

พฤติกรรมในการป้องกันวันโรค ของผู้อพยพชาวพม่า  
ในเขตอำเภอเมือง จังหวัดภูเก็ต ประเทศไทย



นางสาวนันทน์ ต่อคา ทวิน

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาการพัฒนาระบบสาธารณสุข

วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2551

ลิขสิทธิ์ของ จุฬาลงกรณ์มหาวิทยาลัย

PREVENTIVE BEHAVIORS OF TUBERCULOSIS AMONG  
MYANMAR MIGRANTS AT MUANG DISTRICT,  
PHUKET PROVINCE, THAILAND



Ms. Hnin Thawda Thwin

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

A Thesis Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Public Health Program in Health Systems Development

College of Public Health Sciences

Chulalongkorn University

Academic Year 2008

Copyright of Chulalongkorn University

Thesis title            PREVENTIVE BEHAVIORS OF TUBERCULOSIS AMONG  
MYANMAR MIGRANTS AT MUANG DISTRICT,  
PHUKET PROVINCE, THAILAND

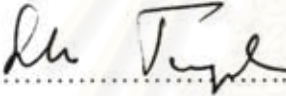
By                         Ms. Hnin Thawda Thwin

Field of Study         Health Systems Development

Advisor                 Robert S. Chapman, M.D, M.P.H

---


Accepted by College of Public Health Sciences, Chulalongkorn University in  
Partial Fulfillment of the Requirement for Master's Degree

  
..... Dean of the College of Public Health Sciences  
(Professor Surasak Taneepanichsakul, M.D.)

#### THESIS COMMITTEE

  
..... Chairperson  
(Associate Professor Somrat Lertmaharit, M.Sc., M.Med. Stat.)

  
..... Advisor  
(Robert S. Chapman, M.D., M.P.H.)

  
..... External Examiner  
(Associate Professor Ong-Arj Viputsiri, M.D., Dr. PH.)

นีน ต่อคา ทวิน: พฤติกรรมการป้องกันตัวจากวัณโรคในผู้อพยพชาวพม่าในอำเภอเมือง จังหวัดภูเก็ต ประเทศไทย (Preventive Behaviors of Tuberculosis among Myanmar Migrants at Muang District, Phuket Province, Thailand) อ. ที่ปริกษาวิทยานิพนธ์ คร. โรเบิร์ต เอส แซฟแมน, 89 หน้า.

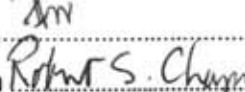
การศึกษานี้มีจุดประสงค์เพื่อสำรวจปัจจัยที่เกี่ยวข้องกับพฤติกรรมการป้องกันตัวจากวัณโรค ในผู้อพยพชาวพม่าในอำเภอเมือง จังหวัดภูเก็ต ประเทศไทย เป็นการศึกษาภาคตัดขวางจากการสำรวจ 15 ชุมชน ผู้อพยพพม่า จำนวน 342 คนในเขตอำเภอเมือง ด้วยวิธีการสุ่มแบบกลุ่ม จากการประกอบอาชีพและทำการสุ่มตัวอย่างด้วยวิธีการสุ่มแบบตามสะดวกในแต่ละอาชีพ และใช้สถิติแบบนอนพารามेटริก เพื่อการทดสอบสมมติฐาน เนื่องจากข้อมูลพฤติกรรมการป้องกันตัวเป็นการกระจายตัวแบบไม่ปกติ

จากการใช้สถิติเชิงพรรณนา พฤติกรรมการป้องกันตัวของผู้อพยพร้อยละ 43.6 อยู่ในระดับดี (มากร้อยละ 80 ของคะแนนทั้งหมด) ร้อยละ 30.1 มีองค์ความรู้ที่อยู่ในระดับดี ร้อยละ 45.3 มีความเข้าใจในระดับดี และพบว่าร้อยละ 49.4 มีอุปสรรคต่อพฤติกรรมการป้องกันตัว ผู้อพยพได้รับข้อมูลข่าวสาร เกี่ยวกับวัณโรคจากหลายแหล่งข้อมูล แต่มีจำนวนน้อยมากได้รับข้อมูลจากครอบครัวและร้านขายยา ร้อยละ 12 ไม่เคยได้รับข้อมูลเกี่ยวกับ วัณโรค และร้อยละ 74.6 ไม่เคยได้รับรู้เกี่ยวกับการรักษาวัณโรค

ความสัมพันธ์ระหว่างลักษณะทางประชากรและสังคมกับพฤติกรรมการป้องกันตัว มีความสัมพันธ์อย่างมีนัยสำคัญ ( $p < 0.05$ ) มีการปฏิบัติตัวในการป้องกันวัณโรค เมื่ออายุเพิ่มขึ้นของเพศหญิงดีกว่าเพศชาย กลุ่มผู้ที่แต่งงานแล้วมีพฤติกรรมและการปฏิบัติตัวในการป้องกันตัวสูงกว่ากลุ่มผู้มีการศึกษากลุ่มชนเชื้อสายพม่า มีการปฏิบัติตัวในการป้องกันตัวดีกว่า และผู้อพยพที่ลงทะเบียนมีการปฏิบัติตัวในการป้องกันตัวดีกว่าผู้อพยพที่ยังไม่ได้ลงทะเบียน คะแนนพฤติกรรมการป้องกันตัวมีความสัมพันธ์ เชิงบวกกับคะแนนองค์ความรู้ที่มีนัยสำคัญ ( $p < 0.001$ ) แต่ไม่มีความสัมพันธ์กับคะแนนความเข้าใจ และคะแนนอุปสรรค นอกจากนี้พบว่าคะแนนองค์ความรู้กับคะแนนอุปสรรคมีความสัมพันธ์เชิงลบอย่างมีนัยสำคัญ ( $p < 0.001$ ) และคะแนนองค์ความรู้มีความสัมพันธ์เชิงบวก กับ คะแนนความเข้าใจอย่างมีนัยสำคัญ ( $p < 0.001$ ) แต่คะแนนอุปสรรคมีความสัมพันธ์เชิงลบกับคะแนน ความเข้าใจอย่างมีนัยสำคัญ ( $p < 0.05$ )

การศึกษานี้มี 7 คำถาม ที่เกี่ยวข้องกับพฤติกรรมการป้องกันตัว ซึ่งจัดเป็นตัวแปรอิสระ คะแนนองค์ความรู้มีความสัมพันธ์เชิงบวกกับคะแนนพฤติกรรมจากคำถาม 6 ข้อ (5 ข้อ มีความสัมพันธ์อย่างมีนัยสำคัญ ( $p < 0.05$ ) และ 1 ข้อมีความสัมพันธ์ อย่างมีนัยสำคัญคือชอบ ( $p = 0.056$ )) คะแนนความเข้าใจมีความสัมพันธ์เชิงบวกจากคำถาม 4 ข้อ อย่างมีนัยสำคัญ ( $p < 0.05$ ) สำหรับ คะแนนอุปสรรคไม่มีความสัมพันธ์กับพฤติกรรมการป้องกันตัว

ข้อเสนอแนะสำหรับการศึกษานี้ เพื่อการปรับเปลี่ยนพฤติกรรมในการป้องกันตัวจากวัณโรค โดยการเพิ่มความตระหนักโดยการให้การศึกษาด้านสุขภาพ เผยแพร่ทางสื่อประชาสัมพันธ์ เช่น แผ่นพับ แผ่นป้าย ประกาศ และ การจัดรายการด้านข่าวสารสุขภาพ การให้การศึกษาควรกระทำในช่วงนอกเวลาทำงาน และทางโรงพยาบาลควรจะให้บริการทั้งผู้อพยพที่ลงทะเบียนและผู้อพยพที่ยังไม่ได้ลงทะเบียน

สาขาวิชา.....การพัฒนาระบบสาธารณสุข.....ลายมือชื่อนิติติ.....  
ปีการศึกษา.....2551.....ลายมือชื่อ.....ที่ปริกษาวิทยานิพนธ์หลัก.....  


##5179116853: MAJOR HEALTH SYSTEMS DEVELOPMENT

KEYWORDS: PREVENTIVE BEHAVIORS/TUBERCULOSIS/ MYANMAR  
MIGRANTS/ MUANG DISTRICT/ PHUKET.

HNIN THAWDA THWIN: PREVENTIVE BEHAVIORS OF  
TUBERCULOSIS AMONG MYANMAR MIGRANTS AT MUANG  
DISTRICT, PHUKET PROVINCE, THAILAND. ADVISOR: ROBERT S.  
CHAPMAN, M.D, M.P.H., 89pp.

This study aimed to explore the factors related to preventive behaviors of tuberculosis among Myanmar migrants at Muang District, Phuket Province, Thailand. This was a cross-sectional study. The data were obtained from 15 migrant communities. Muang district was selected purposively then cluster sampling according to occupations followed by convenience sampling within occupation. A total of 342 subjects participated. Non parametric tests were used for hypothesis testing because preventive behavior score was not normally distributed.

Preventive behaviors were at good level ( $\geq 80\%$  of total possible score) in 43.6%, the overall knowledge of the respondents at good level was 30.1% and perception at good level was 45.3%. 49.4% had high barriers to preventive behaviors. 12% had never received TB-related information and 74.6% did not know about TB treatment. Migrants received information relating to TB from various sources, but very few received it from family members or drug stores.

There were significant associations between most of the sociodemographic characteristics and preventive behaviors ( $p < 0.05$ ). TB prevention practices improved with increasing age, and females had better practice than male. Married respondents had good behaviors and TB prevention practices higher as the respondent's were more educated. Burmese practices were better than in other ethnic groups and registered had higher prevention practice than unregistered. Preventive behavior score was significantly positively associated with knowledge score ( $p < 0.001$ ), but was not associated with perception score or barrier score. There was a negative association between knowledge and barrier score. Knowledge was positively associated with perception ( $p < 0.001$ ), but barrier and perception were negatively associated.

There were 7 questions relating to preventive behavior, and these were assessed in relation to independent variables. Knowledge score was positively associated with behavior for 6 questions (5 significant and 1 marginally significant ( $p = 0.056$ )). Perception score was positively associated for 4 questions (3 significant). Barrier score was not consistently associated with preventive behavior.

In order to improve TB preventive behaviors, it is recommended to increase the awareness of TB through health education disseminated in media like brochures, posters and health information programs. This education should be available especially during non-working hours. Hospitals should provide services not only for registered but also for unregistered migrants.

Field of Study...Health Systems Development.....Student's Signature.

Academic Year.....2008.....Advisor's signature.

The student's signature is a stylized 'H' followed by 'Thwin'. The advisor's signature is 'Robert S. Chapman' written in cursive.

## ACKNOWLEDGEMENTS

I would like to express profound gratitude to my advisor, Dr. Robert Sedgwick Chapman, for his valuable support, encouragement, supervision and useful suggestions throughout this research work. His moral support and continuous guidance enabled me to complete my work successfully. I am also highly thankful to Associate Professor Somrat Lertmaharit and Associate Professor Ong-Arj Viputsiri for their valuable suggestions and comments on my research.

My great appreciation extends to the Project Coordinator (World Vision Foundation Thailand) for giving me the permission to do research under his catchments area and letting me to use WVFT's staffs. I would like to mention of Dr. Nyan Win Phyoo and Dr. Aung Kyaw Thu from World Vision Foundation Thailand, Phuket, for their patience, cooperation and continuous support especially in providing migrants' data and helping data collection process in Phuket.

I am as ever, especially indebted to my parents for their love and support throughout my life. I would like to thank deeply to the entire staff of college, and I also wish to thank to Ms. Htoo Htoo Kyaw Soe, Mr. Thet Aung, and Ms Su Thanda Zaw for their understanding and support during my study. Moreover, my sincere thanks go to my friends, who shared their love and experiences with me. And the last but not least, I gratefully express my indebtedness to my survey assistants who contributed energetically during my field visits, and to Myanmar migrants who gave their time and responded patiently during the interviews and providing me the information on which this paper is based.

<b>CONTENTS</b>	Page
<b>ABSTRACT IN THAI</b> .....	iv
<b>ABSTRACT IN ENGLISH</b> .....	v
<b>ACKNOWLEDGEMENTS</b> .....	vi
<b>CONTENTS</b> .....	vii
<b>LIST OF TABLES</b> .....	x
<b>LIST OF FIGURE</b> .....	xii
<b>LIST OF ABBREVIATIONS</b> .....	xiii
<b>CHAPTER I INTRODUCTION</b> .....	1
1.1 Background and rationale.....	1
1.2 Research questions.....	9
1.3 Research objectives.....	10
1.4 Hypothesis.....	10
1.5 Conceptual Frame Work.....	11
1.6 Operational definitions.....	12
<b>CHAPTER II LITERATURE REVIEW</b> .....	15
2.1 Natural history of TB.....	15
2.2 Epidemiology, transmission, pathogenesis of TB.....	16
2.3 Diagnosis of TB.....	18
2.4 Treatment of TB.....	20
2.5 Prevention of TB.....	22
2.6 Health Belief Model.....	25
2.7 Related studies.....	26

	Page
2.7.1 Respondents' general characteristics and preventive behaviors.....	26
2.7.2 Risk factors of TB and preventive behaviors.....	27
2.7.3 Knowledge, Attitude/ Perception of TB and preventive behaviors ....	29
2.7.4 Traditional beliefs and preventive behaviors .....	30
2.7.5 Perceived susceptibility of TB and preventive behaviors.....	31
2.7.6 Perceived severity of TB and preventive behaviors.....	32
2.7.7 Perceived benefits of TB and preventive behaviors .....	32
2.7.8 Perceived barriers of TB and preventive behaviors .....	33
2.7.9 Accessibility of information and preventive behaviors .....	34
<b>CHAPTER III RESEARCH METHODOLOGY .....</b>	<b>35</b>
3.1 Research design .....	35
3.2 Research instruments.....	35
3.3 Study area .....	35
3.4 Duration of study .....	35
3.5 Study population .....	35
3.6 Sampling size .....	35
3.7 Sampling methods.....	36
3.8 Data collection .....	37
3.9 Measurement variables .....	38
3.10 Validity test .....	39
3.11 Re testing of questionnaires .....	39



	Page
3.12 Data analysis .....	39
3.13 Ethical consideration .....	42
<b>CHAPTER IV RESULTS</b> .....	<b>43</b>
4.1 Descriptive Information .....	43
4.2 Analytical findings: Relationship between variables.....	53
<b>CHAPTER V DISCUSSION, CONCLUSION &amp; RECOMMENDATIONS</b>	<b>62</b>
5.1 Discussion.....	62
5.2 Conclusion .....	67
5.3 Recommendations.....	69
5.4 Excepted outcome and benefits .....	72
5.5 Limitations of the study .....	72
<b>REFERENCES</b> .....	<b>73</b>
<b>APPENDICES</b> .....	<b>79</b>
Appendix A: Questionnaire .....	80
Appendix B: Time schedule.....	87
Appendix C: Administration cost .....	88
<b>CURRICULUM VITAE</b> .....	<b>89</b>

## LIST OF TABLES

		Page
Table 1:	Possible score and level of classification .....	41
Table 2:	Socio-demographic characteristics of the respondents.....	45
Table 3:	Overall level of knowledge towards tuberculosis.....	47
Table 4:	The number and percentage of knowledge towards tuberculosis among Myanmar migrants by item.....	48
Table 5:	Overall level of perception towards tuberculosis.....	49
Table 6:	The number and percentage of the respondents' perception towards tuberculosis by item.....	50
Table 7:	Overall level of barrier to tuberculosis prevention .....	51
Table 8:	Overall level of preventive behaviors.....	52
Table 9:	The percentage of the respondent's preventive behaviors by items .....	52
Table 10:	Percentage of the respondents getting TB information.....	53
Table 11:	Relationship between socio demographic characteristics of the respondents and preventive behaviors.....	56
Table 12:	Relationship between length of stay in Thai and income with preventive behaviors .....	57
Table 13:	Relationship between knowledge, perception and preventive behaviors .....	57
Table 14:	Relationship between knowledge, barrier and perception score .....	58
Table 15:	Relationship between barrier score and knowledge .....	58

Table16:	Relationship between knowledge score and individual behavior question.....	59
Table17:	Relationship between perception and individual behavior question	59
Table18:	Relationship between perception and individual behavior question	60
Table 19:	Relationship between accessibility of information and preventive behaviors.....	60
Table 20:	Summarization of study findings with hypotheses .....	69



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

**LIST OF FIGURE**

	Page
Figure 1: Conceptual Framework.....	12



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

**LIST OF ABBREVIATIONS**

AIDS	Acquired Immuno Deficiency Syndrome
BCC	Behavior Change Communication
BCG	<i>Bacillus Calmette-Guérin</i>
CDC	Center of Disease Control
DOTS	Direct Observed Treatment Short Course
FSN	Frontline Social Networker
HIV	Human Immuno Deficiency Virus
INH	Isoniazid
IEC	Information Education Communication
MSF	Medicine Sans Frontier
MDR-TB	Multi Drug Resistant Tuberculosis
MHV	Migrant Health Worker
OPD	Outpatient Department
TB	Tuberculosis
WHO	World Health Organization
WVFT	World Vision Foundation Thailand

## **CHAPTER I**

### **INTRODUCTION**

#### **1.1) Background and rationale**

Tuberculosis is one of the most neglected health crises and is out of control in many parts of the world (WHO-1998) and is a major cause of illness and death worldwide, particularly in developing countries of Asia and Africa.

Tuberculosis, one particular disease that impact on human health is preventable and curable. Even though the cure for TB has been with us for over the last 50 years, it still remains a major public health problem due to a myriad of factors including ignorance and deep rooted stigmatization.

#### **Global situation of tuberculosis**

Globally, based on surveillance and survey data, there were 9.2 million new cases of TB in 2006 (139 per 100, 000), including 4.1 million (62 per 100 000) new smear-positive cases and 1.9 millions death only because of TB (Christian,2000). Tuberculosis is the leading infectious cause of mortality among adults in developing countries, particularly those in Asia, where have for centuries borne the heavy burden of tuberculosis. Of the eight million people developing tuberculosis every year, nearly three million cases and one million deaths are estimated to occur in Asia. Five countries (Bangladesh, India, Indonesia, Myanmar and Thailand) contribute more than 95% of these cases. Every day more than 1,500 people die from tuberculosis in this region. Tuberculosis continues to remain major health problem in this area because of the following reasons: large portion of young adults & the age group at

highest in the population, increasing migration of population due to economics and political reasons, rapid spread of HIV epidemic, a condition which facilitates the spread of tuberculosis and inadequate efforts made in the past for tuberculosis control in the region (Orem, 1991).

### **Tuberculosis in South East Asia**

It is estimated that in the South East Asia, 4.97 million TB cases, carries over one third of the global burden of TB. Five (Bangladesh, India, Indonesia, Myanmar and Thailand) of the eleven countries in the region are among the 22 high burden countries, with India having the largest burden. The estimated incidence of TB is 1.4 million cases every year. Everyday, more than 1500 people die of TB: three people every minute in the Region. Most cases occur in the age group of 15-44 years, with male being disproportionately affected. The male/female ratio among newly detected case is 2:1. As the result, the social and economic losses due to TB are tremendous. At the same time the Region is home to nearly 6 million or approximately 18% of people living with HIV/ AIDS, the largest proportion following sub- Saharan Africa. TB is the commonest life- threatening opportunistic infection among HIV infected in the Region and it is estimated that nearly 2.5 million cases are coinfecting with both HIV and TB. TB is the single most life threatening infection and the leading cause of mortality among people living with HIV infection in the Region (WHO, 2008).

### **Tuberculosis in Thailand**

Tuberculosis morbidity in Thailand is high and rising as interplay among biological, sociocultural, socioeconomic and structural factors affect tuberculosis–related behavior, dynamics of tuberculosis transmission and tuberculosis control. The

increases in number of patients with tuberculosis in every region of Thailand in presently have led to enhanced risks of exposure among families.

According to WHO report of pulmonary tuberculosis in Thailand, estimated incidence of all new cases per 100,000 populations is 142, estimated incidence of all new sputum smear positive cases per 100,000 population is 63, estimated prevalence per 100,000 population is 208 and pulmonary TB mortality per 100,000 population is 19 with annual case fatality rate of 9.1% per 100,000 populations (WHO, 2008).

### **Tuberculosis in Myanmar**

Myanmar is also one of the countries among high burden countries for TB over the world. It has 171 estimated new cases per 100,000 populations, estimated new cases per 100,000 populations is 76, prevalence of TB per 100,000 populations is 169, mortality rate is 13 (WHO, 2008). Recent estimates, annual risk of TB is 1.66% and 1.5% of the population become infected with TB every year, while annual case fatality rate is 7.6% per 100,000 populations (WHO, 2008). Half of these are infectious with positive sputum smears and serve as a source of infection, spreading the disease in the community. According to National Surveillance Reports, it is the 5<sup>th</sup> leading cause of morbidity as well as the 2<sup>nd</sup> leading cause of mortality in Myanmar, mainly affecting the most productive age group of 15-59 years. 5% TB of cases were HIV positive and 60-80% of AIDS had TB. MDR TB among new smear positive is 4% (NTP-Myanmar, 2001).

### **Aspects of migration in Thailand and Myanmar migrants in Thailand**

Many countries receive and resettle refugees and migrants, for this reason, those people health are a universal concern. Refugees endure conditions of displacement, famine, war, and overcrowding and as a result suffer a high rate of



physical, emotional, and mental health problems. Tuberculosis is one of the high risk disease among those people(Ronveaux, 1995).

Migrants are people who make choices about when to leave and where to go, even though these choices are sometimes extremely constrained. There are migrants who leave their countries because of political persecution, conflicts, economic problems, environmental degradation or a combination of these reasons and those who do so in search of conditions of survival or well- being that does not exist in their place of origin. Migration is an important factor in the erosion of traditional boundaries between languages, cultures, ethnic group, and nation states. Even those who do not migrate are affected by movements of people in or out of their communities, and by the resulting changes. Most migrant women workers come from rural areas, move to local and national cities and then cross international borders, Often, this crossing of frontiers is done without the necessary documents and without any social network for support and protection. Migration is not a single act of crossing a border, but rather a lifelong process that affects all aspects of the lives of those involved.

Pushed by internal conflict and drawn by economic factors, an increasing number of citizens from Myanmar have crossed the border into Thailand. According to reasons for leaving Myanmar are forced relocation and land confiscation, forced labor, war and political oppression, taxation and loss of livelihood, and economic conditions. The effects of migration on health care are associated with changes in lifestyles, living conditions and socio- economic status. This health related problems pose a special challenge to the preventive and curative health service sectors.

Numbers have increased during the last two decades. Based on the data of Ministry of Labor and Social Welfare, December 30, 200, since 1998, the number of migrant workers has increased every year, where as the rate of registration of migrant workers seems to be almost the same or has increased very little. The employers do not want to take the burden of the registration fees and health examination fees for migrant workers. Only 10-15 % migrant workers are registered. The total number of migrants in Thailand has been estimated at more than 1 million. The majority of migrants live in the ten provinces along Myanmar-Thailand border. Currently, the ten border provinces are the homes for about 110,000 displaced persons living in nine border camps, 163,000 registered workers with work permits and legal rights to remain in Thailand, and an estimated 300,000 to 500,000 unregistered migrants (WHO, 2006b).

The Thai Government has pursued a humanitarian policy towards the growing migrant populations, and support has also come from agencies working in the border area. While the health needs of the camp residents are addressed by NGOs and while the registered workers have access to government health services, the large number of unregistered migrants experience financial, security, cultural, language and geographic barriers in obtaining health services. The mobility of the population, combined with access barriers, is conducive to increased morbidity and mortality. TB treatment requires continuous drug therapy and follow up for a minimum period of six months. Interrupted drug therapy is a major contributory factor to multi-drug resistant tuberculosis. The management of tuberculosis among migrants and in areas with population movements, therefore, poses a major challenge(WHO, 2006b).

### **Tuberculosis among migrants**

Epidemiologic data on tuberculosis (TB) in eastern Myanmar is sparse, but what information is available raises cause for concern. TB is the most prevalent infectious disease found in Burmese migrants who undergo health screening for work-permit registration on the Thai side of the border (Paung, 2006). In Tak Province alone, 885 out of 30,000 Burmese migrants who registered to work in the province in 2002 had active tuberculosis that required treatment. By 2006, the figure had climbed to 4,000. The Mae Tao Clinic diagnosed 700 cases of TB in Burmese migrants in 2004, with residents of Burma outnumbering residents of Thailand 2:1 (Bangkok Post., 2006; Wandee et al., 2004). This is consistent with data from Medicins Sans Frontier (MSF)–France in Mae Sot, which shows that almost half of their patients came from Burma for TB treatment.

The situation is further compounded by the fact that TB rates are likely to increase as HIV becomes entrenched in migrant communities. In 2006, among cases reported to the Thai Ministry of Public Health, almost 20 percent of migrants with AIDS are infected with tuberculosis (Thanaisawanyangkoon, 2006). That same year, MSF–France in Mae Sot reported that 16 percent of TB patients at its clinic were co-infected with HIV. In some northern Thai border provinces almost half the patients diagnosed with tuberculosis are now non-Thai, overwhelming the capacity of local health care providers to isolate and follow up with patients (Wandee et al., 2004). TB cure rates in these migrants are significantly lower than their Thai counterparts, and treatment default rates are higher. In Chiang Rai, a northern Thai province bordering Shan State, only 25.8 percent of non-Thai patients with TB were cured (Suksont, 2006). Similarly, in Mae Sot, treatment-discontinuation rates in Burmese patients with

tuberculosis are consistently higher than in Thais. These failures reflect not only the high burden of the disease in migrants but also the barriers to their abilities to access care in Thailand (Sawasdiwuthipong, Wandee, & Kasem, 2004).

TB in Thailand continues to increase despite efforts at control (Khwankhom, 2007). This has raised alarms for public health authorities as it has implications for the general population, threatening to reverse Thailand's gains in controlling the disease.

### **Multi drug resistant tuberculosis**

Failures in TB control have more urgent implications given the possibility of multi-drug resistance that generally arises as a result of failure to complete a full course of treatment. However, data on multi-drug resistant (MDR) tuberculosis along the Thai-Burma border is sparse and often discordant. In Mae Sot, Medicines Sans Frontier-France reported that about 1.5% of their TB patients in 2006 had MDR TB. Other figures for the border are much higher. In one evaluation, MDR TB accounted for 6.5 percent of TB isolates collected on the Thai side of the border with Burma, compared with the national average of 0.9 % (Suksont, 2006). A survey by the National Tuberculosis Reference Laboratory of Thailand in 2002 found a 5.3 percent rate on the border, resembling MDR rates seen in other high-risk settings, such as prisons. (MOPH, 2006) The cost of treating MDR TB is currently estimated at almost 100,000 baht (approximately \$3,000) per patient per month (Khwankhom, 2007), with significant economic implications for control.

### **Phuket Province**

This research was focused on Myanmar migrants in Phuket province. It is an island province which is 862 km from south of Bangkok with estimated more than 64,000 Myanmar workers (only 30,990 are registered according to Ministry of Labor,

2007). These illegal workers are primarily engaged in fishery and fishery related businesses. Among registered migrant, male: female ratio is 2:1, but this predominantly male labor work force brings a significant number of family members especially their spouses and accordingly most of them are unregistered and unemployed. There are 3 districts namely Muang, Kathu, and Talang. In some part of Amphoes Muang and Kathu, there is major demand for migrant workers in construction.

World Vision Foundation of Thailand (WVFT) established one clinic in Rasada subdistrict for Myanmar migrants in Phuket since 2002 which provides health care services including general medical care, primary health care, STI treatment, family planning, antenatal care, reproductive health and immunization. Those tasks are shared from provincial public health office and developed together with World Vision Phuket office. The services are provided not only by the doctors but also by the Frontline Social Networkers (FSN) and Migrant Health Volunteers (MHV). The main work force is that of FSN and MHV who they themselves are also migrants that render the services deep down into the migrant communities. Despite the fact that there are also 3 government hospitals and 3 private hospitals, because of their illegal status, language barrier and unaffordable costs, most of the migrants have difficulty in accessing health services.

### **Rationale of the study**

In general migrants also have difficulty in maintaining their health. Many factors, often associated with the migrants' journey and limited access to health care facilities in host regions (whether due to legal, economic, social, cultural, and language barriers), make these people vulnerable to infectious tuberculosis. Today,

TB cases involved in migrants represent a high proportion of the total prevalence rate in many developed countries (Antunes and Waldman,2001: Yimer et al., 2005).The number of tuberculosis among Myanmar migrants diagnosed when they go for work permit is around 799( male 508, female 291) (2007 August- WVFT) among registered migrants of 30990.Possibly they are migrated from the border area, so TB detection rate is more or less the same with border TB data. There are so many data available for the Myanmar migrants along Thailand – Myanmar border, but no data found for the migrants at Phuket. It is one of the neglected societies for the migrants at that area.

Migrants play a major role in transmission of diseases from their country of origin to the country where they are residing, According to the data, we can clearly see that TB prevalence is increasing in Myanmar as well as among the migrants along the border area, so with this research, we can know the prevalence of TB at Phuket as well as the behaviors of people for Tuberculosis prevention. No one has ever done this kind of research there, so this may be the first study regarding tuberculosis preventive behaviors of Myanmar migrants at Phuket. Preventive health behavior generally follows from a belief that such behavior will benefit health. An obvious example is quitting smoking to reduce the chances of early morbidity and mortality. It does not follow, of course, that all beliefs on which preventive behaviors are based are well founded, or that the resulting behaviors will have the desired outcomes. Also preventive actions may reduce, but not eliminate, the chances of acquiring a disease or illness.

## **1.2) Research questions**

- What are the levels of knowledge of population about tuberculosis?
- What are the levels of perception towards tuberculosis?

- What are the levels of barriers for tuberculosis prevention?
- What are the preventive behaviors of tuberculosis?
- What are the factors related to these preventive behaviors?

### **1.3) Research objectives**

#### **General objective**

- To assess the level of knowledge of preventive behaviors of tuberculosis among Myanmar migrants at Muang District, Phuket province, Thailand.

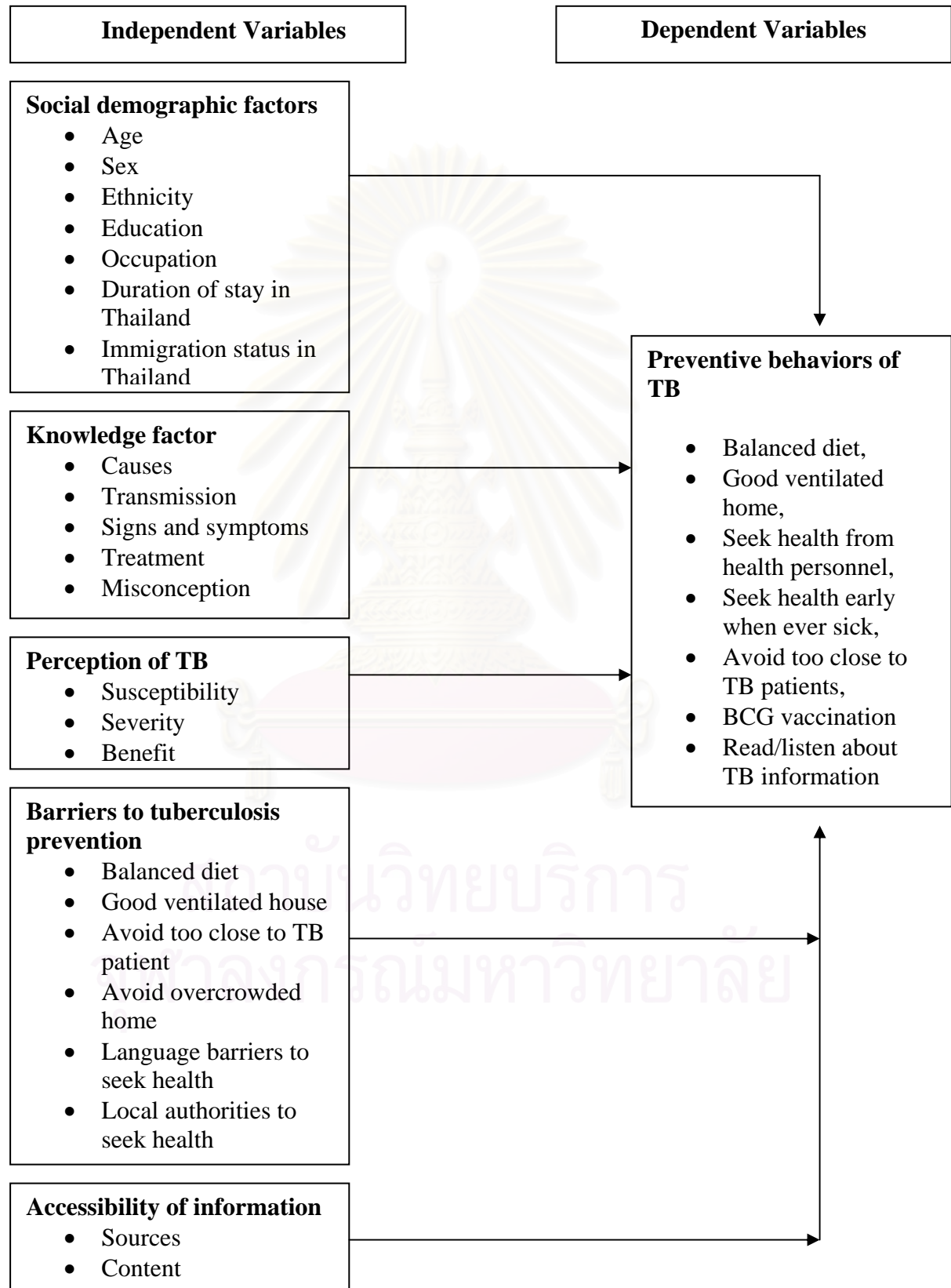
#### **Specific objectives**

- To identify the socio demographic factors and registration status of Myanmar migrants at Phuket.
- To find out the knowledge, attitude and practice towards TB, and barriers for tuberculosis among Myanmar migrants.
- To identify the characteristics associated with TB preventive behaviors.

### **1.4) Research hypotheses**

- 1) There is an association between general characteristics (age, sex, occupation, marital status, level of education, monthly income) and TB preventive behaviors.
- 2) There is an association between respondents' knowledge and awareness of TB and its preventive behaviors.
- 3) There is an association between perceptions about TB and its preventive behaviors.
- 4) There is an association between barriers and TB preventive behaviors.
- 5) There is an association between accessibility of information about TB and its preventive behaviors.

### 1.5) Conceptual Framework





## Variables of the study

### Independent variables

- 1 General characteristics: age, sex, marital status, education, occupation, duration of stay in Thailand, Immigration status in Thailand.
- 2 Knowledge about TB: causes, transmission, method of transmission, signs and symptoms, treatment, prevention, any existence of misconception about TB.
- 3 Perceptions/ Attitude towards TB: susceptibility, severity, benefits.
- 4 Barriers to tuberculosis prevention: balanced diet, good ventilated house, etc.,
- 5 Accessibility of TB information: sources, content.

### Dependent Variables

TB preventive behaviors of the respondents residing at Muang District, Phuket Province, Thailand.

### 1.6) Operational definitions

**Tuberculosis:** (abbreviated as **TB** for *tubercle bacillus* or **Tuberculosis**) is a common and often deadly infectious disease caused by mycobacterium, mainly *Mycobacterium tuberculosis*. Tuberculosis usually attacks the lungs (as pulmonary TB) but can also affect the central nervous system, the lymphatic system, the circulatory system, the genitourinary system, the gastrointestinal system, bones, joints, and even the skin. Other mycobacteria such as *Mycobacterium bovis*, *Mycobacterium africanum*, *Mycobacterium canetti*, and *Mycobacterium microti* also cause tuberculosis, but these species are less common.

**Immigration status:** means the respondents' status that live legally or illegally in Thailand (registered or unregistered).

**Knowledge of tuberculosis:** refers to the respondents' understanding of the general information about TB in terms of causative agents, signs and symptoms of TB, mode of transmission, TB prevention and treatment.

**Transmission:** is the passing of a disease from an infected individual or group to a previously uninfected individual or group.

**Perception of TB:** meant individual's thinking, beliefs, consciousness about different aspects of TB, included four components, susceptibility, severity, benefit and barriers for prevention and TB treatment.

Perceived susceptibility refers to a respondent's opinion of getting tuberculosis related to preventive behavior.

Perceived severity refers to a respondent's opinion of how serious of tuberculosis related to preventive behavior.

Perceived benefit refers to a respondent's opinion for curing effectiveness of pulmonary tuberculosis. This can be measured by improvement of the therapy.

Perceived barrier refers to a respondent's opinion of psychological obstacles for practicing the preventive behaviors of tuberculosis. This can be measured by stigma, fear, treatment, job security, distance away the health centre, cost for treatment etc.

**Preventive behavior-** is "any activity undertaken by an individual who believes himself to be healthy for the purpose of preventing or detecting illness in an asymptomatic state"(Kasl and Cobb 1966, p.246)

**Preventive behaviors of TB** – mean that the respondents' behavior to protect them from TB infection, included protective and health promotion activities.

**Accessibility to TB information-** refers to ensure the content of TB information that is accessible for community and the source providing messages, e.g. health workers, media such as televisions, newspapers, pamphlets etc. to strength reception and understanding on TB about causative agent, mode of transmission, sign and symptoms, methods of treatment, location of treatment and methods of prevention.



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

## CHAPTER II

### LITERATURE REVIEW

#### 2.1) Natural history of tuberculosis

Tuberculosis has been known under a variety of names during the course of history. The actual name "Tuberculosis" was introduced during the first half of the nineteenth century and it refers to the diseased condition caused by infectious agents known as tuberculosis bacteria or tubercle bacilli. The disease has been also known under other names, such as phthisis, Scrofula, tabes, bronchitis, and inflammation of the lungs, hectic fever, gastric fever, and lupus. It was also known as the great white plague or "consumption" which is also the Modern Hebrew word tuberculosis. Although tuberculosis can attack the whole body it is frequently known more for its damage to the lungs.

Many early attempts at treatment can be found throughout world history. Most of these proved to be fruitless, and it would be many years before any real cures could be found. Many people believed that the disease was a form of punishment and this can be found in a number of ancient literatures. By 1650 consumption was the leading cause of mortality. The first real breakthrough in understanding tuberculosis came when a German bacteriologist named Robert Koch isolated the infectious agent known as tuberculosis bacteria or tubercle bacilli in 1882. He was later awarded the Nobel Prize for physiology or medicine in 1905. No real progress was made until new antibiotics were first used in 1945-1960. It had taken almost three thousand years to

understand the full nature of tuberculosis, and only when the antibiotics became more sophisticated was a real cure on the way (Neil and Janet Croft, 2005).

## **2.2) Epidemiology, transmission, and pathogenesis of TB**

Groups of persons known to have a higher prevalence of TB infection include contacts of persons who have active TB, foreign-born persons from areas of the world with a high prevalence of TB (e.g., Asia, Africa, the Caribbean, and Latin America), medically underserved populations, homeless persons, current or former correctional-facility inmates, alcoholics, injecting-drug users, and the elderly (Carmine, 1994).

Groups with a higher risk for progression from latent TB infection to active disease include persons who have been infected recently (i.e., within the previous 2 years), children less than 4 years of age, persons with fibrotic lesions on chest radiographs, and persons with certain medical conditions (i.e., human immunodeficiency virus (HIV) infection, silicosis, gastrectomy or jejunio-ileal bypass, being greater than or equal to 10% below ideal body weight, chronic renal failure with renal dialysis, diabetes mellitus, immunosuppression resulting from receipt of high-dose corticosteroid or other immunosuppressive therapy, and some malignancies) (Carmine, 1994).

### **Mode of transmission**

*M. tuberculosis* is carried in airborne particles, or droplet nuclei, that can be generated when persons who have pulmonary or laryngeal TB sneeze, cough, speak, or sing. The particles are an estimated 1-5  $\mu\text{m}$  in size, and normal air currents can

keep them airborne for prolonged time periods and spread them throughout a room or building. Infection occurs when a susceptible person inhales droplet nuclei containing *M. tuberculosis*, and these droplet nuclei traverse the mouth or nasal passages, upper respiratory tract, and bronchi to reach the alveoli of the lungs. Once in the alveoli, the organisms are taken up by alveolar macrophages and spread throughout the body. Usually within 2-10 weeks after initial infection with *M. tuberculosis*, the immune response limits further multiplication and spread of the tubercle bacilli; however, some of the bacilli remain dormant and viable for many years. This condition is referred to as latent TB infection. Persons with latent TB infection usually have positive purified protein derivative (PPD)-tuberculin skin-test results, but they do not have symptoms of active TB, and they are not infectious.

This risk is greatest during the first 2 years after infection. Immunocompromised persons have a greater risk for the progression of latent TB infection to active TB disease; HIV infection is the strongest known risk factor for this progression. Persons with latent TB infection who become co-infected with HIV have approximately an 8%-10% risk per year for developing active TB. The probability that a person who is exposed to *M. tuberculosis* will become infected depends primarily on the concentration of infectious droplet nuclei in the air and the duration of exposure (Carmine, 1994).

### **Favorable factors for TB transmission**

Characteristics of the TB patient that enhance transmission include a) disease in the lungs, airways, or larynx; b) presence of cough or other forceful expiratory

measures; c) presence of acid-fast bacilli (AFB) in the sputum; d) failure of the patient to cover the mouth and nose when coughing or sneezing; e) presence of cavitation on chest radiograph; f) inappropriate or short duration of chemotherapy; and g) administration of procedures that can induce coughing or cause aerosolization of *M. tuberculosis* (e.g., sputum induction) (Carmine, 1994).

Environmental factors that enhance the likelihood of transmission include a) exposure in relatively small, enclosed spaces; b) inadequate local or general ventilation that results in insufficient dilution and/or removal of infectious droplet nuclei; and c) recirculation of air containing infectious droplet nuclei. In general, persons who have been infected previously with *M. tuberculosis* may be less susceptible to subsequent infection. However, reinfection can occur among previously infected persons, especially if they are severely immunocompromised. Vaccination with Bacille of Calmette and Guerin (BCG) probably does not affect the risk for infection; rather, it decreases the risk for progressing from latent TB infection to active TB. Factors contributing to transmissions included delayed diagnosis of TB, delayed recognition of drug resistance, and delayed initiation of effective therapy, all of which resulted in prolonged infectiousness, delayed initiation and inadequate duration of TB isolation, inadequate ventilation in TB isolation rooms, lapses in TB isolation practices and lack of adequate respiratory protection (Carmine, 1994).

### **2.3) Diagnosis of tuberculosis**

There are four steps in diagnosing TB disease: medical history, tuberculin skin test, chest x-ray, and bacteriologic examination.(National Tuberculosis Center., 1996)

A **medical history** includes asking the patient whether they have been exposed to a person with TB, symptoms of TB disease, if they have had TB infection or TB disease before, or risk factors for developing TB disease. The symptoms of pulmonary TB disease include: coughing, pain in the chest when breathing or coughing, coughing up sputum or blood. The general symptoms of TB disease (pulmonary or extrapulmonary) include: weight loss, fatigue, malaise, fever, night sweats(National Tuberculosis Center., 1996).

The tuberculin skin test is used to determine whether a person has TB infection. The Mantoux tuberculin skin test is the preferred type of skin test because it is the most accurate. Whether a reaction to the Mantoux tuberculin skin test is classified as positive depends on the size of the induration, the person's risk factors for TB, and for people who may be exposed to TB on the job, the risk of exposure to TB in the person's job. Several factors can affect how the skin test reaction is interpreted. Close contacts of someone with infectious TB disease that have a negative reaction to the tuberculin skin test should be retested 10 weeks after the last time they were in contact with the person who has TB. Patients with symptoms of TB disease may be given a **tuberculin skin test**. They should be evaluated for TB disease, regardless of their skin tests results(National Tuberculosis Center., 1996).

The **chest x-ray** is used to help rule out the possibility of pulmonary TB disease in a person who has a positive reaction to the tuberculin skin test. And check for lung abnormalities in people who have symptoms of TB disease. The results can not confirm that a person has TB disease(National Tuberculosis Center., 1996).



The fourth step is a **bacteriologic examination**. A sputum specimen is obtained from patients suspected of having pulmonary TB disease; other specimens are obtained from patients suspected of having extra pulmonary TB disease. The specimen is examined under a microscope for the presence of acid-fast bacilli. When AFB is seen, they are counted. Patients with positive smears are considered infectious. The specimen is then cultured, or grown, to determine whether it contains *M. tuberculosis*. A positive culture for *M. tuberculosis* confirms the diagnosis of TB disease. After the specimen has been cultured, it is tested for drug susceptibility. The results of drug susceptibility tests can help clinicians choose the appropriate drugs for use in treatment (National Tuberculosis Center., 1996).

#### **2.4) Treatment of tuberculosis**

The overall goals for treatment of tuberculosis are 1) to cure the individual patient, and 2) to minimize the transmission of *M. tuberculosis* to other persons. Thus, successful treatment of tuberculosis has benefits both for the individual patient and the community in which the patient resides.

Tuberculosis is the leading cause of death from a single infectious disease over a quarter of a avoidable deaths among adults (H.Nakajima., 1993).Despite the discovery of the TB bacillus in 1882, and of anti TB drugs since 1944, efforts to control TB globally have so far failed. The main reasons for failure include inadequate political commitment and finding: inadequate organization of services: inadequate case management (failure to cure cases that were diagnosed); over reliance on BCG (Maher, 1997). In order to improve the situation, the WHO TB control was

represented a strategy for the effective in identifying and curing patients. The strategy is called Directly Observed Treatment Short Course (DOTS), a short course treatment for Patient under the specific procedure.

Overall objectives of this strategy is aimed to reduce mortality, morbidity, disease transmission and prevent the development of drug resistance by setting objectives at 85% cure rate of detected new cases of sputum, smear positive TB and detect 70% of existing cases of sputum smear positive TB (WHO, 2006a).

Short-course chemotherapy, standardized treatment regimes consisting of two phase: includes 4 drugs during the initial phase and 2 drugs during continuation phase. These regimes are practically as effective in patients with initially resistant organisms as in those with sensitive organisms. There are three main properties of anti- TB drugs: bactericidal ability, sterilizing ability and the ability to prevent resistance. The anti TB drugs possess three properties to different extents. Isoniazid and rifampicin are the most powerful bactericidal drug, active against all populations of TB bacilli(Maher, 1997). Rifampicin is RNA- polymerase inhibitor, rapid and complete absorption on an empty stomach. Isoniazid interferes with cell wall synthesis absorbs into the cerebro- spinal fluid , therefore often used in TB meningitis. Pyrazinamide and streptomycin are also bactericidal and sterilizing against certain populations of TB bacilli. Pyrazinamide is well absorbed orally, penetrates into the cerebro-spinal fluid, and active in an acid environment against TB bacilli inside macrophages, and reduces tuberculosis relapse rates (Govender,1998). Streptomycin is an active against rapidly multiplying extracellular TB bacilli. Ethambutol and thioacetazone are bacteriostatic drugs used in combination with more powerful bactericidal drugs to

prevent the emergence of resistant bacilli.(Maher, 1997) Since properly applied anti TB chemotherapy is effective in curing the infectious cases and interrupting the chain of transmission, the best prevention of TB is the cure of the infectious cases.

## **2.5) Prevention of Tuberculosis**

The prevention involves either prevention of infection or, if the infection has already occurred, elimination of viable population of organism within the host. There are two kinds of prevention, clinical prevention and behavioral prevention.

### **Clinical prevention**

There are two relatively effective methods for preventing tuberculosis-

- a. BCG vaccination
- b. Isoniazid (INH) prophylaxis

These methods should be considered as complementary and not competitive. The BCG vaccination is useless after the patient has been infected with tubercle bacilli, and isoniazid prophylaxis affords no protection to the uninfected person after treatment is stopped.

### **BCG vaccination**

The BCG vaccine can prevent the TB (tuberculosis) bacteria from spreading within the body, thus preventing TB from developing. The BCG vaccine is administered to infants in parts of the world where TB is much more common. BCG vaccination results in 60% to 80% decrease to the incidence of tuberculosis in a given

population group. The vaccine is harmless when properly prepared and administered, but it gives a relative, rather than absolute immunity. It does reduce the immediate complications of infections stemming from lymphatic or lymphogenous spread, especially military tuberculosis and tuberculosis (Joklik, 1995). The value of BCG vaccination depends on the infection rate in the population to be vaccinated and the proportion of the population that is uninfected. The BCG vaccination should be recommended for special groups in which the morbidity rates are high and the factors favoring rapid transmission of the organisms are temporarily uncontrollable. It is also recommended for infants and children with negative tuberculin test who have intimate and prolonged exposure to persons with active disease. Positive tuberculin reactions are obtained in 92% to 100% of persons who receive the vaccine and the hypersensitivity persists for 3 to 4 years or longer.

### **Isoniazid Prophylaxis (INH)**

Preventive therapy with Isoniazid has become frequently used well established procedure, especially in the treatment of recent tuberculin converter. This method is used in those infected with Mycobacterium Tuberculosis but they do not have TB disease, which are called latent tuberculosis infection. Chemotherapy with INH for one year has been shown to reduce the risk of the evolution of a dormant infection into tuberculosis disease by approximately 75%. INH prophylaxis is recommended for all household contacts of persons with newly diagnosed active tuberculosis. In addition, isoniazid is recommended for patients whose health and defenses may be compromised by diabetes, alcoholism, gastrectomy, silicosis, malignancy, or prolonged corticosteroid therapy.

## **Behavioral Prevention**

Prevention depends greatly on personal health maintenance, balanced diet, management of exposure to risk factors, environmental factors and health life style. In order to get effective prevention for TB, knowledge plays an important role, which can depends on the accessibility of information about TB. Educational background is an important determinant of a patient's level of knowledge about tuberculosis.(Levy M., 1999) Therefore, public health should have TB health education program in order to give information, make them know the symptoms of TB include cough, fatigue, weight loss and fever. And need to also give the information about health life style, healthy food and healthy living, to enhance high immunity and good ventilation provision to their house. If they experience them, get a test even if they are not in high risk group, and the disease is progressive, it continues to damage their lungs and it can be fatal if untreated. Tuberculosis, like influenza and the common cold, is spread by airborne droplets, coughs, sneezes, speech, and simple proximity. Most people casually exposed can not be infected, but in close contacts and people who have contact with an infected person over a long period of time are high risks. TB patients become noninfectious soon after beginning therapy but therapy must be continued for the prescribed length of time. Misinformation about what causes TB, how is transmitted, and whether it can be cured linked to the stigmatization of TB and of people with TB. These factors are very important for preventing TB infection and decreasing the rate of active TB cases.

## 2.6) Health Belief Model

### A theoretical review of Health Belief Model

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing in the attitudes and beliefs of individuals.

The Health Belief Model was developed initially in the 1950s by a group of social psychologist Hochbaum, Rosenstock and Kegels working in the U. S Public Health Service in an effort to explain the wide- spread failure if people to participate in programs to prevent or to detect disease ( Hochbaum, 1958: Rosenstock 1960, 1966,1974). Later, the model was extended to their behavior in response to diagnosed illness, particularly their compliance with medical regimes.

The HBM is based in the understanding that a person will take a health related action (i.e. TB prevention) if that person;

1. feels that a negative health condition (i.e. being infected with TB) can be avoided.
2. has a positive expectation that by taking a recommended action, he/ she will avoid a negative health action (i.e. effective preventive practices will prevent being infected from TB), and
3. believes that he/she can successfully take a recommended health action (i.e. he/ she will practice the preventive behaviors comfortably and in confidence).

The HBM was spelled out in terms of four constructs representing the perceived threat and net benefits ; perceived susceptibility, perceived severity, perceived

benefits, and perceived barriers. These concepts were proposed as accounting for people's "readiness to act". A recent addition to the HBM is the concept of self efficacy or one's confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating.

In operationalizing these concepts, I took into account what was known from the literatures. These items were based upon the following understanding of how such concepts apply to those who want to prevent from being infected with TB. Hence, in this study, perceived susceptibility means the respondents' opinion of chances of getting TB if he/ she doesn't practice preventive behaviors, perceived severity refers to the respondents' opinion of how serious the implications of TB, and its consequences such as job absence, economic, social and psychological problems, perceived benefits represents the respondents' belief in the facts that if he/she practice the preventive behaviors would protect him/ her from getting tuberculosis. Perceived barriers mention the respondents' opinion of the tangible and psychological costs of the preventive behaviors. Self efficacy means that he/she has enough confidence in his/ her ability to practice these preventive behaviors.

## **2.7) Related studies for the relationship between variables and preventive behaviors**

### **2.7.1) Respondents general characteristics and preventive behaviors**

The higher is the socio-economic status and the older the respondents, the higher their prejudice against people with tuberculosis.

In the study of **Gerald Viretto** stressed that there were no significant association between sex, occupation, and distance from residence to TB center, AFB result before treatment, anti-TB drug provider, other clinical manifestation and other medication taken. In addition, the patients and health worker's relationship should be improved and give emphasis in the DOTS program (Viretto, 1996).

In **Johansson E et al**,(Johansson E., 2000) the study explores the perspectives on tuberculosis and which factors influenced their health seeking behaviors with special reference to gender differentials in terms of delay in health seeking. The study concluded men have more knowledge than women, but females seek health services earlier than males.

**Tung Minh Duong** from Vietnam mentioned that the respondents with high monthly income had better preventive practices than those with low income groups (Duong, 2004).

## **2.7.2) Risk factors for tuberculosis and preventive behaviors**

### **Elderly and TB**

**Ohmori's** study was carried out in Japan for the most effective tuberculosis control measures for the elderly in Japan. The risk of developing tuberculosis was higher in the elderly people so it is very important to detect TB cases at the early stage of disease not only to protect the elderly from tuberculosis death but also to prevent outbreak of tuberculosis infection in health service facilities for the elderly. Effective and feasible tuberculosis control for the elderly should be provided under the TB control Law and be implemented with the cooperation from related medical institutions and public health centers (Ohmori , 2003).



### **Marital status and TB**

In the study of **Mohamed Yusuf Moha, Bangkok, Thailand**,(Yusuf., 2004) revealed that respondents with knowledge of sign and symptoms was low and few knew that BCG vaccine can prevent children from TB. Perceived susceptibility and severity were quiet high. In association between general characteristics and delay of treatment, half of married groups were delayed in treatment. The respondents with working status were delayed in seeking treatment than those of unemployed.

### **Malnutrition and TB**

A nutritional survey, **Chanarin**, carried among Asiatic Indians in the United Kingdom found that as due to deficient in cobalamin in vegetarian groups the incidence of tuberculosis in vegetarians was 133 in 1000 and that in subjects on mixed diets 48 in 1000. These findings supported the hypothesis that dietary factors play major important role in determining the susceptibility of Asiatic Indians to TB. (Chanarin, 1988)

### **HIV and TB**

The number of people infected with human immunodeficiency virus (HIV) is gradually increasing and the number of cases with both infections is considered to increase in the future. And also a great influence in the rising TB trend is HIV infection. When tuberculosis and HIV are co morbid, tuberculosis is often sputum-smear negative. The incidence of severe cases, which include miliary tuberculosis, tuberculous meningitis, etc., and extra pulmonary tuberculosis, are high among acquired immunodeficiency syndrome (AIDS)-associated tuberculosis cases. The association of tuberculosis is a factor for the poor prognosis of HIV infection, since it facilitates the development of HIV infection (Buskin, 1994).

### **2.7.3) Knowledge, attitude and perception of tuberculosis and preventive behaviors**

In the study of **Orett**, mentioned that health knowledge on tuberculosis was generally poor. Over 50 % had heard of TB, but misconception about transmission, in particular confusion with transmission of HIV. The knowledge and traditional beliefs about tuberculosis should be enhanced by educating people using variety of health education media and network of volunteer in the community. (Orrett, 2001)

In the study of **Nam Mai (Factors associated with preventive practice on TB infection among adults in Quang Tri Province, Vietnam 2002)** revealed that only 25% had good knowledge on TB and only 10.3 % of respondents received TB information from health care workers who were supposed to be the provider of health information. There was a significant association between respondents' perception on TB and preventive practice. The better the perception towards TB, the higher level of preventive practice. Education is a factor in knowledge; 15.4 % of the respondents with less than high school education versus 26.9% with high school education responded that they knew how TB is spread. (Mai,2008)

In the study of **In Sokhanya** revealed that overall preventive behavior of OPD patients were at a good level of knowledge. There were significant associations between education, occupation, TB knowledge, perception on TB and accessibility to TB information with TB preventive behavior. There were also significantly associated links between TB preventive behavior and two groups of significant persons who provide TB information to the OPD patients, public health officers and friends. This demonstrates that public health officers are still the main source for providing

effective TB information. There was no association between VHWS who are the community activists in primary health care, and TB preventive behavior. Accessibility to TB information was still low i.e. 54%. About one fifth of the total OPD patients in this study had a low knowledge about TB (Mai, 2008).

(Zhang, Liu, Bromlay, & Tang, 2007) studied in **Mongolia, China** stated that a substantial proportion of community members were unclear or misformed as to how TB was transmitted. In addition, two third of respondents could not afford TB treatment and fell into debt in seeking health care. Social stigma associated with TB influenced marriage prospects and impeded important social interactions within the community. Respondents' perception of TB was associated with their socio-economic status. Women, young people, low income groups and those with less education tended to less knowledgeable about TB. Less educated people, low income group were identified as less likely to seek care, or more likely to seek care at village where it is cheaper. Both financial and structural barriers were found to stop seeking health care (Zhang et al., 2007).

#### **2.7.4) Tradition beliefs and preventive behaviors**

(Steen., 1999), studied in Bostwana shown that TB may be regarded as “European disease” or as a “Tswana disease” and this has implications for health behaviors. Patients who regard TB as “Tswana disease” may use modern medicine for symptom relief but traditional medicine to treat what they consider the cause of the disease. There is an apparent resemblance between traditional ideas of disease being caused pollution (breaking taboos) and modern theories of spread via germs ( Steen., 1999).

**Long NH, Johansson E**, studied in **Vietnam** revealed that traditional beliefs in different types of TB still exists, mainly among older people in rural areas, but also resorted to by other people once ill. Four main types of TB were reported; (a) 'Lao truyen' (hereditary TB), handed down from older generations to latter ones through 'family blood', regardless of sexes, (b) 'Lao luc' (physical TB), caused by hard work- more men affected; (c) 'Lao tam' (mental TB), caused by too much worrying- more women affected; and (d) 'Lao phoi' (lung TB), dangerous and caused by germs, transmitted through the respiratory system- more men affected (Long, 2001).

#### **2.7.5) Perceived susceptibility of tuberculosis and preventive behavior**

In the study of **Tuot Bunn Areth, 2000** mentioned that tuberculosis preventive behavior could be improved through health education. The knowledge and traditional beliefs about tuberculosis should be enhanced by educating people using variety of health education media and network of volunteer in the community. The education program should be focused on male and low income groups (Tuot Bunn Areth, 2000).

In the study of (Dirgh Singh Bam., 2002) described that the risk factors for infection, particularly as a result of overcrowding, and the number of infectious cases in the community are leading to an increase in infectious pool. Potential risk factors for tuberculosis disease such as poor nutritional status, alcoholism, smoking and unemployment are being exacerbated by the political instability in country. The factors favoring for tuberculosis include host characteristics such as the age and sex of the person (the very young and male being at higher risks for infection) and the severity of the source case (i.e. whether the source is actively excreting bacilli in

his/her sputum), the degree of crowding or intimacy of exposure in families or the work place are the major environmental risk factors for infection.

#### **2.7.6) Perceived severity of tuberculosis and preventive behavior**

One study in **Sialkot, Pakistan**, (Liefoghe R., 2000) shown that TB is perceived as very dangerous, infectious and incurable disease and, has many social consequences such as stigmatization and social isolation of TB patients and their families; diminished marriage prospects for young TB patients, and even for their family members; TB in one of the partners may lead to divorce. Due to fear, patients often deny the diagnosis and reject the treatment. While both male and female patients face many social and economical problems, female patients are more affected.

The results of a study by (Manoonpaniach, 2007) revealed that backgrounds and illness experiences can shape the ways patients give meaning to tuberculosis. There were three groups of tuberculosis meanings given by the patients: a horror disease, a loathing disease, and a deadly disease. For the patients, TB is stigmatized by social constructs.

Studies have also demonstrated a robust association between external constraints and patient delay. Distance from DOTS clinics (e.g. rural areas in The Gambia, Tanzania, Zambia) accounts for longer delay. Transportation costs (which are associated with distance between residence and DOTS clinics) also account for variations in timing of diagnosis in Zambia.

#### **2.7.7) Perceived benefits of tuberculosis and preventive behaviors**

(Hochbaum, 1958) studied more than 1200 adults in three cities, assessing their readiness to obtain X rays, which included their beliefs that they were susceptible to TB and their beliefs in the benefit of early detection. The measure of

perceived benefits also included whether respondents believed that X rays could detect TB prior to the appearance of symptoms and whether they believed that early detection and treatment would improve the prognosis. For the group of people who exhibited both beliefs, that is, belief in their own susceptibility to TB and the belief that overall benefits would accrue from early detection, 82 % had had the voluntary chest X ray during a specific period. The people who accepted neither of the beliefs had not taken the action. Thus, Hochbaum demonstrated with considerable precision that a particular action to screen with the two interacting variables: perceived susceptibility and perceived benefits. The belief in one's susceptibility to TB appeared to be the powerful for making decision to take screening program.

#### **2.7.8) Perceived barriers of tuberculosis and preventive behaviors**

Studies demonstrate that stigma deters people from seeking care and diagnosis. Tuberculosis stigma is not new. A well-documented literature has shown why and how tuberculosis has been highly stigmatized throughout history. Whilst the stigma of tuberculosis as “a disease of the poor” persists, more recently, HIV/AIDS stigma affects tuberculosis patients, particularly in communities where HIV/AIDS is prevalent as shown in studies in **Ethiopia, Pakistan, and Thailand**. Tuberculosis patients suffer from double stigma.

Studies have found that other costs and financial difficulties more broadly also account for delay in **China**. Patients are more likely to delay diagnosis when they need to borrow money to get to healthcare services, lose daily income to attend DOTS clinics, and lack health insurance.

In the study of (Meaza, 2002), tuberculosis patients are highly stigmatized to the extent that patients' may lose their work and marriages may break down if others get to know about the disease.

### **2.7.9) Accessibility of information and preventive behaviors**

In the study of **Nam Mai, Vietnam**(Mai., 2002), knowledge is the important factor in prevention of tuberculosis.

**Tung Minh Duong, Vietnam** described in his study that information about TB from health personals, friends and neighbors contributed increase of positive TB preventive behaviors (Duong, 2004).

**Morisky et al** (2001) studied that the results demonstrated shows the positive effects of structured health education program on the improvement of continuity of preventive and adherence behavior among TB patients (Morisky et al.,2001).

## CHAPTER III

### RESEARCH METHODOLOGY

#### 3.1) Research design

Cross- sectional study design was used to measure the preventive behaviors of the Myanmar migrants in Phuket Province, Thailand.

#### 3.2) Research Instruments

Interview questionnaire in Myanmar language will be used. It was structured and divided into four sections (1) socio-demographic characteristics and registration status (2) Knowledge factor regarding tuberculosis and their traditional beliefs (3) Perception/attitude on tuberculosis (4) Accessibility of information.

#### 3.3) Study area

This study will be carried out at Muang District, Phuket Province, Thailand.

#### 3.4) Duration of Study

January and February, 2009.

#### 3.5) Study population

The study populations are Myanmar migrants above 18 years of age and above, who could understand the questions, both gender, registered and unregistered, with different types of occupations will be included in the study population.

#### 3.6) Sample size

The estimated sample size was calculated from the following formula.

$$n = z^2 pq / d^2 \text{ (By using Daniel's formula, Page-189, 8th edition 2005)}$$

n= sample size

$z^2$  = value from normal distribution associated with 95% confidence interval (1.96)



$p$  = expected proportion of good preventive behavior regarding tuberculosis = 0.26

$q$  = the proportion of population which have not good preventive behaviors = 0.74

$d$  = error allowance (degree of accuracy desired)

(In Sokhanya, S. S., Jiraporn Chompikul (2008). "TB preventive behavior of patients consulting at the general out-patient department at Paholpolpayuhasana Hospital, Kanchanaburi Province, Thailand)

Then, the calculated sample size is 295. But 25% refusals and missing data, the final sample size is 350.

### **3.7) Sampling methods**

Due to great mobility of Myanmar migrants, their different work nature and hours, geographically scattered distribution, and larger proportion of unregistered target population, the researcher purposively selected Muang district, then clustered the samples according to their occupations. These occupations were clustered into fishermen, fishery related, construction and agriculture and divided the samples equally based on the estimated population in each type of occupation. In order to collect each sample, convenient sampling was used. Simple random sampling cannot apply because of the great mobility of the migrants' nature and geographically scattered distribution. As it was collected according to occupation, most of the samples in the study were adult (>18 years) and we collected both male and female in the study area. Because of the working hour, we sometimes went to the compounds they resided after the working hour. The totals of samples 360 were included in this study. In Phuket, majority of Myanmar migrants and their families live and/or work in particular groups and in particular areas, mostly depending on the similar types of

occupation and ethnicity. In each particular area, the subjects were selected by convenience random sampling, and interviews were done accordingly.

### **3.7.1) Inclusion criteria**

The Myanmar Migrants who are

- Age above 18 years
- Speak Myanmar fluently.
- Willing to participate in interview.
- Past history of TB or cured TB will also include in this study.

### **3.7.2) Exclusion criteria**

- People who are severely ill and cannot verbally communicate with interviewers.
- People who know their selves as they have TB, and who are currently on anti TB treatment.

### **3.8) Data collection**

The questionnaire was used for interview to the respondents. Data were collected by face-to-face interview with the subjects by the researcher and five other research assistants who understand Myanmar language well. Questionnaires that were translated to Myanmar Language with formal valid check were used. Before the data collection, 7 Frontline Social Networkers (FSN) from World Vision Foundation Thailand (WVFT) were trained, after getting the approval from the Project Coordinator. Each item from questionnaires was taken for discussion about content, the way to ask the respondents, how to fill the questionnaires and each interviewer had to participate in the pretest in order to test the interviewing skill and to understand more clearly about questionnaires. The interview was face to face and the interviewer

needed to explain the question clearly and filled the questionnaires based on the respondents' answer, did not suggest anything or lead for the answer in order to get good result and reduce bias of information.

The researcher and research assistants explained the objectives and information about the study to the subjects with their consent prior to starting the interviewing. The researcher and assistant researchers went to the respondents place depend on reality of situation, sometimes at home or sometimes at the workplace. The respondents in the research were both males and females, illegal or legal migrants. All subjects were interviewed by the use of the same questionnaire. After interviewing, the researchers checked the items of the questionnaire which was required to be answered completely.

### **3.9) Measurement variables**

#### **Independent variables**

- (1) Socio- demographic characteristics
- (2) Registration status
- (3) Knowledge
- (4) Perception/ Attitude on tuberculosis
- (5) Barriers to tuberculosis prevention
- (6) Accessibility of information

#### **Dependent variables**

- Preventive behaviors of tuberculosis

### **3.10) Validity of test and reliability**

In order to ensure content validity of the questionnaire, it was done by reviewing previous literatures and studies, and by consulting experts for the assessment of its content, clarification and appropriate wording.

### **3.11) Pre testing of questionnaires**

Pilot testing of the research was done at Samutsakorn Province, where the setting for Myanmar migrants was similar to that in Phuket and data were collected around 30 and analyzed it for reliability of research by Cronbach's alpha coefficient method. The reliability coefficient of this research tools were calculated using Cronbach's Alpha Coefficient method. Cronbach's Alpha Coefficients were 0.8458 for knowledge, 0.4807 for perception, 0.7601 for barriers, and 0.8081 for preventive behaviors.

### **3.12) Data analysis**

The main goal of this study is to find out the association between respondents' sociodemographic characteristics, knowledge, and perception, accessibility of information and preventive behaviors of tuberculosis. For descriptive information, frequency, percentage, mean, and standard deviation were reported. For hypothesis testing, bivariate analysis were conducted to find out association between independent and dependent variables. For descriptive information, variables were grouped as appropriate. When evaluating association for knowledge, perception, barriers and preventive behaviors, none of the variables were normally distributed after checking with Kolmogorov- Smirnov test, so non parametric tests were used for association and bivariate correlations were used such as Mann Whitney, Kruskal Wallis, Spearman rho correlation tests. In most of the assessment for relationships, the outcome variable

was the continuous score for knowledge, perception, barriers and prevention. (not the dichotomous variable for needs improvement vs. good). The totals of 342 samples were remained from the collected 360, after excluding the errors and missing data.

### **Scoring and classification criteria**

Knowledge, perception and preventive practice of respondents were scored according to Bloom's classification of scoring as the following.

#### **Knowledge scoring**

Knowledge of TB consists of 30 items. The respondents' answer were either true, false or don't know. One score was given to the correct answer, and zero to the incorrect or doesn't know answers. The total score of 30 was obtained, possible score range from 0-30. The knowledge was classified into two levels. The cut off point for the good level was considered as  $\geq 80\%$  of total score and the need improvement level is  $<80\%$  of total score. For overall knowledge, the good level was 24-30 scores, and the need improvement level was 0-23 scores.

#### **Perception scoring**

There were 11 items to assess perception of TB by respondents. The answer was used three rating scale, agree, uncertain and disagree. In the positive statements, the score was given 2 to agree, 1 for uncertain, 0 to disagree. For negative statements, the score was the reverse of this. The score were range from 0- 22. The level of perception was classified into two groups,  $\geq 80\%$  of the total score was taken as good perception, less then  $<80\%$  of the total score was the need improvement. For overall level of perception, the score of good level 18-22 and need improvement level is 0-17.

### Barrier scoring

There were 6 items in barriers. The respondents with highest barrier got the highest score and the score was given 2 to agree, 1 to uncertain and 0 to disagree. The total of 12, the range was 0-12 and the good level (or lower barriers) comprised 0-9 ( $\geq 80\%$  of total score) and  $< 80\%$  was need improvement (or higher barriers) level of 10-12.

### Preventive practice scoring

There were 7 items on preventive practice of TB. The answer was either always, sometimes or never. Three score was given to positive statements with answer 'always', two for sometimes and one for never, and vice versa for the negative statements. The total score was 14; range was 0-14, while the minimum was 6. The preventive practice of the respondents was classified into two levels: a score of  $\geq 80\%$  became the good level and  $< 80\%$  were included in the need improvement.

Table1. Possible score and level of classification

Variables	Possible scores	Classification criteria	
		Low/ need improvement $< 80\%$	High/ good $\geq 80\%$
<b>Knowledge</b> Overall level of knowledge	0-30	0-23	24-30
<b>Perception</b> Overall level of perception	0-22	0-17	18-22
<b>Barriers</b> Overall level of barrier	0-12	10-12	0-9
<b>Preventive Practice</b> Overall level of preventive behaviors	0-14	0-11	12-14

### 3.13) Ethical consideration

(1) Under the guidance of College of Public Health Sciences, Phuket Provincial health Office, and local authorities, this study was done.

(2) Interviewees were received full explanation about the study including the purpose, process and benefits of the study.

(3) Informed signed consent were taken by the interviewees, considering

- Willingness to participation
- Freedom of withdrawal
- Confidentiality
- Access to final report or results of the study if desired
- Assurance to data not to use for other purpose



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

## CHAPTER IV

### RESULTS

This chapter represents the findings of data analysis, and is divided into two main sections: (1) descriptive information, and (2) analytical findings: relationships among variables.

#### **4.1) Descriptive information**

This section includes frequency distributions of respondents by their general characteristics including language skills and registration status and the existence of TB patients in their family and their surrounding.

This study was done at the Muang District, Phuket Province during January 26<sup>th</sup> to February 20<sup>th</sup>, 2009. The respondents were above 18 years of age, male and female, registered or unregistered. The results of this study are presented in the following order:

4.1.1) General characteristics

4.1.2) Knowledge of TB

4.1.3) Perception of TB

4.1.4) Barriers to tuberculosis prevention

4.1.5) Accessibility of TB information.

4.1.6) Preventive practices

4.2) Relationships between those factors and preventive practices

#### **4.1.1) Characteristics of respondents**

The samples consisted of both males and females, age ranged from 18 to 56 years. The mean age was 28.7 years. The age group between 20-24 years maintained



the largest group about 24.9% of the total respondents. Majority of the respondents 73.1% were male, because most of the occupations collected in this study favors more male and the rest of 26.9% are female.

Most of the populations in the study finished secondary school 41.2%, followed by 43.6% of respondents educated with primary school and illiterate, some high school completed respondents and graduate were 15.2%. Among 342 respondents, 42.1% are married, 37.4% are single and few are separated about 16.7%. In describing race, Burmese corresponds to 40.4%, while Mon followed the second largest race group with 21.9% and few Dawei 16.1% and Rakhine 14.9% and very few other ethnic minorities.

Length of stay in Thailand varied from 6 months to 21 years. Mean duration of stay is 4.22 and SD was 3.87. Almost half of the respondents 39.2% were residing for 2-4 years, 27.5% occupied for one year or less and, 17.3% were residing for 5 to 7 years and very few 8.8% and 7.3% are 8-10 years and 11 years or more respectively.

The major occupations were fishermen 36.8% and construction 33.6%, 19.3% were working at fishery related industry and 8.8% occupied in agriculture.

The level of economic status of the respondents had been assessed on the basis of monthly total family income. Total monthly family income ranged from 1500 Baht to 15000 Baht. As they are working as laborer in various sectors, income between 4001-6001 occupied 60.8% which played the largest income group and some fewer groups 2001-4000 and 6001-8000 constituted 16% and 13.5% respectively. Of all respondents, only 35.4 were registered workers, and the remaining 64.6% were unregistered. For Thai language fluency, 54.4% could understand what other's talk and 11.1% could speak and the rest could not communicate about 34.5%.

Table2. Socio-demographic characteristics of the respondents (Total = 342)

<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age</b>		
<=19	43	12.6
20-24	85	24.9
25-29	72	21.1
30-34	62	18.1
35-39	42	12.3
>=40	38	11.1
Mean=28.71, SD= 8.123, Median= 27, Range = 18-56		
<b>Gender</b>		
Male	250	73.1
Female	92	26.9
<b>Marital status</b>		
Single	128	37.4
Married	144	42.1
divorced, widow and separated	70	20.5
<b>Education</b>		
primary education and lower	149	43.6
secondary education	141	41.2
high school and above	52	15.2
<b>Ethnic groups</b>		
Burmese	138	40.4
Dawei	55	16.1
Mon	75	21.9
Rakhine	51	14.9
Others	23	6.7
<b>Duration in Thailand</b>		
<=1	94	27.5
2-4	134	39.2
5-7	59	17.3
8-10	30	8.8
>=11	25	7.3
Mean 4.22, SD 3.87, Minimum=1, Maximum= 21, Median= 3		

Table2. Socio-demographic characteristics of the respondents (Total = 342)

(continued)

<b>Occupation</b>		
Fishermen	126	36.8
fishery related industry	66	19.3
Agriculture	35	10.2
Construction	115	33.6
<b>Monthly family income(Baht)</b>		
<=4000	60	17.5
4001-6000	208	60.8
6001-8000	46	13.5
>8000	28	8.2
Range= 1500-15000		
Mean= 5741.8		
<b>Registration status</b>		
Registered	121	35.4
Unregistered	221	64.6
<b>Thai language fluency</b>		
Could not read or write	118	34.5
Simple spoken communication	186	54.4
Good spoken communication	38	11.1
<b>Live with whom</b>		
Alone	35	10.2
Family	184	53.8
with friend	122	35.7
Others	1	0.3
<b>Family Member with TB</b>		
Yes	25	7.3
no	317	92.7
<b>Live with TB patient in the same household</b>		
yes	9	2.6
no	333	97.4
<b>TB patient in surrounding</b>		
yes	80	23.4
no	262	76.6
Total	342	100

Almost half of the respondents live with family (53.8%), while 35.7% live with friends and about 10.2% living alone, the average number of people living in a house was 4 people. Only 7.3 % had history of tuberculosis among family members,

the rest had no history at all. Moreover, 2.6% were living with TB patients in their home, 23.4% had TB patients in their surrounding.

#### 4.1.2.) Knowledge on tuberculosis

Level of knowledge on tuberculosis of respondents included causes, transmission, signs/symptoms, treatment and misconception about tuberculosis. There are 30 items in the knowledge portion with the scoring scale of '1' for the correct answer and '0' for the incorrect answers, which included "don't know".

Table3. Overall level of knowledge towards tuberculosis

Knowledge	Frequency	Percent
Need improvement (0-23)	239	69.9
Good (24-30)	103	30.1
Total	342	100.0
Mean= 20.35, SD = 5.45, Minimum= 0, Maximum= 30,Median = 21.00		

For the overall knowledge, the percentage of good level is 30.1%, while need improvement level is 69.9%. Among 342 respondents, the mean value is 20.35, while standard deviation (SD) is 5.445 with minimum value '0' and maximum '30'.

Table4. The number and percentage of knowledge towards tuberculosis among Myanmar migrants by item (Total=342)

Knowledge	Correct answers	
	N	%
(k1) Tuberculosis is an infectious disease caused by bacteria.	254	74.3
(k2) Tuberculosis bacteria in the body are killed by sunlight.	190	55.6
(k3) Tuberculosis is caused hard work.	223	65.2
(k4) Tuberculosis can be transmitted by mosquito.	192	56.1
(k5) TB can be transmitted from patient respiratory system.	288	84.2
(k6) One can get TB during blood transfusion.	125	36.5
(k7) TB is caused by hereditary disease from older generations to the latter descendent.	123	36.0
(k8) Cigarette smoking and alcohol drinking predisposed to TB	288	84.2
(k9) BCG can prevent children from severe TB	280	81.9
(k10) Apart from lungs, TB can affect bone.	144	42.1
(k11) Apart from lungs, TB can affect joint.	146	42.7
(k12) Apart from lungs, TB can affect lymph node.	251	73.4
(k13) Apart from lungs, TB can affect brain.	142	41.5
The following are signs and symptoms of TB		
(k14) unexplained weight lost	262	76.6
(k15) unexplained fever for more than 3 weeks	248	72.5
(k16) persistent cough for more than 3 weeks	308	90.1
(k17) coughing up blood	319	93.3
(k18) night sweats	201	58.8
(k19) loss of appetite	258	75.4
(k20) TB can be diagnosed by sputum examination	321	93.9
(k21) Taking CXR is the important test in diagnosing TB.	307	89.8
(k22) TB can be cured by rest	285	83.3
(k23) TB patient needs to hospitalize to receive treatment	99	28.9
(k24) TB can be cured by anti TB drugs regularly and full course	327	95.6
(k25) Traditional medicine is cheaper and more effective than anti TB drugs.	198	57.9
(k26) Anti TB can cause discomfort and have side effects	183	53.5
(k27) TB patient should be regarded as outcast.	163	47.7
(k28) TB is a disease of poor people	247	72.2
(k29) TB is a kind of punishment from God	287	83.9
(k30) TB can be cured by regularly worship to ancestor	301	88.0

#### 4.1.3.) Perception towards tuberculosis

In order to access the perception of the respondents among the migrants at Phuket, Heath Belief Model was used. There are four parts, susceptibility of tuberculosis, severity of tuberculosis, benefits of preventing TB. Nearly half of the respondents had 45.3% of good overall perception, while only 54.7% need improvement.

Table5. Overall level of perception towards tuberculosis

Perception	Frequency	Percent
Need improvement (0-17)	187	54.7
Good perception (18-22)	155	45.3
Total	342	100
Mean= 16.68, SD= 2.88, Minimum= 6, Maximum= 22, Median=17		

Table5 shows the perception of the respondents on perception for each item. Most of the respondents about 91.8% thought that man and woman have equal chance to get TB. Similarly, more than half (59.6%) of the respondents agree that they can be dismissed from their current job when their employer know that they had TB, 60.5 % agree that they can be discriminated by friends when their friends knew that they had TB.

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

Table 6. The number and percentage of the respondents' perception towards tuberculosis and barriers by item (total =342)

PERCEPTION	Level of perception					
	Agree		Uncertain		Disagree	
	N	%	N	%	N	%
<b>Susceptibility</b>						
Man and woman have equal chance in getting TB*	314	91.8	18	5.3	10	2.9
Persons infected with HIV/AIDS is easily infected with TB*	256	74.9	63	18.4	23	6.7
Person in close contact with TB patient can get TB*	302	88.3	19	5.6	21	6.1
Malnourished and poor people are at risk of TB*	232	67.8	68	19.9	42	12.3
TB can be transmitted if working together with TB patient*	240	70.2	33	9.6	69	20.2
<b>Seriousness</b>						
TB is dangerous and can lead to death*	286	83.6	29	8.5	27	7.9
Delay in treatment can be fatal*	318	93	14	4.1	10	2.9
You can be dismissed from TB if your employer knows that you have TB	204	59.6	58	17	80	23.4
You can be discriminated from friends if they know that you have TB.	207	60.5	57	16.7	78	22.8
<b>Benefit</b>						
If you can stay in a well ventilated house, you can prevent TB*	222	64.9	46	13.5	74	21.6
You close your mouth and nose who has TB, cough or sneeze besides you*	314	91.8	16	4.7	12	3.5
<b>BARRIERS</b>						
I am so poor to have balanced diet though I want to have well balance diet*	274	80.1	33	9.6	35	10.2
I can't stay in a well ventilated house to prevent TB though I want to*	275	80.4	26	7.6	41	12
You can't escape from working together with TB patients to prevent TB*	268	78.4	29	8.5	45	13.2
You can't escape from staying in a crowded home to prevent TB*	257	75.1	37	10.8	48	14
You can't seek health as soon as you are ill because you afraid of local authorities*	172	50.3	23	6.7	147	43
You can't seek health as soon as you are ill because of language barrier*	184	53.8	17	5	141	41.2

\* Best answers

#### 4.1.4) Barriers to tuberculosis prevention

As in the table 7, the respondents who had barriers to practice tuberculosis prevention and who didn't have were more or less equal in size, 50.6% of the respondents need to improve and 49.4% were in good level with the mean 8.85 and the median was 9, and SD was 3.21.

Table7. Overall level of barrier to tuberculosis prevention

Barrier	Frequency	Percent
Need improvement (10-12)	173	50.6
Good perception (0-9)	169	49.4
Total	342	100
Mean= 8.85, SD= 3.21, Minimum= 0, Maximum= 12, Median=9		

#### 4.1.5.) Preventive behaviors of tuberculosis

Table7 shows that the statistics for the preventive behaviors. There were 7 items in the preventive practices which included always, sometimes and never. For the one who practice the tuberculosis prevention always, the score was 2,1 for sometimes and 0 for never practice to prevent TB. Preventive practices contains protective or health promoted behaviors, avoiding health risk behaviors and health seeking behavior in order to prevent TB. In the parts of protective or health promoted behaviors, of all the respondents, only 2.3% always eat balanced diet to prevent TB, while 70.5% had meal just suitable for them whatever balanced or not. About 30.1% encourage always having BCG vaccination for their child as well as whenever they saw a child less than one year old. It was found that 5.6% kept their house to get good ventilation. As for health risk behaviors, 39.5 % had always avoided too close to TB patients, 34.8% never avoid for it. Under health seeking behaviors, 16.7 % of respondents always search health service from health personnel whenever they are



sick, but 63.5% searched from places other than health personnel. However, most of respondents read or listen health news about TB, 24.3% always do this practice, 38, 3% practice sometimes, while 34.8% never do this.

Table8. Overall level of preventive behaviors

preventive behaviors	Frequency	Percent
Need improvement (0-11)	193	56.4
Good (12-14)	149	43.6
Total	342	100
Mean= 9.59, SD = 3.60, Minimum= 0, Maximum= 14, Median = 11		

Table9. The percentage of the respondent's preventive behaviors by items (total= 342)

Preventive practice	Level of preventive practice (%)					
	Always		Sometimes		Never	
	N	%	N	%	N	%
You eat balanced diet to prevent TB (e.g. vegetables, meat, fish equally)	241	70.5	93	27.2	8	2.3
You encourage getting BCG vaccination when you see the child less than one year old.	180	52.6	59	17.3	103	30.1
You seek health service from health personnel whenever you are sick	211	61.7	74	21.6	57	16.7
Going for examination whenever you have suspect signs of TB	217	63.5	44	12.9	81	23.7
You keep your house to get good ventilation and sunlight.	275	80.4	48	14.0	19	5.6
You avoid too close to TB patients.	119	34.8	88	25.7	135	39.5
You read or heard health news about TB, HIV/AIDS.	128	37.4	131	38.3	83	24.3

For the overall behaviors of the respondents, the percentage of good practices were 43.6%, however the need improvement level was 56.4%. The mean value for preventive behaviors was 9.59 with standard deviation of 3.601. The minimum score was 0, while the maximum was 14.

#### 4.1.6.) Accessibility to tuberculosis related information

Among the 342 respondents, 51.8 % and 74.9% had knowledge about TB causes and transmission respectively. 49.7% knew how to prevent TB and 35.5% had

TB treatment knowledge. Health personnel are the main source of TB information distributor (51.5%) and, friends and neighbors distributed about 47.1% and very few 25.4% were from family members. The major types of media that the respondents got TB information was magazines, posters, brochures which took part 63.7 % , while television was the second major source with 50% and the rest 43.9% were from clinic and health centers and from radio was 32.7 % , very few 19.9 were from drug stores.

Table10. Percentage of the respondents received TB information. (Total= 342)

<b>TB information</b>	<b>Number</b>	<b>Percent</b>
<b>Types of information received</b>		
Cause of disease	177	51.8
Mode of transmission	256	74.9
TB prevention	170	49.7
TB treatment	121	35.4
<b>Source of information</b>		
Health personnel	176	51.5
Friends and neighbors	161	47.1
Family members	87	25.4
<b>Types of media that received TB information</b>		
Television	171	50.0
Radio	112	32.7
Newspapers, magazine, posters	218	63.7
Clinics, health centers	150	43.9
Drug store	68	19.9

#### **4.2) Analytical findings: Relationships among variables**

This section summarizes hypothesis testing to examine

- 1) There is an association between sociodemographic characteristics (age, sex, occupation, marital status, level of education, monthly income) and TB preventive behaviors.
- 2) There is an association between respondents' knowledge and awareness of TB and its preventive behaviors.
- 3) There is an association between perception and TB preventive behaviors.

- 4) There is an association between barriers and TB preventive behaviors.
- 5) There is an association between accessibility of information about TB and its preventive behaviors.

#### **4.2.1) Relationship between socio demographic characteristics and tuberculosis preventive behaviors**

There are statistically difference between socio-demographic characteristics (age, sex, marital status, education, race, duration in Thailand, income) except language fluency and preventive practices.

Findings in Table10 shows that there was statistically difference between male and female in practicing preventive behaviors with  $p < 0.001$ , female have higher score than those of male.

Regarding marital status and preventive behaviors, there was significance difference between single, married and others (divorced, widow, separated) with ( $p < 0.001$ ). This shows that the respondents who have partners had higher preventive practices, while without partners (single, divorced, widow and separated) had lower score.

Finding in Table10 shows that there is strongly significant difference between education status and preventive practices. As the respondents were educated, the preventive behaviors became higher with  $p 0.008$ .

According to the table 10 the preventive behaviors among in each race was significantly different ( $p < 0.001$ ). Among them, Burmese have the highest score with the mean rank 190.08 while Mon followed the second highest with 179.45.

This study shows that there was significant difference between occupation and preventive behaviors. The respondents who were working agriculture had the highest preventive practice, while fishermen had the lowest.

Table10 shows that the preventive practices and duration of stay in Thai were significantly associated with  $p < 0.001$ . The higher the income, the better the preventive practices, shows significantly association between income and preventive behaviors.

Based on the table 10, there was significant difference between registered migrants and unregistered ones. Registered migrants had higher preventive behaviors in compare with the unregistered.



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

Table 11. Relationship between socio demographic characteristics of the respondents and preventive behaviors (n=342)

	Preventive behavior score				
	N	Median score	Mean Rank	Kruskal Willis Test	<i>p</i>
<b>Age</b>					
<=19	43	10	144.28		
20-24	85	10	156.45		
25-29	72	11	175.72	11.861	0.037
30-34	62	12	187.85		
35-39	42	11	167.52		
>=40	38	12	205.7		
<b>Gender</b>					
male	250	10	156.2	22.636	<0.001
female	92	12	213.09		
<b>Marital status</b>					
single	128	10	146.17		
married	144	12	201.66	23.967	<0.001
divorced, widow, separated	70	10	155.77		
<b>Education</b>					
none	17	6	89.97		
primary	132	11	170.25	13.769	0.008
secondary	141	11	175.96		
high school	43	11	188.9		
graduated	9	12	190.89		
<b>Ethnic group</b>					
Burmese	138	12	190.08		
Dawei	55	11	173.88	23.315	<0.001
Mon	75	12	179.45		
Rakhine	51	8	114.64		
others	23	10	154.52		
<b>Occupation</b>					
fishermen	126	7	117.37	84.702	<0.001
fishery related					
industry	66	10	157.14		
agriculture and others	35	12	248.63		
construction	115	12	215.58		
<b>Registration status</b>					
registered	121	12	209.52	28.149	<0.001
unregistered	221	10	150.68		

Table12. Relationship between length of stay in Thai and income with preventive behaviors

	<b>Spearman's rho correlation</b>	<b>Preventive Behaviors</b>
	correlation coefficient	<i>p</i>
Length of stay in Thai	0.162	0.003
Income	0.141	0.009

#### 4.2.2) Relationship between knowledge and preventive behaviors

Regarding knowledge of tuberculosis among the respondents, there was statistically significant between knowledge towards tuberculosis ( $p < 0.001$ ). There was in good preventive behaviors when there was higher knowledge.

#### 4.2.3) Relationship between perception score and preventive behaviors

In this research, HBM has been modified to show the association between each part of perception and preventive practice. Barriers were drawn out separately to show the association with other variables such as knowledge, perception itself and preventive practices. Based on the finding from this research, there was no significant association between perception and preventive practices. Likewise, though there was no statistically significant between barriers and preventive practices, there was significant difference as the barriers became high, the level of preventive practices decline.

Table13. Relationship between knowledge, perception and preventive behaviors

	<b>Spearman's rho correlation</b>	<b>Preventive Behaviors</b>
	correlation coefficient	<i>p</i>
Knowledge score	0.239	<0.001
Perception score	0.087	0.109
Barrier score	-0.031	0.572

Regarding with knowledge, there is significant association between knowledge and perception with  $p < 0.001$ . Again there was no significant association between barriers and perception. Interestingly, there was significant negative association between barriers and knowledge. As the knowledge higher, the barriers reduced  $p < 0.001$ .

Table 14. Relationship between knowledge, barrier score and perception score

	<b>Spearman's rho correlation</b>	<b>Perception score</b>
	correlation coefficient	<i>p</i>
Knowledge score	0.286	$< 0.001$
Barrier score	0.034	0.535

Table 15. Relationship between barrier score and knowledge

	<b>Spearman's rho correlation</b>	<b>Knowledge score</b>
	correlation coefficient	<i>p</i>
Barrier score	-.195	$< 0.001$

#### **4.2.4) Relationship between knowledge, perception, barrier and individual behavior question by Kruskal Wallis test**

According to the table 15, looking at the relationship between knowledge and individual preventive behavior score, most of the questions had statistically significant difference between knowledge and behaviors with  $p < 0.001$  except the question regarding BCG vaccination and avoidance from TB patient. The mean rank also went from never to always with ascending order as never got lowest rank and always got the highest.

Table16. Relationship between knowledge score and individual behavior question

Preventive behavior	Mean Rank of knowledge score and behavior score			
	Never	Sometimes	Always	<i>p</i>
Balanced diet	107.5	136.9	187.0	<b>&lt;0.001</b>
Encourage BCG vaccination	157.9	158.2	184.0	0.056
Seek health services when sick	123.8	159.0	188.7	<b>&lt;0.001</b>
Seek health services when suspect TB	131.1	151.1	190.7	<b>&lt;0.001</b>
Stay in good ventilated house	108.0	139.4	181.5	<b>&lt;0.001</b>
Avoid too close to TB	173.6	174.3	167.1	0.833
Read or listen about TB	120.4	172.9	203.2	<b>&lt;0.001</b>

For determining the relationship between perception and individual behavior question, out of 7 preventive behaviors, 4 behaviors were significantly associated with perception with the mean rank went from never to always with ascending order. The respondents' perception on seeking health services when they were sick and they seek health when they suspect TB had difference in each group but not associated.

Table17. Relationship between perception and individual behavior question

Preventive behaviors	Mean Rank of perception score and behavior score			
	Never	Sometimes	Always	<i>p</i>
Balanced diet	88.2	157.3	179.8	<b>0.008</b>
Encourage BCG vaccination	183.2	169.4	165.5	0.333
Seek health services when sick	152.5	169.7	177.3	0.228
Seek health services when suspect TB	159.9	171.1	175.9	0.448
Stay in good ventilated house	90.4	154.6	180.1	<b>&lt;0.001</b>
Avoid too close to TB	170.9	149.8	188.3	<b>0.019</b>
Read or listen about TB	150.1	171.1	185.8	<b>0.034</b>

But for the association with barrier, there were significant difference only in the balanced diet and the barrier score. The respondents who practiced to get balanced diet sometimes got the highest score. The rest of the questions were not associated with barriers.



Table18. Relationship between barrier score and individual behavior question

Preventive behaviors	Mean Rank of barrier score and behavior score			
	Never	Sometimes	Always	<i>p</i>
Balanced diet	109.6	189.5	166.6	<b>0.028</b>
Encourage BCG vaccination	163.1	172.8	175.9	0.560
Seek health services when sick	173.6	167.9	172.2	0.932
Seek health services when suspect TB	172.0	170.2	171.6	0.995
Stay in good ventilated house	180.6	183.6	168.8	0.562
Avoid too close to TB	162.4	165.4	186.4	0.109
Read or listen about TB	173.1	159.6	182.7	0.151

#### 4.2.5) Relationship between accessibility of information and preventive behaviors

As shown in table15 there were highly significant positive relationships between accessibility of information and preventive behaviors ( $p < 0.05$ ) except the respondents heard TB from friends and neighbors, and heard TB from drug store. Specifically, the respondents who heard about TB and received TB information from various sources had better preventive practices than those who did not.

Table19. Relationship between accessibility of information and preventive behaviors

Accessibility of inforMation	Preventive behavior score			
	N	Median	Mean Rank	<i>p</i>
have you ever heard about TB				
yes	301	11	177.99	<b>&lt;0.001</b>
no	41	6	123.89	
<b>Type° of information received</b>				
causes of TB				
yes	177	11	187.23	<b>&lt;0.001</b>
no	165	10	154.63	
transmission of TB				
yes	256	11	180.39	<b>&lt;0.001</b>
no	86	9	145.03	
prevention of TB				
yes	170	12	189.22	<b>&lt;0.001</b>
no	172	10	153.98	

Table19. Relationship between accessibility of information and preventive behaviors  
(continued)

Accessibility of information	Preventive behaviors score			
	N	Median	Mean rank	<i>p</i>
<b>treatment of TB</b>				
yes	121	12	196.93	<i>&lt;0.001</i>
no	221	10	157.58	
<b>Types of persons that TB information received</b>				
you heard about TB from health personnel				
yes	176	11	185.01	<b>0.002</b>
no	166	10	157.18	
you heard about TB from friends or neighbors				
yes	161	11	174.9	0.476
no	181	11	168.48	
you heard about TB from family				
yes	87	12	189.33	<b>0.021</b>
no	255	10	165.42	
<b>Types of media that TB information received</b>				
you heard about TB from television				
yes	171	12	185.5	<b>0.002</b>
no	171	10	157.5	
you heard about TB from radio				
yes	112	12	199.86	<b>&lt;0.001</b>
no	230	10	157.69	
you heard about TB from newspaper and magazines, posters				
yes	218	11	186.3	<b>&lt;0.001</b>
no	124	9	145.48	
you heard about TB from health centers				
yes	150	12	185.2	<b>0.007</b>
no	192	10	160.8	
you heard about TB from drug store				
yes	68	11	183.69	0.177
no	274	10	168.47	

## CHAPTER V

### DISCUSSION, CONCLUSION AND RECOMMENDATION

#### 5.1) Discussion

The main objective of this study were to find out the preventive behaviors of tuberculosis and factors related to preventive behaviors among Myanmar migrants; both registered and unregistered residing in Phuket Province, Thailand. The hypothesis assumed that there were association between socio-demographic characteristics, knowledge, attitude/perception, accessibility of information and tuberculosis preventive behaviors.

Out of 25 communities, following the multistage sampling method, a total of 16 Myanmar migrant communities were visited to collect data in Muang District of Phuket Province, all of which were within the catchments area of World Vision Foundation Thailand(WVFT) so that this fact might have some impact on this study.

#### **TB preventive behaviors**

The results from this study showed that more than two third of respondents 62% had good level of preventive behaviors. Overall preventive behaviors were in high level. This fact was incompatible with Nam Mai study done at Vietnam, which had good level of 43.7% and Tung Minh Duong's done at Vietnam whose study had good preventive behaviors of 33.7% , while 25.7% good preventive behaviors at Kachanaburi province by In Sokhanya. This could be explained as migrants have many difficulties in terms of economic, registration and socially when they had tuberculosis. Because of this reason they practice preventive behaviors more than the

citizens who were residing at their host country. All the previous study was done at general population who lived in their country of origin.

### **Associations between sociodemographic characteristics and preventive behaviors.**

Regarding sociodemographic characteristics, the findings of this study confirmed that there were associations between age, gender, education, income, occupation, duration of stay in Thai and registration status, and no association in Thai language fluency. As the age older, there was higher in preventive behaviors. This may be due to the awareness for the health care as the respondents' age became older.

It was found that female had better preventive behaviors than those of male with  $p < 0.001$ . It meant that female paid more attention to self care and prevent from getting of TB, more concerned about the social consequences of the disease than male and also they usually were assigned to take care of everything in family including health. This fact was consistent with Tung Minh Doung's study. This study also proved that TB preventive behaviors in married were higher than those with single and others like divorced, widow and separated. This could be explained that the respondents who had partner practiced better than those without partner. It was found that getting support from partner was an important factor in preventing tuberculosis. In describing the association with education, those who were educated had higher preventive behaviors than respondents with lower education. This might be the fact that the more educated, the higher the consciousness in preventing TB. When talking about the occupation, there were significant association with preventive behaviors, however respondents working in agriculture were better practices than those of other occupation groups. That could be the agriculture workers had more time and less

competitive than other groups. Likewise, family income of the respondents was strongly associated. It was due to respondents with high income can afford balanced diet, could try to live in a ventilated house, and can give more awareness to health care, etc. Duration in Thai, the longer the duration in Thai, the higher the preventive practices. This was explained as the respondents who lived longer here are more stable living situation and higher income than their country of origin.

But for the Thai language fluency, this is the only variable which was not associated with preventive behaviors, this seemed that migrants lived in groups thorough out the whole Phuket province, so the information sharing in the communities were in Burmese language, no need to be understand or spoken Thai language. They did not have any problem for language barrier in sharing of information or adapt to a new foreign community so that where there was no change in their manner of prevention over time. That is why, it was incompatible with duration in Thai, though duration in Thai was associated, and language fluency was not. This study showed that the registered respondents clearly had better preventive practices than unregistered. It may be the fact that registered migrants can earn salaries more than unregistered and can seek health care as their wish, no need to fear for authorities. For those unregistered, they have got less and had to concern a lot including local authorities.

### **Relationship between knowledge and preventive behaviors**

This study finding supported the hypothesis that knowledge is associated to the preventive behaviors. There showed a great statistical significant relationship between overall knowledge towards TB and tuberculosis preventive behaviors ( $p < 0.001$ ). This finding was consistent with Nam Mai and In Sokhanya while

contradicted to Tung Minh Doung's study. This was probably due to the fact that having good TB knowledge affected the respondents practicing good TB preventive behaviors. It was found that more than two third of the respondents had good level of TB knowledge, pretty much higher than all the previous study. Besides that reason, World Vision Foundation has launched a new health education program regarding tuberculosis since 2008 conducted by FSNs and MHVs. This could effect on the knowledge of the migrants regarding to both tuberculosis and its preventive behaviors. However, other factors besides TB knowledge might influence on their TB preventive practice such as socio economic status, employment, availability if TB related information through various channels in the community.

### **Relationship between perception, barriers and preventive behaviors**

In this study, the perception was based on the Health Belief Model which focuses on the role of motivating factors in the prevention of health problems. Glanz et. al. stated that many studies had applied a HBM framework to the problems of transmission of tuberculosis for many years. Summarized findings from researches in various fields help us to understand who individuals did or did not engage in a wide variety of health related actions.

With respect to perception level towards tuberculosis, nearly half of the respondents (45.3%) had good level of perception and had no association with preventive behaviors. However, it was a bit higher than those of Tun Minh Duong's study (44.6%), 43% of good perception in In Sokhanya's study and lower than Nam Mai (50%) of good perception in her study. The good level of perception might be due to the perception that they were susceptible to get TB and perceived that TB is a dangerous disease. There may be another reason suggesting that migrants have many

difficulties in terms of language barriers, local authorities due to the registration status when they seek health care, and also the economical burden when they contracted TB. That is why, though the perception was not associated with the behaviors, they practiced well based on the knowledge they had and due the facts stated above.

In terms of barriers, although there was no difference between barriers, perception, and preventive behaviors, but negatively associated with knowledge. With respect to preventive behaviors, there was reverse association with barriers and preventive behaviors, as if there were many barriers, the respondents' preventive behaviors reduced. Likewise, there was reverse association with knowledge and preventive behaviors, if the community had low knowledge about tuberculosis, there will be more barriers, and there by reduced preventive practices. According these findings, barriers played a major role among the migrants at Phuket. Because migrants had poor living condition, could not have balanced diet, language barriers and afraid of local authorities to seek health were major barriers to practice preventive behaviors.

### **Relationship between accessibility of information and preventive behaviors**

About accessibility of information, the respondents who had heard about TB and received information regarding TB had better preventive practices than those who did not. Among them, almost all of the respondents knew about the causes, transmission, prevention and treatment of tuberculosis. In that knowledge about treatment was the highest mean rank than other. It was found that the respondents who received TB information from television and radio had the significant association with preventive practices with  $p < 0.002$ . It would be due to the media which mainly television and radio are good channels of information to community and television

was also a popular media at present. This fact was consistent with Nam Mai, 2002. However, the information received from families and friends were not associated with preventive practice. It could be assumed that all the friends and neighbors around the respondents were so busy for living and did not even have time to share health information in the environment they were living. Similarly, TB information dissemination was very weak from drug store, it would probably from the reason that the drug owner or the seller were mainly emphasized on their business, not interesting to educate the purchaser.

## **5.2) Conclusion**

All over the world, tuberculosis is still the major health concern in all human race. In general term, migrant population as a whole is the vulnerable group which has tendency to engage in risky behaviors. It is a generally assumption that many migrants do not have access to primary health care services. It is estimated that there are at least 2 million immigrant workers in Thailand from neighboring countries, 89% of them being from Myanmar, of which only a few fractions are registered. Because of health and political issues are interrelated, the presence of large number of migrant workers raises the alarm for political and health concerns. To relieve the extent of health care problems, many studies have been conducted among these special populations, thus, to provide the basis for many intervention and implementations by accessing their constraints and opportunities on various health problems.

This was a descriptive study in Phuket Province, Thailand, the study population being Myanmar migrants, both unregistered and registered, both male and female. Total samples of 342 respondents were collected by multistage sampling



during February, 2009. The objective of this study was in general, the factors related to preventive behaviors of tuberculosis among Myanmar migrants.

A total of 5 categories of socio-demographic characteristics, knowledge, perception and accessibility of information were selected in this study.

This study showed that there were significant relationship between almost all of the general socio demographic characteristics such as age, gender, marital status, education, race, duration in Thailand, occupation and income (except language fluency) and preventive practices.

Most of the respondents knew about tuberculosis. More two thirds of the respondents have good level of knowledge ( $\geq 80\%$  of total knowledge score). This study showed there was significant association between knowledge and preventive practices. The respondents practiced more when their knowledge became higher.

Regarding accessibility of information, most the respondents knew the causes, transmission, prevention and treatment. And they got TB information mainly from television and radio, and strongly associated with preventive behaviors. However little knowledge gained from friends, neighbors, and from drug store, not associated with preventive behaviors.

Table 20. Summarization of study findings with hypotheses

Hypotheses	Study result
1) There is an association between general characteristics (age, sex, occupation, marital status, level of education, monthly income) and TB preventive behaviors.	Supported (except Thai language fluency)
2) There is an association between respondents' knowledge and awareness of TB and its preventive behaviors.	Supported
3) There is an association between perception and TB preventive behaviors.	Not supported
4) There is an association between barriers and TB preventive behaviors.	Not supported
5) There is an association between accessibility of information about TB and its preventive behaviors.	Supported (except information received from friends and neighbors, and information from drug store)

### 5.3) Recommendation

Upon this survey, one third of the respondents never heard of any kind of health information regarding tuberculosis. Likewise, some of the respondents had still misconception about tuberculosis. Therefore, it is suggested that the health information and health education programs should be directed to cover all layers of the migrants, should include all of the information about TB. Moreover, the education programs should also make some adjustments to the various times to suit the leisure hours of working groups so that there would be no one who had never got any health information.

Although NGOs along Thai- Myanmar border provided free services for tuberculosis for migrants, the prevalence of TB is still uprising. It means that there is still lack of knowledge about the free services or barriers to access health care

like local authorities and language barrier. There should be some intervention to overcome those barriers like free health care services for the migrants.

Some communities, where most of the migrants were unregistered, were completely under control by the employers and no body was allowed to enter those places. The world Vision Foundation should put more effort to get access to those places with advocacy and collaboration among employers, factory owners, rubber plantation owners and the Public Health Officers.

As a great majority of the respondents were depending on the services of the World Vision Foundation and clinic, where they could communicate freely in Myanmar language, strengthening the existing health infrastructure and manpower to meet the special needs of the specific population should be considered. Since it is the only NGO in Phuket area, all Myanmar migrants relied on its services, and accordingly the quality of services should be maintained and improved as possible. Current free TB treatment services in combination with Thai government provincial health office has been launched since 2007; there was significant increase in assessing health care for this free service and significant increase in migrants' knowledge towards tuberculosis.

#### **For further research**

Because of limitation of time, this study sample did not cover the whole Phuket provinces. Further studies with a large sample size, try to cover the whole Phuket province would yield the more representative results.

This study was done in the migrant communities which were within catchments areas of WVFT. If possible, further researches should try to cover all the

communities including close and outreach ones to give a more complete picture of Myanmar migrants in Phuket as their characteristics may vary from area to area.

Qualitative research should focus on migrants concerning the major barriers and difficulties in assessing health care, cultural beliefs by means of in-depth interviews and focus group discussions to get more reliable results. This could only be possible after achieving trust building from them.

Since perception was not related to tuberculosis preventive behaviors, it is suggested that further studies including the complete constructs of Health Belief Model (cues to action and self efficacy) should be done, Because, in this study perception is measured just only in a few questions, it was difficult to cover the whole construct of HBM to get the understanding of respondents' perception on preventive behaviors.

In this research, though migrants had true barriers, but there was no association between barriers and preventive behaviors except balanced diet. Probably the questions in this research may not be the best for the population at Phuket. So further research should include the questions which really represents the barriers for the community.

Also, future preventive behaviors study should include general population as well as the family members around TB patents. This may reveal some interesting difference in practices with general and high risk groups.

The next coming studies should carefully follow that the preventive behaviors actually reduce the transmission of TB.

Finally, similar studies should be carried out in other provinces where there are migrants to draw out more representative samples.

#### **5.4) Expected outcome and benefits**

It is expected that the results of this study would be useful for the review and planning of health education, health promotion, information, education and communication (IEC) materials development and behavior change communication (BCC) interventions regarding tuberculosis prevention and control among Myanmar migrants in similar setting in Thailand and elsewhere.

#### **5.5) Limitation of the study**

Great mobility and geographically scattered distribution of the migrants, unfamiliarity with the migrant community, their working nature and culture, their free times and willingness for interview, their feeling of insecurity towards a stranger (interviewer) were the big challenges during data collection. To overcome those, seven Myanmar local persons, who are familiar and well- experienced with the nature of Myanmar migrant communities were hired to assist the data collection process of the study. This research may not be generalized outside the study area.

## REFERENCES

- Amarinsangpen, S. (2006). "Strategic Plan to Control Tuberculosis to Meet Decade-end Development Goals, BE 2558.
- Areth, T. B. (2000). Factor Associated With an Unsuccessful Treatment Of Pulmonary Tuberculosis in Kampong Thom Province, Cambodia.
- Ariyothai, N., Podhipak, A., Akarasewi, P., STornee, Smithtikarn, S., and Thongprathum, P. (2004). A hospital based case- control study of behavioral risk factors for adult pulmonary tuberculosis in Thailand. **Southeast Asian J Trop Med Public Health** 35,1: 219-227.
- Buskin, S., Gale, J., Weiss, N., & Nolan, C. (1994). Tuberculosis risk factors in adults in King County, Washington, 1988 through 1990. **Am J Public Health** 84,11: 1750-1756.
- Carmine, J., Aamuel, W., & Patricia, M. (1994). **Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Facilities**
- Center of Disease Control. (1994). **Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Facilities** (MMWR Recomm Rep).
- Center of Disease Control. (2007). **Forging Partnerships to Eliminate Tuberculosis, 2007**: Center of Disease Control.
- Chanarin, L., & Stephenson, E. (1988). Vegetarian diet and cobalamin deficiency and their association with tuberculosis. **Pubmed** 41(7),7: 759-762.
- Christian, A. (2000). Health seeking and perceived causes of tuberculosis among patients in Manila, Philippines. **Trop Med Int Health** 5,9: 648-656.
- Dirgh Singh Bam. (2002). **Tuberculosis in Asia**.

Duong, T. M. (2004). **Tuberculosis Preventive Behavior of Urban Community In**

**Ca Mau Province, Vietnam.** Faculty of Public Health, Mahidol.

Govender, T. (1998/1999). **Tuberculosis, DOTS cure for all, South Africa.**

H.Nakajima. (1993). **Tuberculosis: A global emergency.** Geneva: WHO.

Hochbaum. (1958). Public participation in Medical programs "A sociopsychological study". **Public Health Service Publication 572.**

Johansson, E., Long, N., Diwan, V., & Winkvist, A. (2000). Gender and tuberculosis: Perceptives on health seeking behaviors among men and women in Vietnam. **Elsevier 52,1: 33-51.**

Joklik, W. K., Willett, H. P., Amos, D. B., Wilfert, C. M., and Zinsser (Eds.). (1995). *Microbiology* (20th ed.): Mc Graw Hill

Kamolratanakul, P., Hiransuthikul, N., Singhadong, N., Kasetjaroen, Y., Akksilp, S., & Lertmaharit, S. (2002). Cost Analysis of Different Types of Tuberculosis Patient at Tuberculosis Centers in Thailand. **Southeast Asian J Trop Med Public Health 33: 320-330.**

Kasl and Cobb. (1966). [Online]. Available from:

<http://www.answers.com/topic/preventive-health-behavior> .

Khwankhom, A. (2007, January 12). Alarm over rising cost from new TB cases. **The Nation.**

Levey, M., Reyes, H., & Coninx, R. (1999). Overwhelming consumption in prisons: Human rights and tuberculosis control. **Health and Human Rights 4,1: 166-**

- Liefooghe, R. (1996). Knowledge, Attitude and Behavior: " Perception and Social consequences of tuberculosis: A focus Group Study of Tuberculosis Patients in Sialot, Pakistan". **Social Science and Medicine** 41: 17-18.
- Liefooghe, R., Michiels, N., Habib, S., Moran, M. B., & Muynck, A. D. (2000). Perception and social consequences of tuberculosis : a focus group study of tuberculosis patients in Sialkot, Pakistan. **Social science and medicine** 41,12: 1685-1692.
- Long, N., Johansson, E., VK, D., & Winkvist, A. (2001). Fear and social isolation as consequences of tuberculosis in VietNam: a gender analysis. **Health Policy** 58,1: 69-81.
- Lonnrot, K., Williams, B. G., Stadlin, S., Jaramillo, E., & Dye, C. (2008). Alcohol use as a risk factor for tuberculosis. **BMC public health** 8: 289.
- Maher, D., Chaulet, P., Spinaci, S., & Harriero, A. (1997). **Treatment of Tuberculosis: Guidelines for National Programs WHO**
- Mai, N. (2002). **Factors associated with preventive practice on TB infection among adults in Quang Tri Province, Vietnam.** Faculty of Public Health, Mahidol.
- Manoonpaniach, T. (2007). Stigmatization of Pulmonary Tuberculosis Patients in the Health Care Service System.
- Meaza Demissie, B. L., and Yemane Berhane. (2002). Patient and health service delay in the diagnosis of pulmonary tuberculosis in Ethiopia. Publication. Retrieved September 25:
- Ministry of Public Health. (2006). **Tuberculosis Tops Disease List.** Bangkok: Ministry of Public Health.



- Mohamed Yusuf. (2004). Delay for Tuberculosis and its related factors from TB cluster bureau of AIDS-TB- STI , Department of Disease Control, Ministry of Public Health, Bangkok, Thailand.
- MOPH. (2008). National Tuberculosis Reference Laboratory, Ministry of Public Health, Thailand, Mae Sot, Thailand **The European Journal** 13,10: 1288-1296.
- Morisky, D. E., Malotte, C. K., Ebin, V., Davidson, P., Cabrera, D., Trout, P. T., et al. (2001). Behavioral interventions for the control of tuberculosis among adolescents.. **Public Health Rep** 116,6: 568-574.
- National Tuberculosis Center. (1996, September 26). **Diagnosis of Tuberculosis Infection and Disease (National Tuberculosis Center)**. [Online]. Available from: <http://www.umdj.edu/~ntbcweb/tiddiag.htm> [2008,October 20].
- Neil and Janet Croft. (2005). **The History of Tuberculosis**. [Online]. Available from: <http://www.micklebring.com/oakwood/ch18.htm> [2008,18 November].
- NTP- Myanmar. (2001). **National Tuberculosis Control Program**. Myanmar: Ministry of Public Health.
- O'Brien, R. J., & Nunn, P. (2001). The need for new drugs against tuberculosis: Obstacles, opportunities, and next steps. **American Journal of Resp. Critical Care Med** 163,5: 1055-1058.
- Ohmori M, W. M., Yoshiyama T, Uchimura K. (2003). Factors related to early case detection of tuberculosis in health service facilities for the elderly, Kekkaku. 76,6: 435-442.
- Orem, D. (1991). **Nursing: Concept of practice St.Louis; Mosby Year Book**.

- Orrett, F., & Shurland, S. (2001). Knowledge and awareness of tuberculosis among pre-university students in Trinidad. **Journal of Community Health** 26,6: 479-485.
- Paung, S. (2006, July 7). **Thailand to Improve Health Conditions for Migrant Workers.** [Online]. Available from: [www.irrawaddy.com](http://www.irrawaddy.com) [2008,15 October].
- Ronveaux, O., & Jans, B. (1995). Prevention and transmission of tuberculosis in hospitals. **Journal of hospital infection** 37: 207-215.
- Sawasdiwuthipong, Wandee, P., & Kasem, S. (2004). Aliens Seen as Health-Care Burden. **Bangkok Post**.
- Sokhanya, I., Sermsri, S., & Chompikul, J. (2008). TB preventive behavior of patients consulting at the general out-patient department at Paholpolpayuhasana Hospital, Kanchanaburi Province, Thailand **Journal of Public Health and Development** 6,2.
- Steen, T. W., & Mazonde, G. N. (1999). Health seeking behavior in Botswana with pulmonary tuberculosis. **Social Science and Medicine** 48: 163-172.
- Suksont, J. (2006). **Thai/Myanmar Border TB Situation, including Multi-Drug Resistant TB in the border area**, Open Society Institute.
- Thanaisawanyangkoon, S. (2006). An Epidemiologic Study on AIDS among Migrant Workers in Thailand. **CDC**.
- Viretto, G. (1996). Factor Associated With an Unsuccessful Treatment Of Pulmonary Tuberculosis in Karen Refugees Camps (Tak Province).
- Waisbord, S. (Ed.). (1994). *Behavioral barriers in tuberculosis control*.

- Wandee, P., Supawitkul, S., Pinta, N., Ngoentong, Y., Khunkonkapan, S., and Kaewkampa, P. (2004). Dual TB/HIV epidemic in northern Thailand and Myanmar Border. XV International AIDS Conference, Bangkok.
- Wongsonton, H. (2000). A study of self-efficacy and self care behavior of pulmonary tuberculosis patients.
- World Health Organization. (1994-1995). **Guidelines for National TB Program**. Geneva: World Health Organisation.
- World Health Organization. (1998). **Stop Tuberculosis at the source** Geneva.
- World Health Organization. (2006). **Thailand Border Health Program**.
- World Health Organization. (1994-1995). **Treatment of Tuberculosis**.
- World Health Organization. (2006). **Tuberculosis in South- East Asia region** New Delhi: World Health Organization.
- World Health Organization. (2001). **WHO Regional Office for Europe, Tuberculosis, DOTS**.
- World Health Organization. (1998). **WHO report on tuberculosis epidemic**. Geneva: World Health Organization.
- World Health Organization., (2008). **Summary of Global tuberculosis control - surveillance, planning, financing**.
- World Vision Foundation Thailand. (2007). Global Fund Round 6. World Vision Foundation Thailand. Zhang, T., Liu, X., Bromlay, H., & Tang, S. (2007). Perceptions of tuberculosis and health seeking behavior in rural Inner Mongolia, China. **Journal of Health Policy** 81: 155-165.



**APPENDICES**

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

## APPENDIX A

### Preventive Behaviors of TB among Myanmar Migrants at Muang District, Phuket Province, Thailand.

#### Questionnaires

Subject code ..... Date...../...../.....

Interviewer code .....

#### A) Socio- demographic Characteristics

1) What is your age?

----- years

2) What is your gender?

1. Male

2. Female

3) What is your marital status?

1. Single

2. Married

3. Divorced

4. Widow

5. Separated

6. Others (please specify)

4) What is your education?

1. Didn't join to school

2. Attended Primary school

3. Attended Middle school

4. Attended high school

5. Graduated from university

6. Other (specify)

5) What is your ethnicity?

1. Burmese
2. Dawei
3. Mon
4. Rakhine
5. Other (specify)

6) How long have you been in Thailand?

-----years and ----- months

7) What is your recent job in Phuket?

1. Fisherman
2. Fishery- related worker
3. Agriculture
4. Construction
5. Dependent and other

8) What is your monthly income?

----- Baht

9) What about your registration status?

1. Registered
2. Unregistered

10) Who are you living with?

1. Alone
2. with families
3. with friends
4. Others (if yes, specify).....

11) How many people in your family currently?

.....

12) Has anybody in your family ever had TB?

1. Yes                      2. No

13) Do you currently live with anybody who has TB?

1. Yes                      2. No

14) Is there anybody who has TB in your surroundings?

1. Yes                      2. No

15) Can you speak Thai?

1. None  
2. Average  
3. Can speak fluently but can't read or write  
4. Can speak, read and write fluently



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

**B) Knowledge about Tuberculosis.**

Statement	True	False	Don't know
-----------	------	-------	------------

**Causes, mode of transmission and prevention**

1. Tuberculosis is an infectious disease caused by bacteria.
2. Tuberculosis bacteria in the body are killed by sunlight.
3. Tuberculosis is caused hard work.
4. Tuberculosis can be transmitted by mosquito.
5. TB can be transmitted from patient respiratory system.
6. One can get TB during blood transfusion.
7. TB is caused by hereditary disease from older generations to the latter descendent.
8. Cigarette smoking and alcohol drinking predisposed to tuberculosis of the lungs.
9. BCG vaccine can prevent children from TB.

**Symptom, diagnosis and treatment**

10. Apart from lung, TB can cause disease at
  - 10.1. Bone
  - 10.2. Joints
  - 10.3. Lymph node
  - 10.4. Brain
11. The followings are signs and symptoms of TB
 

11.1. Unexplained weight loss	11.4. Coughing up blood
11.2. Unexplained fever and night sweats	11.5. Loss of appetite
11.3. Persistent cough for more than 3 weeks	



12. Diagnosis of TB is done by sputum examination.
13. Taking CXR is the important test in diagnosing TB.
14. TB is cured by rest only (no need to take anti TB drugs)
15. Patient should be admitted to hospital to receive treatment.
16. TB is cured if anti TB drugs are taken regularly and full course.
17. Traditional medicine is cheaper and more effective than anti TB drugs.
18. Anti TB drugs can cause discomfort and can give side effects
19. Patients with tuberculosis should be regarded as outcast.
20. Rich people cannot get TB because it is only the disease of poor people.
22. Getting TB is a kind of punishment from God.

### **C. Perception on Tuberculosis**

<b>Statement</b>	<b>Agree</b>	<b>Uncertain</b>	<b>Disagree</b>
------------------	--------------	------------------	-----------------

#### **Susceptibility**

1. Man and woman have equal chance in getting TB.
2. Persons infected with HIV/AIDS is easily infected with TB.
3. Person in close contact with TB patient can get TB.
4. Malnourished and poor people are at risk of TB.
5. TB can be transmitted if working together with TB patient.

#### **Seriousness**

6. TB is dangerous and can lead to death.
7. Delay in treatment can be fatal.
8. You can be dismissed from TB if your employer knows that you have TB.
9. You can be discriminated from friends if they know that you have TB.

**Benefit of preventive behaviors**

10. If you can stay in a well ventilated house, you can prevent TB.
11. You close your mouth and nose if someone who has TB cough or sneeze besides you, you can prevent TB.

**Barriers**

12. I am so poor to have balanced diet though I want to have well balance diet.
13. I can't stay in a well ventilated house to prevent TB though I want to.
14. You can't escape from working together with TB patients to prevent TB.
15. You can't escape from staying in a crowded home to prevent TB.
16. You can't seek health as soon as you are ill because you afraid of local authorities.
17. You can't seek health as soon as you are ill because of language barriers.

**D). Prevention practice on TB infection**

Statement	Always	Sometimes	Never
-----------	--------	-----------	-------

1. You eat balanced diet to prevent TB. (E.g. Vegetable, meat, fish equally)
2. You encourage getting BCG vaccination when you see the child less than one year old.
3. You seek health service from health personnel.
4. Going for examination whenever you have suspect signs of TB.
5. You keep your house to get good ventilation and sunlight.
6. You avoid too close to TB patients.
7. You read or heard health news about TB, HIV/AIDS.



**Appendix B. Time Schedule**

**Appendix C. Budget**

<b>No.</b>	<b>Activities</b>	<b>Amount (Baht)</b>
1.	Photocopies , Stationeries	2500
2.	Transportation fees	1500
3.	Research assistance fees	8750
4.	Traveling charges for research assistants	3100
5.	Thesis printing, copying and binding, publishing	5000
6.	Accommodation	4600
<b>Subtotal</b>		<b>25450</b>

สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย

**CURRICULUM VITAE**

Name : Ms. Hnin Thawda Thwin  
Date of Birth : 15<sup>th</sup> September, 1979.  
Place of Birth : Yangon, Myanmar  
Educational Achievement : M.B., B.S. (2005)  
University of Medicine (2), Yangon, Myanmar  
Work Experience : Medical Doctor (Malaria Project) (2006 Jan- June)  
MSF- Holland.  
Medical Doctor (Primary Health Care Program)  
(2006 July- 2007 December)  
MSF- Holland.



สถาบันวิทยบริการ  
จุฬาลงกรณ์มหาวิทยาลัย