

## Pharmacy practice in Thailand

RAYMOND C. CHAN AND PUI LING (AMY) CHING

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Thailand, located in southeast Asia, is approximately the size of France. It has a population of 65 million and is home to various ethnic groups.<sup>1</sup> Most Thai citizens can speak only Thai and Thai dialects; English is a second language to most of the elite. In the past three decades, the overall physical health indicators for Thai people have been improving. For instance, life expectancy at birth has increased from 59 years in 1964 to 71 years in 2004.<sup>1</sup> Significant improvements in the quality and standard of the Thai health care system have contributed immensely to this success. The country's health care system has evolved from a system dependent and built on local wisdom to one that relies heavily on technology and collaborative efforts of health care professionals from multiple disciplines.<sup>2</sup> Indisputably, pharmacy practice also has changed dramatically in the past few decades.

**Pharmacy education.** In 1914, Prince Chainat of Thailand established the first School of Dispensing in Thailand, which offered a three-year dispensing program.<sup>3</sup> The school later became the department of pharmacy in Chulalongkorn Uni-

versity in 1934. The curriculum was subsequently expanded into a four-year academic pharmacy program in 1939, making Chulalongkorn the first institution in Thailand to offer a bachelor of science degree in pharmacy.<sup>3</sup> In 1957, the undergraduate curriculum at Chulalongkorn was further revised to a five-year academic program, which continues to be offered to pharmacy students today. Today, there are 14 schools of pharmacy in Thailand, including 2 private institutions, which graduate about 1000 pharmacy majors every year.<sup>2</sup>

Greater emphasis has recently been placed on the involvement of pharmacists in providing direct patient care in both hospital and ambulatory care settings. The concept of clinical pharmacy and pharmaceutical care is revolutionizing the phar-

macy profession in Thailand. As a result, a six-year doctor of pharmacy curriculum was developed and has been offered to pharmacy students at Chulalongkorn University since 1977.<sup>3</sup>

To practice pharmacy, pharmacy graduates must pass a written examination offered only in Thai by the Thai Pharmacy Council. This requirement discourages foreign pharmacists from practicing pharmacy in Thailand. Currently, the Thai health system does not require a pharmacist to be present in every drugstore. However, if it ever becomes a requirement, Thailand will face a significant pharmacist shortage.<sup>2</sup>

**Classification of drugs.** In Thailand, drugs have historically been classified as either modern or traditional.<sup>4</sup> Modern medicines are subdivided into four major subcategories:

1. Household remedies, the sale of which requires no license,
2. Ready-packed pharmaceuticals, which can be sold without a prescription. These medications are sold by nurses and other medical professionals, including pharmacists,
3. Dangerous pharmaceuticals, which can be bought without a prescription in a drugstore staffed by a pharmacist, and
4. Specialty controlled pharmaceuticals, which can only be obtained with a

RAYMOND C. CHAN, PHARM.D., S.M., FASCP, is Director of Pharmacy, East Boston Neighborhood Health Center, East Boston, MA, and Adjunct Assistant Professor of Pharmacy Practice, Massachusetts College of Pharmacy, Boston. PUI LING (AMY) CHING is a student, Ruamrudee International School, Bangkok, Thailand.

Address correspondence to Dr. Chan at East Boston Neighborhood Health Center,

10 Gove Street, East Boston, MA 02128 (chanr@ebnhc.org).

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valid prescription in a drugstore staffed by a pharmacist.

Traditional drugs are herbal products that are routinely used to cure or prevent diseases. Monographs describing the medicinal value of these products can be found in Thailand's official pharmacopoeia of traditional medicines.<sup>4</sup> The Ministry of Public Health (MOPH) may also deem a drug "traditional" by declaring its suitability to be registered as such. Laws and regulations governing the registration and practice of traditional medicine are much less stringent than those for modern medicine.<sup>4</sup>

The traditional classification system of medicines was confusing and sometimes led to inappropriate classification of drugs.<sup>5</sup> In January 1999, the Thai government reformed the drug classification system to follow more closely international standards. The new system reclassified drugs into three categories: (1) non-prescription drugs, which can be sold by nonpharmacists, (2) drugs sold by pharmacists, which require no prescription but must be filled by a pharmacist, and (3) prescription drugs, which require a prescription and must be filled by a pharmacist. Under the new classification system, the National List of Essential Drugs, the standard drug price list in Thailand was revised to include about 800 items, compared with only 367 items before the list's revision.

In 2001, 15,507 pharmacists were registered with Thailand's Pharmacy Council, all of whom were practicing in modern medicine settings. At that time, the pharmacist:population ratio was 1:4,004.<sup>2</sup> Most registered pharmacists who work in modern medicine settings are concentrated around the Greater Bangkok Metropolitan Area (GBMA), following the same pattern of demographic distribution of medical doctors and dentists.<sup>2</sup> The Medical Registration Division Office of the Permanent

Secretary for Public Health reported that, in 1999, there were 16,100 pharmacists practicing in the traditional medicine setting, a slight increase from the reported 15,528 pharmacists in 1998.<sup>6</sup>

**Pharmaceutical industry.** The local pharmaceutical industry in Thailand mainly focuses on formulating drug products from imported active ingredients and manufacturing generic products. However, there is not much emphasis on research and drug development by the pharmaceutical industry. In Thailand, drug manufacturers are categorized into three groups:

1. Multinational corporations, which manufacture active ingredients and pharmaceutical formulations,
2. Thai-owned companies, which primarily focus on producing pharmaceutical formulations and, to a smaller extent, manufacturing active ingredients, and
3. The Government Pharmaceutical Organization (GPO), which primarily prepares pharmaceutical formulations for public medical establishments.<sup>7</sup>

Active ingredients are defined as drug compounds that carry medicinal values, whereas pharmaceutical formulations are finished drug products that facilitate the transport of active ingredients into specific physiological sites to exert pharmacologic effects in humans or animals. Of the 179 local pharmaceutical companies in Thailand, 4 produce active ingredients, 175 are registered with the Thai Food and Drug Administration (FDA) to produce pharmaceutical formulations in Thailand, and 130 have been awarded Good Manufacturing Practice (GMP) certificates.<sup>7</sup> Although GPO accounts for less than 10% of the total local production of pharmaceutical formulations, it is the main supplier of pharmaceuticals to medical establishments in the public sector.

In 1998, the domestic market for pharmaceutical formulations was estimated to have reached 25,380 million baht (equivalent to \$615 million).<sup>7,8</sup> There are 25,852 registered modern medicines in Thailand, 800 of which are included in the National List of Essential Drugs.<sup>7</sup>

The pharmaceutical industry in Thailand relies heavily on imported ingredients. According to the National Research Council of Thailand (NRCT), Thailand has the capacity, resources, and potential to develop its own active ingredient industry.<sup>7</sup> However, because multinational drug firms receive significant financial and operational support from their parent companies, they are the only firms capable of conducting research and development and producing patented products in the country.

Laws and regulations governing the pharmaceutical industry in Thailand are not as well developed and enforced as in western countries. In 1999, the Thai government revised these laws and regulations in an effort to improve the practice and safety of drug manufacturing. One major step taken by the Thai FDA was the implementation of GMP guidelines, which have been recommended to all manufacturers of pharmaceutical products.<sup>5</sup> To encourage drug companies to become GMP compliant, FDA officials offer GMP training programs to local manufacturers. Nevertheless, Thai drug manufacturing practices are still far from meeting international standards.

**Community pharmacies.** Community pharmacies serve as one of the major health care facilities where patients can access prescription and over-the-counter medications, accounting for 34% of total pharmaceutical sales in Thailand.<sup>5</sup> Pharmacies can be found everywhere in the GBMA, but are relatively few in suburban and rural areas. In 2001, there were 6505 modern pharmacies, 4815 pharmacies selling only ready-

packed drugs, and 1990 traditional drugstores.<sup>2</sup>

A typical pharmacy in Thailand provides access not only to medications but to a variety of products, including cosmetics and baby care products. Although no law strictly regulates the layout of a pharmacy, all medications requiring a prescription must be kept behind the counter. A counseling unit is generally located next to this counter area. Drug reference books must also be kept near the counter. Drugs classified as dangerous and prescription drugs must be kept separately from other drugs. There must also be a separate area for compounding, although such activity is uncommon in Thai community pharmacies. Pharmacies are also required by Thai law to place a sign in front of the premises indicating that the business sells medications.<sup>9</sup> A sign displaying the first and last names and qualification of the pharmacist who is on duty during business hours is also required.

All medications dispensed by a pharmacist must bear a label containing the following information:

- Name of the drug,
- Amount of medication dispensed,
- Dosage dispensed,
- Names of the active ingredients,
- Lot numbers,
- Manufacturer's name and location,
- Date of production,
- Drug classification (nonprescription drugs, drugs sold by pharmacists, prescription drugs), and
- Expiration date.<sup>9</sup>

Prescription medications in Thailand are available at a fraction of the prices charged in the United States. Furthermore, some medications that require a prescription for dispensing in the United States can be bought without a prescription in Thailand. For example, some antibiotics available in the United States only by prescription can be sold

without a prescription by a pharmacist in a drugstore in Thailand.

Community pharmacies in Thailand are divided into two types: modern and traditional. Modern pharmacies are further classified as those selling both drugs sold by pharmacists and prescription drugs and those selling drugs sold by pharmacists only. Pharmacies without a registered pharmacist also exist in Thailand and sell nonprescription drugs only.<sup>9</sup> Pharmacies selling drugs sold by pharmacists and prescription medications must be staffed by a pharmacist.

Traditional pharmacies are required by law to have an expert in traditional medicine on duty during business hours. In 1999, the Medical Registration Division Office of the Permanent Secretary for Public Health reported that there were more than 30,000 licensed traditional medicine practitioners, half of which were pharmacists.<sup>6</sup> In 2001, the Thai FDA reported the existence of 1990 traditional medicine drugstores in Thailand.<sup>2</sup>

The Thai FDA and the Pharmacy Council of Thailand, appointed by MOPH, regulate all areas of pharmacy practice. Once yearly, FDA inspects pharmacies to ensure that they are adhering to the appropriate rules and regulations. In addition to administering the pharmacist licensing examination, the Pharmacy Council sets the ethical and practice standards for pharmacists.

**Hospital pharmacies.** In 2000, the hospital bed:population ratio in Thailand was 1:454.<sup>2</sup> This is significantly better than the ratio reported in 1979 (1:752). Both public and private hospitals exist in Thailand. MOPH owns about two thirds of all hospitals and hospital beds across the country.<sup>2</sup> In 2000, MOPH owned 67.1% of hospitals and 64.4% of beds in the country. In 2000, there were 436 private hospitals, 50% of which had 50 or fewer beds, and only 113 had more than 100 beds.<sup>2</sup> Most pri-

vate and public hospitals are found near the GBMA. Outside the GBMA, hospitals and health facilities are categorized as regional, provincial, district, tambon, and village.<sup>2</sup>

Hospital pharmacies account for approximately 54% of pharmaceutical distribution in Thailand.<sup>7</sup> The major functions of hospital pharmacies in Thailand include the dispensing, compounding, and procurement of drugs, as well as the provision of clinical pharmacy activities. In hospitals where only one or a few pharmacists are available, drug procurement is a major job function for the pharmacists.<sup>2</sup> Unlike most hospitals in other countries, drug compounding is mostly conducted in regional and general hospital pharmacies, primarily to contain drug costs. The compounding of drugs by hospital pharmacists saves 9–10% of the hospital's total expenses, with an average saving of 3.79 million baht (\$91,779) and 0.92 million baht (\$22,279) in regional and general hospitals, respectively.<sup>8,10</sup>

In the past decade, clinical pharmacy services have been developed and offered by hospital pharmacists. Existing clinical pharmacy activities in MOPH hospitals include patient counseling, drug information services, patient–drug profile reviews, adverse-drug-reaction monitoring, therapeutic drug monitoring, and drug-utilization reviews.<sup>1,10</sup>

**Career opportunities.** Career opportunities in pharmacy are limited in Thailand. Those who pass the licensing examination may find it difficult to find a job if they do not establish their own business. In addition, not all drugstores sell drugs sold by pharmacists or prescription medications and, therefore, do not legally require the employment of a pharmacist. This is why the demand for pharmacists in the retail setting is relatively low compared with the demand in the United States.

As clinical pharmacy services are becoming increasingly common, ca-

reer opportunities in hospitals also may increase. However, the number of job opportunities in clinical pharmacy is lower than the number of pharmacy school graduates, and competition for the available clinical pharmacist positions is strong. With the creation of the clinically oriented doctor of pharmacy program, most graduates will be unwilling to assume the role of a dispensing pharmacist and opt for positions in the clinical setting, further enhancing the competition for clinical pharmacist positions in hospitals.

On the other hand, career opportunities in the pharmaceutical industry seem abundant and promising. In local drug companies, positions varying from quality assurance management to product management are readily available.<sup>11</sup> Although few drug companies in Thailand have research and development capabilities, reports from the NRCT suggest that some may soon develop such functions to gain a competitive advantage over foreign drug companies, which would expand the number of job opportunities in the pharmaceutical industry.

Opportunities in pharmaceutical sales are significantly fewer than those in the United States because

1. Pharmaceutical sales representatives are primarily hired by multinational drug firms that emphasize research and drug development. Very few of these firms establish their offices and do business in Thailand.
2. The prices of brand-name pharmaceuticals are much lower in Thailand than those in the United States. This discourages multinational drug firms to invest in building a large sales force to promote their products in Thailand.
3. The Advertising Control Division of the Thai FDA has stringent requirements regulating the advertisement and promotion of pharmaceuticals, creating barriers for the promotion of new products.<sup>8</sup>
4. The majority of the hospitals are publicly owned and must purchase the majority of their pharmaceuticals from GPO. This further discourages multinational drug companies from promoting their products in Thailand.

**Conclusion.** Thai drug manufacturing practices are still far from meeting international standards. Drug compounding is mostly conducted in regional and general hospital pharmacies, which differs from the practices of many other countries. Career opportunities for pharmacists are limited in Thailand, and those seeking jobs as clinical pharmacists face fierce competition. Opportunities for pharmacists in the pharmaceutical industry are plentiful, and the number may increase as local drug companies develop research and development functions to

gain a competitive advantage over foreign drug firms.

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