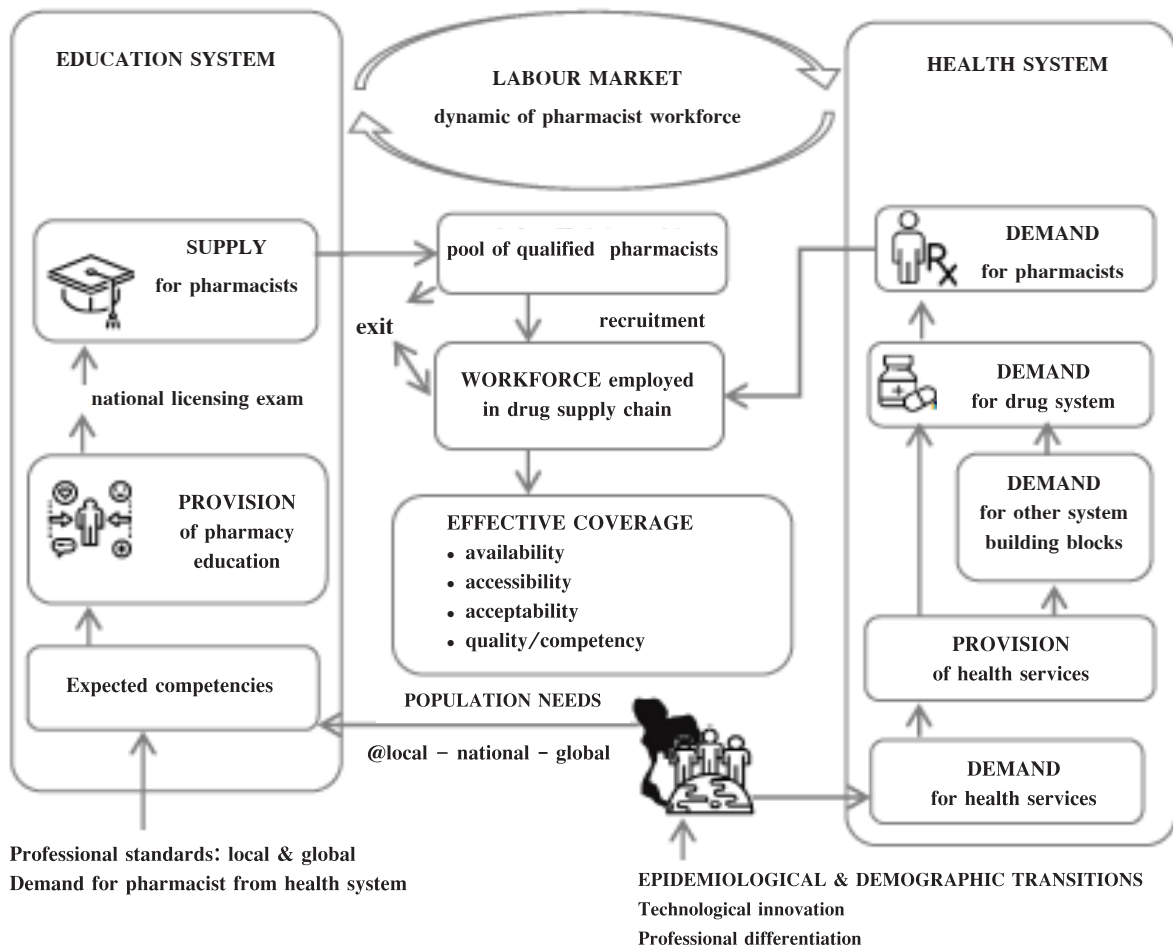


co-create responsive healthcare services and workforce (Figure 2)

Using this framework, we reviewed literature from many sources, including research articles, journal articles, annual reports, and government documents.

This article presents the current situation of the pharmacy workforce in Thailand by describing changes in health demand, labor markets, pharmacy education, and workforce situations.

Figure 2 Adapted systems framework for pharmacist workforce⁽⁶⁻¹¹⁾



Changes in Demand

Demand for the pharmacist workforce is in transition, influenced by its exogenous factors, such as social systems, health systems, pharmaceutical systems, and professional standards. Globalization, global warming, urbanization, economic growth, technology advancement, low birth rate, and high life

expectancy are examples of social transitions affecting the health needs of the nation.^(12,13)

The rising mortality rates from non-communicable diseases, proportion of aging population, and access to various health products are health challenges where in the traditional medical system focusing on disease treatment may be inefficient. Additionally,

rising costs of healthcare due to achievement of universal health coverage has led to significant challenges in financial management.⁽¹⁴⁾ Therefore, the National Health Development Plan 2017–2021 highlights multi–sectoral participation by the public, private, and academic sectors, and civil society as well as by the people, communities, and local administrations to strengthen the capacity of services at every level and the quality of life of people in all age groups.⁽¹⁵⁾

There are four national health development strategies that aim to (1) promote health, prevent disease, and protect consumers and the environment through empowering people and communities; (2) reduce inequality and foster fair treatment through developing the primary care system and enhancing service delivery at all levels; (3) create a mechanism to efficiently manage the health workforce; and (4) strengthen health system governance and improve the supporting system for health services.⁽¹⁵⁾

Transitions in social and healthcare systems call for better health workforce management and integration between networks and partners.⁽⁷⁾ Four essential standards for the health workforce include availability, accessibility, acceptability, and quality (AAAQ dimension of effective coverage).^(10,11)

Labor Market for Pharmacists

Pharmacists are medicine experts who are responsible for ensuring quality and availability of a medicine throughout the supply chain or full life cycle; for example, raw material sourcing, manufacturing, distributing, marketing, regulating, selecting, dispensing, and ensuring patients’ safe use.⁽¹⁶⁾ In Thailand, the role of pharmacists has gradually transformed from product orientation (managing medicines and health products) to patient orientation (caring for effective and safe use of medicines in patients) to system orientation (designing and improving the medicines system in hospitals and communities).⁽⁵⁾

In 2016, there were 28,896 active pharmacists. A majority of Thai pharmacists work in the service setting, that is, 40% work in hospitals and 28% in community pharmacies. Outside of the service setting, 16% work in the pharmaceutical industry, 4% in regulation and consumer protection, 3% in academia, and 10% in non–pharmacist areas. The Ministry of Public Health’s (MOPH) hospitals hold the largest portion of the pharmacist workforce (26.8%) compared to other public hospitals (6.3%) and private hospitals (6.9%).⁽³⁾ (Figure 3)

Figure 3. Proportion of the Thai pharmacy workforce in 2016⁽³⁾

Service setting 67.7%			Non–service setting 25.5%			Exit 9.8%
Hospital 40.0%		Community pharmacy 27.7%	Industry & Marketing 15.6%	Consumer protection 3.5%	Edu- cation 3.4%	
MOPH 7,743	Other Public 1,832	Private 1,989	8,000	4,500	1,013	1,000
						2,819

Pharmacy Education System

Production of pharmacist manpower is an important duty of a school of pharmacy. The Pharmacy Council of Thailand monitors quality assurance by setting professional standards, certifying pharmacy curricula, and licensing pharmacist practitioners to meet the needs of society. The Office of the Higher Education Commission, Ministry of Higher Education,

Science, Research and Innovation supervises the management requirements of educational quality assurance.

Currently, there are a total of 19 schools of pharmacy that are accredited by the Pharmacy Council. There are 14 public institutions and 5 private institutions distributed in every region of the country, with most concentrated in Bangkok and the metropolitan area (Table 1). The pharmacy program is a 6-year

Table 1 List of 19 Faculties of Pharmacy in Thailand and number of graduates in 2019⁽⁵⁾

Region	Faculty of Pharmacy (year established)	Type	Track ^A	No. of graduates in 2019
Northern (4)				
Chiang Mai	Chiang Mai University (1964)	Public	C, I	152
Chiang Mai	Payap University (2005)	Private	C	51
Phitsanulok	Naresuan University (1992)	Public	C	85
Phayao	University of Phayao (2008)	Public	C	73
North Eastern (3)				
Khon Kaen	Khon Kaen University (1980)	Public	C, I, SAP	132
Ubon Ratchathani	Ubon Ratchathani University (1993)	Public	C, I	96
Maha Sarakham	Mahasarakham University (1996)	Public	C	92
Southern (2)				
Songkhla	Prince of Songkla University (1978)	Public	C, I	133
Nakhon Si Thammarat	Walailak University (2005)	Public	C, I	53
Central (10)				
Bangkok	Chulalongkorn University (1914)	Public	C, I	156
Bangkok	Mahidol University (1968)	Public	C, I	121
Bangkok	Siam University (2006)	Private	C	56
Nakhon Pathom	Silpakorn University (1985)	Public	C, I, SAP	165
Nakhon Nayok	Srinakharinwirot University (1996)	Public	C, I	83
Chon Buri	Burapha University (2009)	Public	C, I	84
Pathum Thani	Thammasat University (2013)	Public	C, I	20
Pathum Thani	Rangsit University (1987)	Private	C, I	151
Pathum Thani	Eastern Asia University (2008)	Private	C, I	54
Samut Prakan	Huachiew Chalermprakiet University (1993)	Private	C, I	104

^ANote: C=Pharmaceutical care track, I=Industrial pharmacy track, SAP=Consumer health protection or Social and administrative pharmacy (SAP) track

program (Pharm.D.) with three main specialization tracks: pharmaceutical care (PC), industrial pharmacy (IP), and consumer health protection or social administrative pharmacy (SAP). Each year, the production capacity of approximately 1,900 pharmacists in proportion of the three specialization tracks is around 6:3:1, respectively.

To develop specializations in a post-graduate degree, the Pharmacy Council has established pharmacy colleges to strengthen professional expertise of pharmacist practitioners. The College of Pharmacotherapy of Thailand (C.Ph.T.), the College of Pharmaceutical and Health Consumer Protection of Thailand (CPHCP), and the College of Herbal Pharmacy of Thailand (C.H.P.T.) are three post-graduate colleges currently available. Their main responsibilities are to establish and control academic standards in the pharmacy profession, to provide post-graduate training, and to promote research and academic guidance in each specialization (www.pharmacycouncil.org). Table 2 shows the total number of post-graduate pharmacists from these three colleges.

Situations of the pharmacy workforce

The situations of pharmacist manpower in the pharmaceutical system under the effective coverage framework of AAAQ is presented below.

Availability of pharmacists

As of August 31, 2019, the total number of registered pharmacists was 42,060 people.⁽¹⁷⁾ However, in the pharmaceutical labor market, approximately 29,000 pharmacists are actually working.⁽³⁾ There are approximately 1,700 –1,900 pharmacist graduates per year and more than 90% pass the licensing exam. Throughout the past 30 years, the number of annual pharmacist graduates has increased 3.8-fold, from 487 graduates per year in 1990 to 1,861 graduates per year in 2019.⁽¹⁷⁾

The dramatic growth of pharmacist graduates resulted from several factors, such as the increased number of pharmacy schools and graduates produced. Historically, the urgency to increase the pharmacist workforce was due to Thailand’s health policies to achieve full coverage of district hospitals where workforce development is essential for well-functioning

Table 2 Total number of specialized post-graduate pharmacists trained from colleges under the Pharmacy Council of Thailand (September 2019)

College (year established)	Short course training certificate	Board certificate
College of Pharmacotherapy of Thailand (C.Ph.T.) (2008)	General residency (1 st year), 126 persons Specialized residency (3 rd year), 81 persons	81
College of Pharmaceutical and Health Consumer Protection of Thailand (CPHCP) (2011)	309 persons (423 certificates)	106
College of Herbal Pharmacy of Thailand (C.H.P.T.) (2018)	-	18

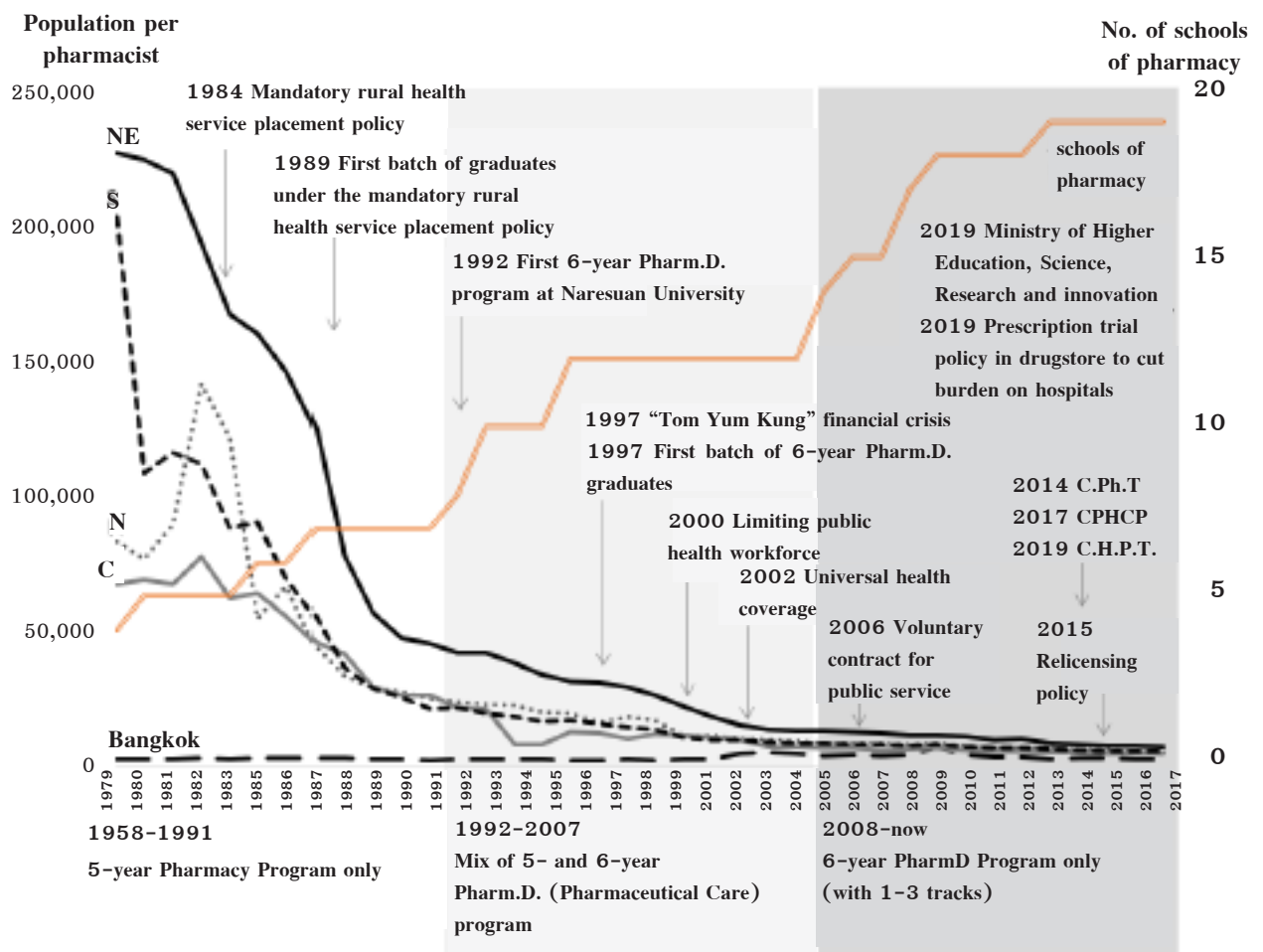
health services under the system.⁽¹⁴⁾ In 1984, the Ministry of Public Health (MOPH) introduced a 2-year mandatory placement in rural health service for all pharmacy students. The mandatory policy and additional financial and non-financial incentives drew a large portion of the pharmacy workforce to public hospitals, which resulted in increased numbers of pharmacists in Thailand. In 2006, the policy was changed from mandatory to voluntary and only those who were willing to work for the MOPH and some other government facilities participated in the service placement.

Accessibility of pharmacists

In 2016, there were 28,896 pharmacists, which is equivalent to 1:2,261 pharmacist per population.³ The ratio was still below the target of 1:2,000 pharmacist per population according to the 20-year national health strategic plan.² Before the mandatory rural health service placement policy, there was a disparity in pharmacist distribution by region in terms of urban and rural areas. After the policy requiring pharmacist graduates to work in rural district hospitals, the disparity narrowed (Figure 4).^(5,18,19)

Although there has been no problem of pharmacist

Figure 4 Population per pharmacist, by region and number of schools of pharmacy (1979–2017)



manpower distribution in government services, there is still a labor shortage of pharmacists in the pharmaceutical industry; about 16% of pharmacists work in industry, such as in manufacturing, distribution, and marketing. The pharmaceutical industry needs more pharmacists to register new products, renew old product licenses, and endorse new products to a variety of target audiences.^(20,21)

Restrictions on increasing manpower in the government sector and the MOPH's new health services management plan to offer patients with chronic conditions to fill their prescriptions at nearby community pharmacies would increase employment at community pharmacies. Providing pharmaceutical care services may require more than one pharmacist on duty per pharmacy.⁽³⁾ To ensure increased accessibility to pharmacist manpower for better access to quality and safe use of medicines, pharmacy workforce planning should focus on ensuring even distribution to both private and public sectors.

Acceptability of pharmacists

To our knowledge, information on the acceptability of pharmacists is limited. There have been studies on customer satisfaction of pharmaceutical services in hospitals or community pharmacies, but not on the pharmacists themselves.⁽²²⁻²⁸⁾ From limited literature, it is suggested that clients and other healthcare professionals recognize the value of the pharmacist from the quality of services provided to the characteristics of the pharmacists themselves.^(29,30) For instance, trust in and reliability on pharmacists are developed from empathy and understanding.⁽²⁸⁾

Quality of pharmacists

The Pharmacy Council ensures quality of pharmacists through several processes: certifying pharma-

cy curricula, developing professional competency standards, conducting pharmacy national licensing exam for new graduates, and requiring practicing pharmacists to earn at least 100 credits of continuing education within 5 years.⁽³¹⁾ Continuous adaptation of pharmacy education to match the health needs of Thais is crucial for ensuring quality of pharmacist services. Self-assessments of pharmacy graduates show that transition to a 6-year PharmD program with three specialization tracks (PC, IP, and SAP) helps build confidence in competencies of their specialization.⁽³²⁾ However, information regarding the quality of pharmacist practitioners is also limited since it was not systematically evaluated.

Despite the above post-graduate programs, only 1.6% of pharmacists in the Ministry of Public Health took a leave of absence for further studies while 82% hold a bachelor's degree as their highest degree level. Compared with the medical and dental professions, the proportion of physicians and dentists that took leave for further education is up to 20% and 12%, respectively, while 43% and 24% hold a bachelor's degree, respectively.^(33,34)

Challenges in the Thai Pharmacist Workforce

Four key challenges currently exist in the Thai pharmacist workforce. The first challenge is the changes in the pharmaceutical labor market. Due to the policy of limited employment in the public sector, job positions in public hospitals, which have been the main workplaces for pharmacists, will be greatly reduced. With limited practicing pharmacists, there has been an increase in the need for pharmacy services to ensure rational drug use, support service plans, and improve pharmaceutical systems management in hospital ac-

creditation. Pharmacists currently working in public sectors will need to manage their limited time care-fully and efficiently.

The second challenge relates to a lack of integrated human resource development plans for pharmacists in all sectors. Currently, pharmacy education focuses on the production of pharmacists for the hospital sector. However, it is more likely that job positions for public hospitals will be limited, while there is a demand for pharmacists in community pharmacies, primary healthcare, and industry. Therefore, professional leaders and educators should work together to plan and balance the professional workforce for the future.

In order to be competent to serve changing health demands, pharmacists need expertise in their area. Current competency standards set by the Pharmacy Council are only the minimum performance required and serve as entry level competencies. For career advancement, continuous human resource development for the profession is needed.

The third challenge relates to supporting systems for manpower development. Pharmacists are a valuable workforce for pharmaceutical systems, but with limited budget, additional pharmacists increase fixed and long-term labor costs. Therefore, in an age of advanced technology, adoption of robots and computer technology to work collaboratively with personnel would improve the efficiency of workforce management.

The final challenge is a lack of a harmonized database and limited research in pharmacist manpower. Accurate, up-to-date, and comprehensive information is essential for planning and decision-making. A database of pharmacist manpower that systematically maintains information on both manpower production

and the demand side, and for both public and private sectors is needed.

Opportunities for pharmacist workforce transition

Solutions for the challenges mentioned above require the cooperation of professional leaders and stakeholders of all sectors to analyze the situation and formulate strategies and policies for pharmacist manpower management. The goals for manpower development should be clear with flexible working plans that are adjustable to the rapid change of social and health contexts.

Short-term plan (1 year)

- Invest in a comprehensive database to gather data on all dimensions of the pharmacist workforce and relevant personnel information;
- Plan for long-term pharmacist manpower management by carefully and systematically making joint decisions between professional organizations in all sectors;
- Provide short-course training programs to improve competencies of pharmacists and support personnel to develop professional skills that are currently needed; and
- Revise professional competency standard that allow expertise development.

Intermediate-term plan (2-5 years)

- Develop professional training for new and upcoming roles of pharmacists, such as pharmaceutical care services for patients with chronic conditions at community pharmacies, pharmaceutical systems management in primary care clusters, and data and information management;

- Use computerized technologies and work with supporting personnel to efficiently manage basic pharmaceutical activities of pharmacists in the pharmaceutical system, such as stock control and dispensing, to allow pharmacists to work on advanced professional activities, such as designing and developing pharmaceutical systems; and
- Strengthen pharmacists' roles in pharmaceutical systems in designing and participating in innovative healthcare activities and policy development.

Long-term plan (6–10 years)

- Professional organizations, the Pharmacy Council, educational institutions, and pharmacist practitioners should take this opportunity to reform pharmacist manpower;
- Use comprehensive workforce information to design workforce development systems to support access to medicines in every dimension;
- Design professional activities that support the pharmaceutical system in accordance with the needs of society and the context of the country;
- Design pharmacy education programs and post-graduate programs to support manpower development that meet the needs of the future.

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ความต้องการด้านบริการสุขภาพของประเทศไทยอยู่ในการเปลี่ยนแปลงสืบเนื่องจากการเปลี่ยนแปลงของสังคมทั้งในประเทศ และกระแสการเปลี่ยนแปลงของโลก บริการสุขภาพของประเทศซึ่งมุ่งหวังให้เกิดความเท่าเทียม มีประสิทธิภาพ มีคุณภาพ และ มีความต่อเนื่องจะเกิดขึ้นได้ด้วยความพร้อมและความร่วมมือกันของกำลังคนด้านสุขภาพ เภสัชกรซึ่งเป็นกำลังคนด้านสุขภาพที่รับผิดชอบต่อการเข้าถึงยาของประชาชนก็ต้องมีการปรับตัวเช่นเดียวกัน ในอดีตการศึกษาเภสัชศาสตร์มีการพัฒนาอย่างต่อเนื่อง มีจำนวนสถาบันที่ผลิตเภสัชกรเพิ่มมากขึ้น บัณฑิตเภสัชศาสตร์ที่ผลิตขึ้นต่อปีก็เพิ่มมากขึ้น หลักสูตรมีการปรับตัวจากการเรียน 5 ปี เป็น 6 ปีที่มีสาขาความเชี่ยวชาญเฉพาะที่จะตอบสนองกับความต้องการของตลาดแรงงาน แต่อย่างไรก็ตามการเปลี่ยนแปลงที่รวดเร็วของสังคม ในขณะที่ยังขาดข้อมูลด้านกำลังคนเภสัชกรของประเทศไทย เป็นความท้าทายที่ผู้นำของวิชาชีพ สภาเภสัชกรรม สถาบันการศึกษา และสภาวิชาชีพด้านต่าง ๆ ควรผนึกกำลังกันออกแบบการทำงานเพื่อพัฒนากำลังคนเภสัชกรระยะยาวอย่างต่อเนื่อง เพื่อให้มั่นใจว่าเภสัชกรจะสามารถมีสมรรถนะอย่างเหมาะสมสำหรับการทำงานในปัจจุบันและอนาคต.

คำสำคัญ: กำลังคนด้านสุขภาพ; เภสัชกร; บุคลากร; วิชาชีพ