

## CHAPTER I

### BACKGROUND AND SIGNIFICANCE

The epidemiological report of the United States of America, for laboratory sensitivity tests and clinical patients in 1943 and 1965, respectively, children who had acute cochleitis and oral cephalosporin-resistant pulmonitis in 1995, the Centers for Disease Control and Prevention (CDC) surveyed severe infections with 12,045 samples for pathogen alterations.

The frequency of erythromycin-resistant pathogens increased to 15% from 10%, and those resistant to the quinolones increased to 3.8% from 2.06%.

Regarding Southeast Asian and Thailand reports, a case study of 996 samples was conducted by the Asian Network for Surveillance of Resistant Pathogens (ANSORP), in 1996-1997. The sample comprised 665 (66.8%) secretions, 140 (14.1%) blood tests, and 36 (3.6%) CSF samples. The findings showed penicillin resistance among 57.9% of the Thai children, which was greater than Sri Lanka, at 41.2%, Taiwan at 38.7%, and Singapore at 23.1%

Infectious diseases are very important causes of illness among the Thai population, and promote the widespread use of antibiotics. The misuse of antibiotics promotes resistance among pathogenic organisms, treatment failure, and difficulties with disease control. *Staphylococcus aureus* is one pathogen with increased resistance, and particularly methicillin-resistant *S. aureus* (MRSA) was found to be a cause of infection in hospitals in 30-60% of cases. MRSA resisted all drugs in the penicillinase-resistant penicillin (beta-lactams) group and other drug groups, e.g. the aminoglycosides/marolides (Suwanna Trakulsomboon et al., 2003).

The Infection Monitoring Center Authority of Thailand, in 1993-2000, reported that 45.6% of Thai children aged < 5 years had drug resistance. Moderate and high levels of penicillin resistance were 41.8 and 3.8%, respectively, compared with 2.1% of Philippino children aged < 5 years. Moderate-level penicillin resistance was 2.1% and there was no high penicillin resistance, because Thai people consumed antibiotic drugs, with 40% stating that it was the number one medical expense.

The inappropriate consumption of antibiotics by the Thai people, at 45.69%, is a cause of drug resistance. Drug use among children is a delegated process, especially for children in the care of caretakers. Convincing words or force may have to be used for the administration of the necessary drugs, even if children disagree, particularly for antibiotics that must be administered according to a physician's prescription. Incomplete and/or improper drug use can promote recurrent illness.

Regarding the dangers of improper drug use, the study by Keawkajee, T. indicated that only 8% of caretakers used drugs appropriately. Eighty percent (80%) of caretakers used cooled boiled water to mix drugs; 94% shook the bottle before pouring and used a standard spoon to measure the drug; and 65% gave the drug as directed before a meal. Harm is caused by the incorrect use of medications, using antibiotics at the wrong dosage, using the wrong methods and times, which all promote the development of resistant pathogens, i.e., bacteria developed by mutation. It also transfers drug-resistance properties to other sensitive bacteria. Misuse of antibiotics generates increases in bacterial mutation. Significantly, it can kill more sensitive bacteria that could be used as alternatives to drug-resistant bacteria. The outcome of this situation would be bacterial drug-resistance, resulting in ineffective antibiotics and drug resistance among many kinds of bacteria. Complications, which would be new diseases from the drug-resistant bacteria or fungi, would occur. Fungi cause infections of the tongue, mouth, and digestive tract. The fungal infection would disappear without human intervention after cessation of the antibiotic for a period. The major dangers of misusing antibiotics are death, kidney dysfunction, or deafness.

Trang Province spent 40% of its total drug budget on antibiotics and Wangwiset District spent a similar budget on antibiotics, with a trend of 10% increase each year. However, the overall health status of the population has not improved, witnessed by the average numbers of patients using hospital services. Wangwiset Hospital is responsible for treating and preventing disease, and promoting the health of the people. In 2003, 2,987 patients were children < 5 years of age. The Community Pharmaceutical Division was responsible for providing and dispensing drugs according to physicians' prescriptions and according to the correct medication principles, for instance, the correct dosage, the correct person, and the correct method. Knowledge about drugs, their properties, and the duration of drug use are provided, especially regarding antibiotics used with children.

### **General Objective**

To study caretaker knowledge, attitudes and behaviors related to the use of antibiotics for children under 5 years of age attending the Outpatient Clinic of Wangwiset Hospital, Trang Province.

### **Specific Objectives**

1. Examine socio-demographic data--age, marital status, highest education, occupation, family income/month, number of family members, relationship between caretaker and children, number of children, knowledge, attitudes--of caretakers of children under 5 years old attending the Outpatient Clinic of Wangwiset Hospital, Trang Province.

2. Examine the attitudes of caretakers for children under 5 years of age attending the Outpatient Clinic of Wangwiset Hospital, Trang Province.

3. Examine the relationship between socio-demographics and knowledge levels, attitude levels, and behaviors.

### **Expected Outcomes**

1. Obtain basic information on knowledge, attitudes and behaviors of caretakers related to the use of antibiotics for children under 5 years of age attending the Outpatient Clinic of Wangwiset Hospital, Trang Province.

2. Use the information gained to modify the pharmaceutical operational processes of Wangwiset Hospital, Trang Province.

### **Research Questions**

1. What is the level of caretaker knowledge related to the use of antibiotics with children aged < 5 years attending the Outpatient Clinic of Wangwiset Hospital, Trang Province?

2. What are the caretaker attitudes related to using antibiotics with children aged < 5 years attending the Outpatient Clinic of Wangwiset Hospital, Trang Province?

3. What are the behaviors of caretakers related to using antibiotics with children aged < 5 years attending the Outpatient Clinic of Wangwiset Hospital, Trang Province?

### **Variables**

#### 1. Independent variables

##### 1.1 Socio-demographics

1.1.1 age

1.1.2 marital status

1.1.3 highest level of education

1.1.4 occupation

1.1.5 total family income per month

1.1.6 number of family members

1.1.7 relationship between caretaker and children

1.1.8 number of children

1.2 Knowledge of caretakers about the use of antibiotics.

1.3 Attitudes of caretakers about the use of antibiotics.

#### 2. Dependent variables

Behaviors related to use of antibiotics

2.1 Shake drug bottle before pouring

2.2 Take drug before and after meals, according to the physician's directions

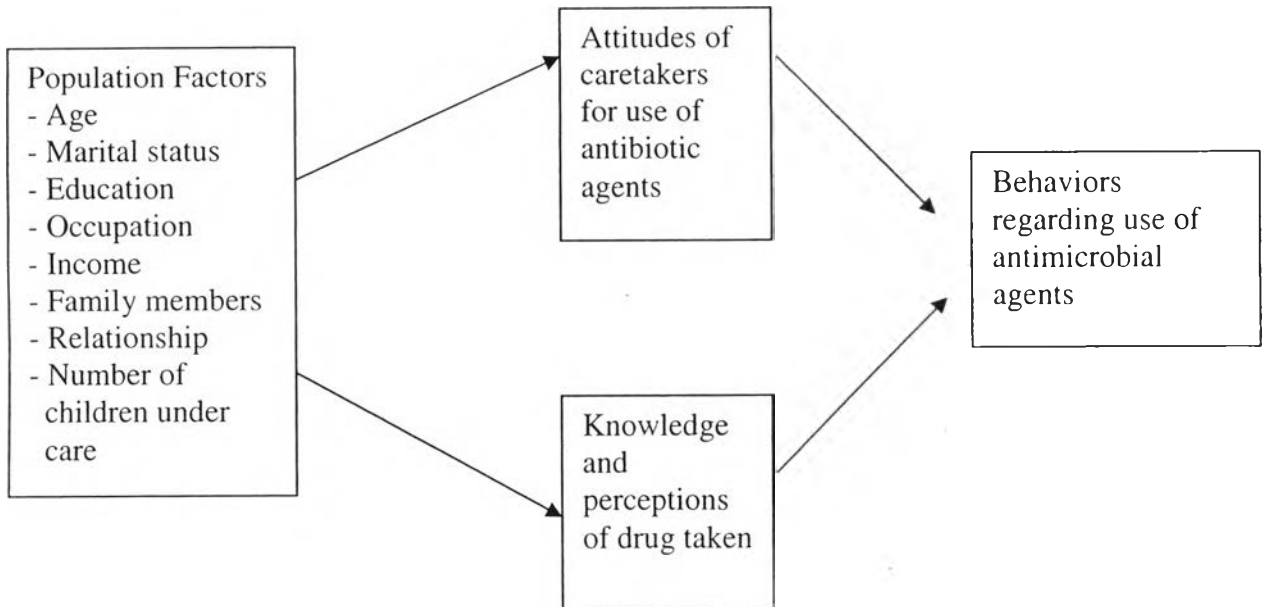
- 2.3 For pre-meal drugs, take 30 minutes before a meal.
- 2.4 Read the label thoroughly every time, before giving the drug to the child
- 2.5 Administer the correct number of doses according to the prescription
- 2.6 Administer dosage amounts according to the label
- 2.7 Post-meal drugs are taken immediately, or 15-20 minutes after, the meal.
- 2.8 Take antibiotic until treatment course completed.
- 2.9 Use water of the appropriate temperature to mix dry-syrup antibiotic.
- 2.10 Take antibiotic every time according to the label
- 2.11 Use a standard measure for the drug.
- 2.12 Keep the drug in an appropriate place.
- 2.13 Course of action when forgot to take drug.

## Variable Table

**Table 1.1: Research variables**

Conceptual Variables Scales	Operational Variables	Determinant
Socio-demographics	1. age	Ratio
	2. marital status	Nominal
	3. highest education	Ordinal
	4. occupation	Nominal
	5. family income per month	Ordinal
	6. number of family members	Ordinal
	7. relationship	Nominal
	8. number of children	Ordinal
Knowledge	Test level of knowledge	Ordinal
Attitudes	Likert scale for attitude	Ordinal
Behaviors	Likert scale for practices	Ordinal

### Conceptual Framework



**Figure 1: Conceptual framework**