

# Drug Use Knowledge and Antimicrobial Drug Use Behavior

Pimporn Thongmuang

**Abstract**—The import value of Antimicrobial drugs reached approximately fifteen million Baht in 2010, considered as the highest import value of all modern drugs, and this value is rising every year. Antimicrobials are considered the hazardous drugs by the Ministry of Public Health (No. 10). This research was conducted in order to investigate the past knowledge of drug use and Antimicrobial drug use behavior. A total of 757 students were selected as the samples out of a population of 1,800 students. This selected students had the experience of Antimicrobial drugs use a year ago. A questionnaire was utilized in this research. The findings put on the view that knowledge gained by the students about proper use of Antimicrobials drugs was not brought into practice. This suggests that the education procedure regarding drug use needs adjustment. And therefore the findings of this research are expected to be utilized as guidelines for educating people about the proper use of Antimicrobials drugs. At a broader perspective, correct drug use behavior of the public may potentially reduce drug cost of the Ministry of Public Health of Thailand.

**Keywords**—Drug Use Knowledge, Antimicrobial Drugs, Drug Use Behavior.

## I. INTRODUCTION

ONE of the most important imported drug problems in Thailand is the imported Antimicrobial drugs. The import value reached 15,074.74 million Baht in 2010 which is considered the highest import value of all modern drugs, and the demand of this drug continues to rise every year [1]. Antimicrobials are considered the hazardous drugs by the Ministry of Public Health (Edition 10) [2]. This research was conducted to investigate past knowledge of drug use and Antimicrobials drug use behavior. The findings of this research were expected to be utilized as guidelines for educating people about the proper use of Antimicrobial drugs. At a broader perspective, correct drug use behavior of the public may potentially reduce drug cost of the Ministry of Public Health of Thailand.

## II. LITERATURE REVIEW

A review of past studies concerning the use of Antimicrobial drugs of the staffs working for the Department of Local Administration in Phra Nakhon Si Ayutthaya Province, Thailand revealed that the among the 252 respondents, 57.9 percent of them stopped consuming the drug before the prescribed period of time, 67.1 percent forgot to consume the drug according to the prescribed period of time,

and 29.8 percent gave the Antimicrobials drugs to others whom they know [3]. This finding indicated Antimicrobial drug misuse behavior.

## III. METHODOLOGY

The population for this paper was 1,800 bachelor degree students who registered for the Sciences, Technology and Quality of Life Course conducted during the semester 2 of the academic year 2012, by the Faculty of General Education and Electronic Learning Innovation, Suan Sunandha Rajabhat University. The sample size of the study was 757 students, selected by a primary survey of those who had used Antimicrobial drugs a year ago. After that, questionnaires were given to the 757 students in the classroom with 20 minutes to answer the questions. The questionnaire was divided into 2 main parts. The first was the close-ended questions including the respondents' demographic information which were gender, age and income per month, as well as past knowledge of Antimicrobial drug use and ways to obtain the Antimicrobials. The second part demonstrated 7 items of past behavior of Antimicrobials drug use: (1) using the drug for common cold with running nose but without sore throat; (2) forgetting to use the drug at some meals; (3) stopping to use the drug immediately after the symptom was relieved despite some pills being left over; (4) not taking the drug until finished as prescribed; (5) giving the same medicine to friends or relatives when they had the same symptom as the respondent had; (6) taking the drug for joint or muscle pains; and (7) sharing their prescribed drug to others resulting in their taking less proportion of drug than prescribed. The answer choice was designed into "yes" and "no" in responding to the provided items, where "yes" meant the respondent had that particular behavior towards the items while "no" meant the respondent never had that particular behavior towards the item.

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TABLE I  
DEMOGRAPHIC AND PAST KNOWLEDGE OF DRUG USE

	Frequency	Percent	N
<b>1.Gender</b>			757
Female	623	82.3	
Male	134	17.7	
<b>2.Age</b>			757
Below 18 years old	9	1.2	
18 – 20 years old	731	96.6	
21 – 22 years old	13	1.7	
Above 22 years old	4	0.5	
<b>3.Salary per month</b>			757
Below 5,000 - 5,000 Baht	471	62.2	
5,001 - 10,000 Baht	256	33.8	
Above 10,000 Baht	30	4.0	
<b>4.Past knowledge of drug use</b>			757
Yes	501	66.2	
No	256	33.8	

#### IV. FINDINGS

The demographics are illustrated in Table I. The majority of the respondents were female (82.3 percent), whereas male respondents shared only 17.7 percent. Most of the respondents were between the age of 18 and 20 years old (96.6 percent), followed by those being between 21 and 22 years old (1.7 percent), below 18 years old (1.2 percent) and above 22 years old (0.5 percent). The majority of the respondents, 62.6 percent, had a salary per month between below 5,000 Baht and 5,000 Baht. The second group had a salary between 5,001 - 10,000 Baht (33.8 percent) and the last group had a salary above 10,000 Baht (4.0 percent). In responding to the question regarding ways to obtain the Antimicrobials (Table II), most students received the drug prescribed by a doctor after receiving the diagnosis at a hospital and public health center (41.0 percent). Thirty point five percent (30.5 percent) of them described their symptom to the pharmacist at the pharmacy before buying the drug then prescribed by a pharmacist, whereas 20.1 percent of them received the prescribed drug at clinic after receiving the diagnosis at hospital. Furthermore, only 7.5 percent of them bought the drug by indicating the drug they wanted to buy at a modern drug store, while a very few percentage of them, before buying the drug by themselves, asked for the drug information such as the name of the drug they wanted to buy from their relatives (0.8 percent) and from their friends (0.1 percent) respectively.

In respect to past behavior of Antimicrobials drug use of the respondents reported in Table III, the finding revealed that the majority of student respondents used the drug for common cold with running nose but without sore throat (84.1 percent), forgot to use the drug at some meals (84.0 percent), stopped to use the drug immediately after the symptom was relieved despite some pills being left over (83.8 percent), did not take the drug until finished as prescribed (81.2 percent). In addition, the study found that many respondents (60.2 percent) gave the same medicines to friends or relatives when they had the same symptom as the respondent had, while 53.1 percent took the drug for joint or muscle pains, and 39.0 percent shared their prescribed drug to others resulting in their taking less proportion of the drug than prescribed.

TABLE II  
WAYS OF OBTAINING ANTIMICROBIAL DRUG

Ways to obtain Antimicrobial drug	Frequency	Percent
1. Receiving the drug prescribed by the doctor after receiving the diagnosis at a hospital and public health center.	310	41.0
2. Describing their symptom to the pharmacist at a pharmacy before buying the drug prescribed by the pharmacist.	231	30.5
3. Receiving the prescribed drug at a clinic after receiving the diagnosis at hospital.	152	20.1
4. Buying the drug by indicating the drug wanted to buy at a modern drug store.	57	7.5
5. Asking relatives about the drug name before buying at a modern drug store.	6	0.8
6. Asking friends about the drug name before buying it at a modern drug store.	1	0.1
Total	757	100

TABLE III  
PAST BEHAVIOR OF ANTIMICROBIALS DRUG USE

Past behavior of Antimicrobials drug use	Frequency	Percent
1. Using the drug for common cold with running nose but without sore throat	637	84.1
2. Forgetting to use the drug at some meals	636	84.0
3. Stopping drug use immediately after the symptom is relieved despite some pills being left over	634	83.8
4. Not taking the drug until finished as prescribed	615	81.2
5. Giving the same medicines to friends or relatives when they have the same symptom as the respondent had	456	60.2
6. Taking the drug for joint or muscle pains	402	53.1
7. Sharing their prescribed drug to others resulting in taking less of drug than prescribed	295	39.0

Regarding the past knowledge of use of Antimicrobials drugs, the result shown in Table IV suggested an interesting aspect. Despite the fact that the students had knowledge about the proper use of Antimicrobial drugs, most of them (68.5 percent) still had wrong practices in using the drug. The study found that the students still gave the same medicine to friends or relatives when these friends and relatives had the same symptom as the respondent had and these knowledgeable students also took the drug for joint or muscle pains (69.7 percent), followed by 69.5 percent who shared their prescribed drug to others resulting in taking less of the drug than prescribed, 68.0 percent for those who did not take the drug until finished as prescribed, 67.9 percent forgot to use the drug at some meals, 67.3 percent used the drug for common cold with running nose but without sore throat, and 67.2 percent stopped the drug use immediately after the symptom was relieved despite some pills being left over.

TABLE IV  
PAST BEHAVIOR AGAINST PAST KNOWLEDGE OF ANTIMICROBIALS USE

Past behavior of Antimicrobials drug use	Past knowledge of Antimicrobials drug use (Percent)	
	No	Yes
1. Giving the same medicines to friends or relatives when they have the same symptom as the respondent does	30.3	69.7
2. Taking the drug for joint or muscle pains	30.3	69.7
3. Sharing their prescribed drug to others resulting in their taking less proportion of drug than prescribed	30.5	69.5
4. Not taking the drug until finished as prescribed	32.0	68.0
5. Forgetting to use the drug at some meals	32.8	67.9
6. Using the drug for common cold with running nose but without sore throat	32.7	67.3
7. Stopping drug use immediately after the symptom is relieved despite some pills being left over	88	67.2

#### V. DISCUSSION

The findings illustrated that knowledge gained by students about the proper use of Antimicrobials drugs is not brought into practice. Even so for the students who did not have this knowledge of usage, there must be developed a serious education method on how to use Antimicrobials drug properly related with other medicines and drugs. The study of past knowledge of drug use and Antimicrobial drug use behavior revealed that many students frequently used Antimicrobial drugs for common cold with running nose but without sore throat, and used the drug for joint or muscle pains. Antimicrobial drugs are normally used for treating bacterial infections in human and animal patients. Misuse and overuse of antimicrobial drugs can lead to the development of Antimicrobial drug resistance as antimicrobial resistant bacteria will increase in numbers more rapidly than antimicrobial susceptible bacteria [4]. Use of Antimicrobials for curing joint or muscle pains cannot be effective as the pains are not caused by infection in the same way a contaminated wound is. The students' behavior of not taking the drug until finished as prescribed as well as forgetting to use the drug at some meals can be a driving force in the failure of curing. This is by the reason that the level of drug concentration is lower than the appropriate level designed to can kill the bacteria with effectiveness. As a result, this can endorse gradual development of stronger bacteria or even bacterial mutations which can be resistant to the antimicrobials. Ineffective treatment caused by misuse of drugs can lead to higher cost to be invested in developing newer and stronger drugs for public treatment. To be concluded, appropriate use of drugs with medical knowledge can enhance the effects of the drugs' performance with the least harmful to health [5]. Buying the drugs prescribed by a pharmacist who has a pharmacy license at legally registered drug store is a safe behavior when healing normal infection.

#### VI. LIMITATION AND FUTURE RESEARCH

The research findings may be beneficial as a guideline in designing education instructions for the students in regards to Antimicrobials drugs use. Teaching lessons suggested teaching lessons may be divided into 3 main topics including

the causes of antimicrobials drugs resistance, the multifaceted roles of antimicrobials resistance in nature, and ways to reduce antimicrobials resistance, with the use of case studies.

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