CHAPTER II
LITERATURE REVIEW

The purpose of this review is to provide a background of the health care system in Thailand and to explain the main elements of this thesis. This chapter is divided into five sections.

1) Health services in Thailand

2) Catastrophic health expenditure

3) Screening of poor households

4) Studies related to socioeconomic and health profiles in community pharmacies

5) Standard treatment guidelines for community pharmacies

2.1 Health service in Thailand

2.1.1 Health Care Systems

The Thai health insurance system can be divided into three main categories.

1) The Civil Servant Medical Benefit Scheme (CS) for government employees, pensioners and their dependants. In 2004, the total number of beneficiaries was seven million people (approximately 11% of the population).

2) The Social Security Scheme (SS) covers employees in the private sector. In 2004, out of the 65 million Thai citizens, eight million were insured workers (approximately 12% of the population).

3) The Universal Health Coverage Scheme (UC) is also known as the Gold Card Scheme (GCS), or the 30 Baht Scheme (so named because all illness are covered for 30 Thai Baht, approximately 0.75 USD at the time of writing). Individuals who are not beneficiaries of SS or CS and whose names are in the housing registrations in a catchment area can register for GCS (Jongudomsuk, 2005 & Suraratdecha, et al., 2005). In 2007, the 30 Baht healthcare scheme was replaced by

free medical treatment and renamed the Universal Healthcare Project (Thai Ministry of Public Health, 2007).

2.1.2 The Community pharmacy

In 1998, 1999, and 2000, the percentage of the Thai population purchasing medication for self-care were 16.8%, 15.4% and 18.6% respectively, with the rate of institutional care being 83.2%, 84.6% and 81.4%, respectively (Thai National Statistical Office, 2000).

The initial site for primary care for most Thai people with a mild illness is the drugstore, alternately referred to as the "community pharmacy" in this paper. Drugstores in Thailand are categorized into three types:

1) Type I drugstore: The registered pharmacist is required to be on duty during opening hours. The pharmacists are legally allowed to sell drugs including possibly dangerous drugs (known as prescription drugs in the US) such as antimicrobial agents as well as some narcotics without prescription (e.g., combination of diphenoxylate hydrocholoride and atropine), and some drugs that act on the central nervous system (e.g., diazepam, alprazolam, cholordiazepoxide, prazepam - these last two are known as controlled drugs in the US) with a prescription.

2) Type II drugstore: The pharmacist is not required to be on duty and is eligible to sell pre-packaged, non-dangerous drugs (knows as over-the-counter drugs in the US).

3) Traditional drugstore: A shop assistant who is trained in traditional medicine is qualified to sell herbal remedies (Thai Food and Drug Administration, 2005).

The majority of drugstores in Thailand are Type I, of which there were 8,801 in 2005 (Thai Drug Control Division, 2005). In 1998, drug distribution through drugstores accounted for 40% of all drug consumption in Thailand. The top five types of drug dispensed in drug stores were drugs for respiratory disorders, gastrointestinal disorders, musculoskeletal injuries and disorders, dermatologic disorders, and antibiotics (Thai Drug System Analysis Committee, 2002).

2.2 Catastrophic Health Expenditure Measured by Health Spending Impact (the Poverty Approach) (Naranong et al., 2007)

Every household most likely incurs some health costs and medical expenses. However, in many cases, severe illness in a household can cause a financial crisis.

Research in recent years shows that higher health expenditure can result in financial crisis for a household. This research relies on comparing health expenses in a living standards ratio (consumption, expenditure and income of households) with a standard index. The assumption that health spending in the living standards ratio is more than in the standard index affects consumption and the saving ability of households in the short-term. In addition, this leads some households to various liabilities and poverty.

There are two criteria for the classification mentioned above.

1) Health expenditure with regard to household consumption (including food and non-food expenditures) must be determined. If higher than 10%, household health expenditure is considered to be in a high-level crisis.

2) The following must also be taken into account: The ability of households to pay at a 25% rate by calculating the "ability to pay", then deducting necessary expenses or replacing with non-food consumption. For households that have high food consumption, that are often poor, only non-food expenditure should be considered because this will more effectively reveal catastrophic health expenditure.

There are certain limitations to this method of evaluating catastrophic health expenditure by the poverty approach as used in this study. Because this method requires household expenditure data for 12 months, it is not appropriate for use with community pharmacies.

The financial coping strategies and financial consequences described in the review titled, "Study on the Family's Ability to Pay for Financially Catastrophic Illness (FCI) Among Out-of-Pocket In-Patients: Songkhla Province" (Sujariyakul, 1999), were used in this research. The financial coping strategies (income and assets) contain (1) intra-household resources consisting of cash, saving and assets and (2) extra-household resources including loans or external funding from relatives. The financial consequences include becoming unable to send children to school/children dropping out of school, decreased income because factors of production have been sold,

and increased expenditure on paying interest of loans. This study has compensated by adding suitable questions regarding the above information to the questionnaire (See questionnaire in appendix 1). Although the criteria used in this research was not standard criteria, community pharmacies enabled easy obtainment of data without interfering with the participants.

2.3 Screening of poor households

2.3.1 Definition of poverty

Poverty is defined as poorness, which is based on the income levels and economic status of people that do not have enough income to live at a minimum standard or cannot support the minimum acceptable standard of quality of life in society. This definition of poverty, based on lack of income, is used for determining income or expenditure of households (Thailand Development Research Institute, n.d.).

The measurement of poverty in Thailand is determined from absolute poverty levels. This method defines the poor as those who have income below the poverty line. The poverty line is calculated from the bare minimum of food and essential goods needed by households. Therefore, the poor are those who have insufficient income to buy the bare minimum of food and essential goods (Thailand Development Research Institute, n.d.). Measuring in this way has disadvantages, because the poverty line is then represented as a single line across the country. In contrast, the price of goods for each area is different, and in rural areas, spending money is not the main factor for daily living (Limwattananon et al, 2005).

Nowadays, the concept of poverty not only concerns income or consumption, but also encompasses non-monetary elements such as lack of opportunities, power, and individual rights. Thus the tools used in measuring poverty also concern how to expand education and public health as well as increasing opportunities for access to factors of production, e.g., land, capital, and market.

"The Screening of Poor People Using Household Information" (Limwattananon et al; 2005) found that an innovative measure for poverty screeningwas developed without relying on the predetermined criterion of monetary income alone. This measure contains eight questionnaire items reflecting

socioeconomic characteristics of households. The original interview questionnaire with 26 binary indicators captures five poverty-related dimensions including income sufficiency, amount of debt and assets, ways of earning for a living, family burden, and life style. The eight items of poverty indicators include (1) insufficient income for family; (2) too few family members with income; (3) increasing debt; (4) inability to borrow money from other people; (5) no assets; (6) living from "hand to mouth"; (7) lack of working knowledge and skill, and (8) bearing burden of family dependents. This study found that using the summated scores of at least three as the cut point had the greatest precision in predicting the poor household (area under ROC curve = 93.6%), as compared with other cut-off scores. Thus, a household with the presence of at least three out of the eight poverty indicators would be classified as poor. These eight-item socioeconomic indicators can be used to screen the poor in both rural and urban areas and should be expanded to the national level.

This study used the eight items of poverty indicators for screening the poor households before determining sample groups to study.

2.4 Studies Related to Socioeconomic and Health Profiles in Community pharmacies

At present, there is an enormous amount of study being done on the role of community pharmacies because they are the primary providers of healthcare and are both close and significant to the Thai community. The development of a system to help people use suitable medication and develop the community's health administration is necessary. By using primary sources according to the situation and identifying issues with the community's actual pharmaceutical drug use, such as using data on self-medication behavior, many problems can be solve in a suitable way for the community. Nowadays, the government has provided partial UC coverage for community pharmacies in order to increase coverage for the people. Therefore, there are many studies on the roles of community pharmacies and universal health coverage in order to serve the needs of the people, according to the dynamics of the national health policy.

2.4.1 Health Status Survey and Used Drug of People in Community (Satayawongtip et al, 2003)

Since the government implemented the UC policy and started the UC program, professionals have been urged to improve the role of drug stores. The drug store, which is a primary health care provider for the community, should be able to respond to people's need even with changes to the national health system. University Pharmacy (UniPharm) is the only drug store in Thailand that participated in the UC program as a sub-contractor of Mahasarakham Hospital. Mahasarakham Hospital assigned the Nakkhawichai community as a study area for University Pharmacy to implement its active health activities. Understanding of health status and drug utilization in the community was a prerequisite for the University Pharmacy to plan an active public health intervention. This study consisted of surveys conducted by questionnaires. They studied health status, drug utilization and the proportion of people with risky behavior that live in the Nakkhawichai community. This study utilized conceptual framework from National Survey of Health to generate variables in the research. The survey in this study collected data two times. The first survey was form people who registered with UC at the municipal office of Mahasarakham province; in total there were 355 households. The second survey was an active method; the researcher visited 761 households.

The results showed that the presence of chronic disease and disability in two parts. The first survey results were: Hypertension 1.9%, diabetes 1.4%, cardiovascular 0.9%, tuberculosis 0.7%, kidney 0.2%, and disability 0.5%. The second survey results were: 3.4%, 2.9%, 0.8%, 0.1%, and 0.4% respectively (disability results were not shown). Drug used behavior results in the first survey were: Drug package 3.0%, bolus 0.9%, herbal medicine 2.2%, and drug purchase from a grocery store 1.5%. The results of the second survey were: Drug package 5.9% and drug allergy 4.7% (other data was not reported).

Health status and health services were split into two parts. The results of the first survey were: People with illness within two weeks prior to data collection were 5.2%; people with an injury within two weeks prior to data collection was 3.0%, and people admitted to hospitals within one year prior to data collection were 4.1%. In addition, ill people but not admitted in hospitals who went to private clinics instead

of hospitals were 45.1%, those who went to a government hospital were 36.3% and those who went to a drugstore were 8.8%. The percent of injured people who treated themselves at home was 37.3%, those who went to government hospitals was 33.9% and those who went to drugstores was 10.2%. The majority of people who had an illness within one year prior to data collection and were admitted to hospitals went to government hospitals (82.7%). The second survey found that people who had illness within two weeks prior to data collection were 9.3%; people injured within two weeks prior data collection were 1.7%; those who had an illness and were admitted to hospitals were 5.7%. Moreover, among people who used a health service when injured, 29.5% went to private clinics, 23.9% went to government hospitals, and 22.5%. went to drugstores.

Summary: The conclusion in this study had two limitations. First, the surveys did not cover all households in the area of study; the actual number of households was 843. However, this study only surveyed 355 households the first time and 761 the second time. Secondly, the information from this study did not include household income and therefore did not analyze the poverty factor.

2.4.2 A Survey of Utilization of Pharmacy Services by Social Security Beneficiaries in Bangkok and the Vicinity (Chalongsuk et al, 2008)

To facilitate access to health services by Social Security beneficiaries,the idea of integrating pharmacies and primary health units around local communities into the Social Security system was suggested. To gather information to support this idea, a survey of health services utilization and expenses was conducted on 900 Social Security beneficiaries in Bangkok and the surrounding vicinity. Those surveyed were divided three groups of 300 each: Trade and commerce, food and beverage, and industrial facilities. The study was conducted from February to Mach of 2007.

Of the questionnaire distributed, 99.7% were completed and returned. The majority of those surveyed were female (69.1%) with an age range from 19 to 64 years, and a mean range of 31.6 $\pm$ 7.5 years. A large percentage of those surveyed (54.5%) were college graduates and had an income range of 5001-10000 Baht/month. Most of them (80.5%) did not have underlying diseases. Percentages of underlying diseases that were present were: Peptic ulcer (37.6%), allergic rhinitis (24.9%),

and dyslipidemia (13.9%). Other underlying diseases such as thyroid, diabetes, asthma, myositis and migraines accounted for approximately 25.5%. From August 2006 to January 2007, nearly half (44.9%) of them had never used the service of health care units and 38.5% had used them a few times, while more than half (63%) had used the services of pharmacies. The reasons for choosing pharmacies were convenience and speed. Specifically, taking less time than government hospitals was 68.2% and ease of access was 51.1%. Types of service sought at pharmacies were: Buying medication for treating an illness (85.9%), drug or health counseling (14.4%), and purchasing other non-drugs items (15.3%). Most of them (62.4%) used service at a pharmacy one or two times, 23.8% used them three of four times, and 13.8 % used them more than four times. 78 % of those surveyed made purchases for common cold, headache, cough and sore throat; 28.2% made purchases for musculoskeletal pain; 27.3% made purchases for stomachache or diarrhea; 21.8% made purchases for urticaria or itching, 18.8% made purchases for peptic ulcers; 2.1% made purchases of oral contraceptives and other items. They used 20 to 500 Baht for services at a pharmacy for one visit with a mean of 130.53 Baht (SD 86.38) and mode of 100 Baht.

When comparing the satisfaction of experienced Social Security beneficiaries with services of health care units and pharmacies it was found that points of satisfaction for hospitals averaged 6.5, SD 1.8 points and for drug stores averaged 7.9, SD 1.3 points. This difference was statistically significant ($p=0.001$). Moreover, the great majority of those self-insured (91.0%) thought that health service expansion to pharmacies (which provided more services) was beneficial to them. However, quality control of the pharmacies by the government is needed.

Summary: From this research, the information of those visiting drug stores in the previous six months was surveyed via questionnaire. The information about spending has limitations because symptoms of illness cannot be determined by drug expenditure.

2.4.3 Factors Affecting Antibiotic Dispensing for Upper Respiratory Infections Among Community Pharmacies (Saengcharoen, 2007)

The chief objectives of this study was to determined pharmacists'intent to dispense antibiotics by sending mail to all community pharmacies in the south of Thailand. The second objective was to evaluate the quality of health service

of community pharmacies and to investigate whether gender and socioeconomic status (SES) appearance of simulated clients (SCs) influence the practice patterns of the pharmacists using Upper respiratory tract infection (URI) as a case study. Research for the second objective was conducted at 32 drugstores in the south of Thailand with four male and four female SCs. Each SC visited eight drugstores twice, one month apart, one with moderate and another with low SES appearance, and in random order. Key outcome variables were history taking, advice giving and antibiotic dispensing.

The number of questionnaires returned was 656 (response rate 79.0%). The pharmacists' intention to dispense antibiotics for URI was low (2.35 ± 1.85, on 7-point scale) and was strongly influenced by attitude. The belief that antibiotics provide no benefit had the strongest effect on attitude. In SCM study, the mean scores of history taking and advice giving were low. Among 128 encounters, antibiotics, corticosteroids and nonsteroidal anti-inflammatory drugs were dispensed in 87.5%, 12.5%, and 7.8% of encounters, respectively. The actions of pharmacists did not differ according to SC's gender or SES appearance.

Summary: This study found that the pharmacists' intention to dispense antibiotics was low, but in SCM study showed that antibiotics were often dispensed. This study shows that dispensation should be standardized and controlled. Furthermore, the socioeconomic status of poor patient does not affect services from pharmacists.

2.4.4 Self-medication of Thai People Suffering Illness (Kanchanakitsakul, 2006)

The aims of this study were (1) to explore self-medication among Thais with an illness and (2) to investigate factors related to self-medication of Thai people. The data source was the National Survey of Health and Welfare in 2005, conducted by the National Statistical Office (NSO), Thailand. The sample consisted of persons suffering illness within the last month prior to the interview date in April, 2005. The sample size was 13,282 people. The measurement of self-medication in this study used a question about health care treatment of the most recent illness. The sample groups were divided into two groups, those self-medicating and those not self-medicating. The definition of self-medication in this study was (1) buying or

seeking medication by oneself (2) buying from drug stores either with or without pharmacists (3) parent buying medication for their children and (4) buying medication after obtaining drug name from a doctor.

The majority (54.6%) of those sampled did not have a chronic disease. Most of them (57.9%) were female. Nearly half were in the age range of 15 to 59 years old and the average age was 40.3 years. Many of them (65.7%) were married. There were three or four members in each household. Most of those sampled (68.5%) had completed primary education. More than half had a monthly income lower than 5000 Baht. The median monthly income was 4000 Baht. Almost all those sampled (96.5%) received medical benefits from insurance. Not all, but most of them had UC. A relatively large number of them (27.4%) lived in the middle region of Thailand (not including Bangkok). More than half (53.5%) lived in the municipality zone.

This study showed that about 20.3% of Thais self-medicated. Significant factors related to self-medication included (1) having chronic disease, (2) receiving health welfare, (3) region, and (4) place of residence. Those without chronic disease, without health welfare, or living in Bangkok or other urban areas are more likely to self-medicate.

Summary: This study used information from the National Survey of Health and Welfare in 2005 but lacks important data, especially the symptoms of those buying medicine for self-medication, the type of drug stores, and drug details.

2.4.5 Primary Care Services of Community Pharmacy in Health Insurance System: A Case Study of Mahasarakham University Pharmacy in Universal Health Care Coverage (Chaisong et al, 2005)

This study suggested that the community pharmacy should be linked with public health services to reduce the gap preventing access to health care services. The study aimed to 1) describe the contracting model of a community pharmacy to Contracting Unit for Primary care (CUP), 2) measure patients' choice to receive care at a community pharmacy (N = 135 patients who had access to the community pharmacy study site during the period from May to October 2003, 3) determine the unit cost of community pharmacy services in 2003, and 4) conduct in-depth interviews with experts.

Based on Mahasarakham University Pharmacy, the sub-contractor of Mahasarakham Provincial Hospital, the essential criteria for being contracted are having a full-time pharmacist and following the Standards for Drug Stores of the Pharmacy Council. The primary care services that pharmacists are responsible for under the contracting guidelines include refilling prescriptions for patients with diabetes, monitoring patients with hypertension or tuberculosis, and dispensing medication to patients with common illnesses. Such illnesses include problems with the gastrointestinal (GI) tract system and parasites, the respiratory system, the eye ear nose throat (EENT), the neuro-muscular system, the dermatological system, and the urinary tract system, and sexual transmitted diseases (STDs). The drug list consisted of 105 items (27 items for chronic disease and 78 items for common illnesses), and they were subsidized by Mahasarakham Provincial Hospital, the main contractor. The financial incentive to the community pharmacy was that the patients were required to pay 30 Baht per visit.

The results show that most of them (50.4%) were female. The average age was 26 years. Dividing by age group showed that (26.7%) were 1 - 9 years old and 18.5% were 10 - 19 years old. Most of the sampled (24.4%) had completed primary education. 23% of them did not have to work and 27.4% were students. 43% had an average monthly income below 2,000 Baht and 32.6% had one of 2,000 - 5,000 Baht.

The average household income per month was 5,000 - 10,000 Baht (45.2%). The number that used services in a community pharmacy for a common disease was 729 (1331 times). Most of them had UC (59.8%) and they paid 30 Baht for the services.

During May to October of 2003, the number of services was 135. 34.8% of the symptoms were fever/nasal congestion/running nose, 6.7% were cough, 6.7% were itchiness, 5.2% were fever with running nose and cough, 3.7% were sore throat, 3.7% were flatulence, 3.7% were musculoskeletal and back pain, 3.0% were joint pain , 4.5% were headache, and other symptoms. 21.5% of those sampled waited two days before received services at the community pharmacy and 81.5% did not receive any other treatment before visiting the pharmacy. 14.8% received treatment

before going to the pharmacy; 6.7 % went to private clinic, 5.2% went to other drug stores, 2.2% went to hospitals, and 0.7% used packaged drugs.

The patients were surveyed at home, one week after visiting the community pharmacy. They reported 68.9% success with their treatments and 28.1% reported they were partially improving. There were 12 patients who were referred for further treatment (hospital 66.7%, clinic 16.7%, and drug store 8.3%). The indications for further treatments were: Partial improvement (41.7%), no improvement (16.7%), and need for treatment of other illness (33.3%). The patients reported 100% receiving of counseling by the pharmacist (about their disease, medication instructions, and self-care) and 81.5% strictly followed the instructions while 89.6% complied with medication instructions. Patients rated the pharmacy with high satisfaction because of convenience, easy access, short waiting time, and confidence in pharmacists. The reasons why they chose to seek care at the community pharmacy included commonness of their illnesses, convenience, short waiting time, and good counseling service. The unit cost of primary care service and administration at the community pharmacy was 22.31 Baht per visit (not including the cost of medication). It was estimated that the community pharmacy provided primary care services for 5,341 people with lower administrative cost than a hospital. Expert opinion suggested that this new role of the community pharmacy should provide primary care services and drug inventory for other settings in the community. Policy makers could greatly utilize information on how workload and total costs were reduced when considering all parties' involvement.

Summary: The limitations of this study involved (1) the patients who received treatment elsewhere prior to the community pharmacy that did not shown disease (2) patients with partial improvement that did not show disease (3) patients who received further treatment whose disease was not specified (4) patient whose symptoms were recorded were relatively few (135) compared to the total number (729) of those who used services at the community pharmacy during the study. However, this study had many advantages and established a standard treatment guideline for use in future research. It also provided important information regarding duration of illness and use of previous treatment.

2.5 Standard Treatment Guidelines

Current guidelines for treatment at community pharmacies in Thailand have not been published. In the course of this study, the author reviewed literature and reference standard treatment guidelines for community pharmacies from the study, "Primary care services of community pharmacy in health insurance system: A case study of Mahasarakham university pharmacy in universal health care coverage" (Chaiyasong et al, 2005). This research established standard treatment guidelines for good practice, appropriate pharmaceutical care, dispensation for relief of basic symptoms, medication advice, and screening patients for referral.

This study used standard treatment guideline according to six groups of the symptoms: urinary tract symptoms, fever/headache, throat/nose symptoms, skin symptoms, joint/back/musculoskeletal pain symptoms, and gastrointestinal tract symptoms (Appendix 2).