การศึกษาความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร

นางสาวสุรีย์ จิรไพบูลย์สุข

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS CHILDHOOD TUBERCULOSIS IN GUARDIANS OF PATIENTS VISITING THE PEDIATRIC OUT-PATIENT DEPARTMENT, SIRINDHORN HOSPITAL, BANGKOK

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health Program in Health Systems Development
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สุรีย์ จิรไพบูลย์สุข : การศึกษาความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร. (KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS CHILDHOOD TUBERCULOSIS IN GUARDIANS OF PATIENTS VISITING THE PEDIATRIC OUT-PATIENT DEPARTMENT, SIRINDHORN HOSPITAL, BANGKOK). อ. ที่ปรึกษาวิทยานิพนธ์หลัก : นพ. โรเบิร์ต เชคจ์วิค แชบแมน M.D., M.P.H., 84 หน้า.

จุดประสงค์ของการศึกษานี้เพื่อประเมินความรู้ ทัศนคติและการปฏิบัติของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรมและคลินิกสุขภาพเด็กดี โรงพยาบาลสิรินธร กรุงเทพมหานคร การศึกษานี้เป็นแบบภาคตัดขวางชนิดวิเคราะห์ เก็บข้อมูลโดยใช้แบบสอบถามและให้ผู้เข้าร่วมวิจัยตอบแบบสอบถามด้วยตนเอง ผู้เข้าร่วมงานวิจัยที่ตอบแบบสอบถามได้ครบถ้วนมีจำนวน 400 ราย

ผลการศึกษาพบว่าผู้ปกครองเด็กส่วนใหญ่ (ร้อยละ 60) มีความรู้ในระดับต่ำ ร้อยละ 31 อยู่ในระดับปานกลางและร้อยละ 13.2 อยู่ในระดับสูง ผู้ปกครองเกือบทั้งหมด (ร้อยละ 97.8) มีทัศนคติว่าหากเด็กเป็นวัณโรคปอดจะปรึกษากับแพทย์และบุคลากรทางการแพทย์มากที่สุด ประมาณร้อยละ 25 มีทัศนคติต่อค่าใช้จ่ายในการวินิจฉัยและการรักษายังว่ามีราคาแพง ร้อยละ 22.5 มีทัศนคติต่อชุมชนว่าคนส่วนใหญ่จะไม่ยอมรับผู้ป่วยวัณโรคเด็ก ร้อยละ 2.5 ปฏิเสธที่จะนำญาติที่รักษาวัณโรคครบแล้วไปดูแลพักฟื้นที่บ้าน สำหรับการปฏิบัติพบว่าส่วนใหญ่มีระดับต่ำ อาชีพ ($p < 0.001$) ระดับการศึกษา ($\beta = 0.62$, $p = 0.001$) และการรู้จักผู้ป่วยวัณโรค ($\beta = 1.31$, $p = 0.004$) มีความสัมพันธ์กับความรู้ต่อวัณโรคเด็กอย่างมีนัยสำคัญทางสถิติ นอกจากนี้พบเพียงการรู้จักผู้ป่วยโรควัณโรคมีความสัมพันธ์กับการปฏิบัติอย่างมีนัยสำคัญทางสถิติ ($\beta = 0.39$, $p = 0.004$) ความรู้มีความสัมพันธ์กับการปฏิบัติต่อการป้องกันการสัมผัสโรควัณโรคอย่างมีนัยสำคัญทางสถิติ (การทดสอบแบบสเปียร์แมน = 0.315, $p < 0.001$)

สรุป จากการศึกษานี้พบว่าการให้ความรู้แก่ผู้ปกครองเด็กมีความจำเป็น ในการศึกษานี้ได้เสนอข้อแนะนำเพื่อเป็นแนวทางในการเพิ่มความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคเด็ก โปรแกรมการให้ความรู้ควรมุ่งเน้นเกี่ยวกับการแพร่กระจายของโรค การป้องกันโรคและการค้นหาผู้ป่วย เปลี่ยนทัศนคติในเชิงลบและปรับเปลี่ยนการปฏิบัติต่อวัณโรคเด็ก

สาขาวิชา การพัฒนาระบบสาธารณสุข ลายมือชื่อนิสิต Suree Jiraipaiboonsuk
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KEYWORDS : KAP CHILDHOOD TB / KAP CHILDHOOD TUBERCULOSIS / CHILDHOOD TB / CHILDHOOD TUBERCULOSIS

SUREE JIRAPAIBOONSUK : KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS CHILDHOOD TUBERCULOSIS IN GUARDIANS OF PATIENTS VISITING THE PEDIATRIC OUT-PATIENT DEPARTMENT, SIRINDHORN HOSPITAL, BANGKOK. THESIS ADVISOR : ROBERT SEDGWICK CHAPMAN, M.D., M.P.H., 84 pp.

The aim of this study was to assess the knowledge, attitudes/perceptions and practices towards childhood tuberculosis in guardians of patients at the pediatric out-patient department and well child clinic, Sirindhorn hospital, Bangkok. This study was a cross-sectional analytic study. Data were collected by using self-administered questionnaires. Four hundred participants were consented to complete the questionnaires. The results indicated that 60% of respondents had poor level of knowledge, 31% had moderate knowledge and 13.2% had good knowledge. The majority of respondents (97.8%) would talk to doctor or other medical worker about the child's illness. There were around 25% thought that the cost of diagnosis and treatment of childhood TB was expensive. There were some stigmatizing attitudes and behaviors of the community members towards the childhood TB. 22.5% of respondents reported that most people would reject the child who has TB. 2.5% would not take the patient to their home even though they completed TB treatment. There was high proportion of the poor practice compared to moderate practice and good practice. TB knowledge score was positively and statistically significantly associated with TB preventive practice score (Spearman's rho=0.315, $p<0.001$). In multiple linear regression models, occupation ($p<0.001$), education level ($\beta=0.62$, $p=0.001$) and ever knowing a TB patient ($\beta=1.31$, $p=0.004$) were significantly associated with knowledge score. Only ever knowing a TB patient was significantly associated with TB preventive practice score ($\beta=0.39$, $p=0.004$).

Conclusions: Guardian education is needed. This study proposed the appropriate recommendations to improve knowledge, attitude and practice on childhood tuberculosis. Educational programs should be organized for improving knowledge especially about mode of transmission, prevention, and case detection. Influence attitude and behavioral change, especially combat stigma and discrimination.

Field of Study: Health System Development Student's Signature Suree Jirapaiboonsuk

Academic Year : 2009 Advisor's Signature Robert S. Chapman

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LIST OF ABBREVIATIONS

TB	Tuberculosis
DOTS	Directly Observed Treatment Short course
WHO	World Health Organization
NTP	National Tuberculosis Programme
IQR	Interquartile range

CHAPTER I
INTRODUCTION

1.1 Background and significance of the problem

In the past decade, there have been significant development in tuberculosis (TB). Thirty-two percent of the world's population is infected with TB, 8 million people get sick and 2 million die due to TB. (WHO, 2002). TB is a major cause of illness and death worldwide, especially in Asia and Africa. Globally, 9.2 million new cases and 1.7 million deaths from TB occurred in 2006, of which 0.7 million cases and 0.2 million deaths were in HIV-positive people.

Tuberculosis in Thailand had a successful TB control program, however the gains made by the National Tuberculosis Programme (NTP) in the past are being threatened by the national health services reform, which has resulted in substantial decentralization of roles and responsibilities, and subsequently weakened monitoring and supervision at all levels. The treatment success rate is well below the target of 85%. Based on WHO report 2007, Thailand is a high burden country of tuberculosis disease, rank 17 of South-East Asia Region, rank based on estimated number of incident cases (all forms) in 2005. (WHO report, 2007)

Detection and treatment of new cases in Directly Observed Treatment Short course (DOTS) programmes are the important components of the stop TB strategies of WHO's recommended approach. In Thailand (2006), estimated incidence (all new cases) was 90,252 cases, estimated Incidence (all new cases) was 142 per 100,000 population, smear positive 39, 617 cases (62 per 100,000 population), smear positive and HIV positive 3,486 cases (5 per 100,000 population) which can spread bacteria to community TB transmission, household contact especially in children. (WHO report, 2008) About 10% of these TB cases occur in children, i.e., persons less than 15 years old. (Corbett et al., 2003; Nelson and Wells, 2004; WHO 2003)

Infection with *M. tuberculosis* usually results from inhalation into the lungs of infected droplets produced by someone who has pulmonary TB and who is coughing. The source of infection of most children is an infectious adult in their close environment (usually the household). This exposure leads to the development of a

primary parenchymal lesion (Ghon focus) in the lung with spread to the regional lymph node(s). The immune response (delayed hypersensitivity and cellular immunity) develops about 4–6 weeks after the primary infection. In most cases, the immune response stops the multiplication of *M. tuberculosis* bacilli at this stage. However, a few dormant bacilli may persist. A positive tuberculin skin test (TST) is the only evidence of infection. In some cases, the immune response is not strong enough to restrain the infection and disease develops within a few months. Risk of progression to disease is increased when very young especially 0–4 years, and in immune-compromised children. Children who develop disease usually occur within 2 years following exposure and infection. (WHO, 2006)

Childhood TB is an important public health problem. It is a significant cause of morbidity, mortality, and health care expenditure. (Al-Marri, 2001) because most children have primary disease, rather than reactivation, indicating recent TB transmission, often from an infectious, undiagnosed TB case in the same household and ongoing transmission in the community. (WHO, 2006) Identifying and treating TB infection and disease in children can also provide long-term benefits to TB control, preventing future cases due to reactivation. (Bass et al., 1994)

Despite this huge disease burden, children's access to anti-tuberculosis treatment in most endemic areas remains poor because the National Tuberculosis Control Programs (NTPs) focus on case finding and treatment on pulmonary, acid-fast bacilli (AFB) smear-positive cases but few NTPs have been able to report reliably the total number of childhood TB cases diagnosed and treated annually (Nelson and Wells, 2004) because respiratory sign and symptom of childhood TB is uncommon. Thailand is among the 22 high-burden TB countries on WHO's list and has a generalized HIV epidemic. (WHO report, 2008). Reported rates for childhood TB in Thailand are markedly lower than in other countries; the proportion of all reported TB cases that occur in children (2.7%) is the lowest of the 22 high-burden countries. (Nelson and Wells, 2004). Therefore, the new WHO Stop TB Strategy and the launch of the Global Plan to Stop TB, 2006–2015 aims to adjust the chronic neglect of childhood TB and recommend that all children should be managed as part of routine NTP operations and children who are close contacts of smear-positive TB cases

should have contact investigations (WHO, 2006) but few NTPs perform this routinely. (Starke, 2002)

In Thailand, contact investigation is still not routinely done because of no contact screening policy, other priorities, limitation of resources, manpower and finances, contact investigation is performed in a passive way depend on physician provide education and recommend the active TB cases to bring their household to TB clinic for investigation. However, most of them do not bring their household contacts under 15 years old to the TB clinic.

Sirindhorn hospital:

Sirindhorn hospital is a general hospital providing health care services operating under the Bangkok Metropolitan Administration (BMA) supervision. As located in the east of Bangkok, the services are thus served mainly for the residents of Prawet District, where the hospital is situated, and other nearby districts including Suanluang, Prakanong, Bangkapi, Khanna Yao, Saphansung, and Bung Kum. The number of current local residents is 839,152, whereas, the number of those officially registered to receive the services from this hospital is up to 95,386. In 2009, 265,868 visits and 13,400 visits of OPD and IPD were made to the hospital and the number of visit tends to continuously increase. Sirindhorn Hospital initially provided 120-bed service in 2002 and then the service has been further extended up to 216 beds. The total bed occupancy rate is 86.4%. Health care services are provided by 324 staffs; consisted of 31 physicians, 226 nurses, 6 dentists, 13 pharmacists and other supporting staffs. (Sirindhorn Hospital, 2009a)

TB clinic at Sirindhorn hospital

Sirindhorn hospital provides a one-stop TB clinic on Wednesday at 13.00-15.00 P.M. TB patient tends to continuous increase. Based on medical record in 2009, there were two hundred and twenty two cases per year in which 111 cases had sputum smear positive, childhood TB was diagnosed in 13 cases. There were only 15 cases brought their children to hospital for checking TB. Tracing of TB in child household contact in Sirindhorn hospital has performed by advice and making appointment to bring their children to the hospital for TB investigation when adult smear positive pulmonary TB was diagnosed. However, most of them did not bring their household contact under 15 years old to the hospital. (Sirindhorn Hospital, 2009b)

Political, cultural and economic conditions, in addition to biomedical factors, have facilitated the re-emergence of tuberculosis. (Ruddy et al., 2004) Sociocultural factor has been influencing tuberculosis management and implications for public health interventions have received little attention. (Bock et al., 1998) Delayed presentation to health services and failure to identify at-risk individuals during contact investigation were the barrier to early case detection and prevention strategies. (Chin et al., 2000) Health care provider that work closely with patients to manage treatment and trace infect contact yet always able to identify contacts for screening. (Barnes et al., 1997) Interviewer skill, understanding of patient circumstances, and patients ability and willingness to share information can influence contact tracing outcomes. (Bock et al., 1998) A better understanding of health beliefs, particularly patients' notions of illness transmission and causation lead to a better understanding of patients' behavior. (Marks et al., 2000) In addition, the household contact screening adherence of the TB patients was significantly associated with a good knowledge of TB, a high perceived susceptibility, a high perceived severity and a high perceived benefit. (Tornee et al., 2005) A better understanding of knowledge, attitude and practice of childhood TB among the population will lead to a greater understanding of childhood TB screening management system. So, this study uses quantitative method to evaluate the knowledge, attitude and practice about childhood TB among parents who bring their children to pediatric out-patient department at Sirindhorn hospital. The published studies on this aspect are scant.

1.2 Research question of the study

1. What were knowledge, attitude/perception and practice towards childhood tuberculosis in guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok?

2. What characteristics were associated with this knowledge and practice?

1.3 Purposes of the study

To assess the knowledge, attitude/perception and practices towards childhood tuberculosis in guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok.

1.4 Benefits of the study

The results from this study should be beneficial for TB clinic staff in developing an appropriate intervention program to provide education, increase awareness of contact case screening, early identifying and treating TB infection and disease in children and can also provide long-term benefits to TB control, hopefully helping to prevent future cases.

1.5 Study area

The study area of this study was pediatric out-patient department at Sirindhorn hospital, Bangkok.

1.6 Variables in the study

1.6.1 Dependent variables

- Knowledge:

Knowledge focused on the cause of TB, mode of transmission, risk of infection, and treatment.

- Practices

- Practice about what they do to prevent their children from exposure to TB

i) keeping their children away from TB exposure inside/ outside the home

- Practice about what they if a household member gets TB

i) Bring children to hospital for TB screening

ii) Bring children to hospital for TB investigation if they develop suspicious respiratory symptoms.

1.6.2 Independent variables

- Socio-demographic characteristic:

Socio-demographic characteristics concentrated on age, gender, level of education, occupation, monthly family income, place of living, distance from the nearest hospital, relationship with the child, number of children in family, status in household, ever knew TB patient.

- Attitude/perception:

Attitude was perceived susceptibility, perceived benefits, perceived barriers towards childhood TB.

1.7 Conceptual framework

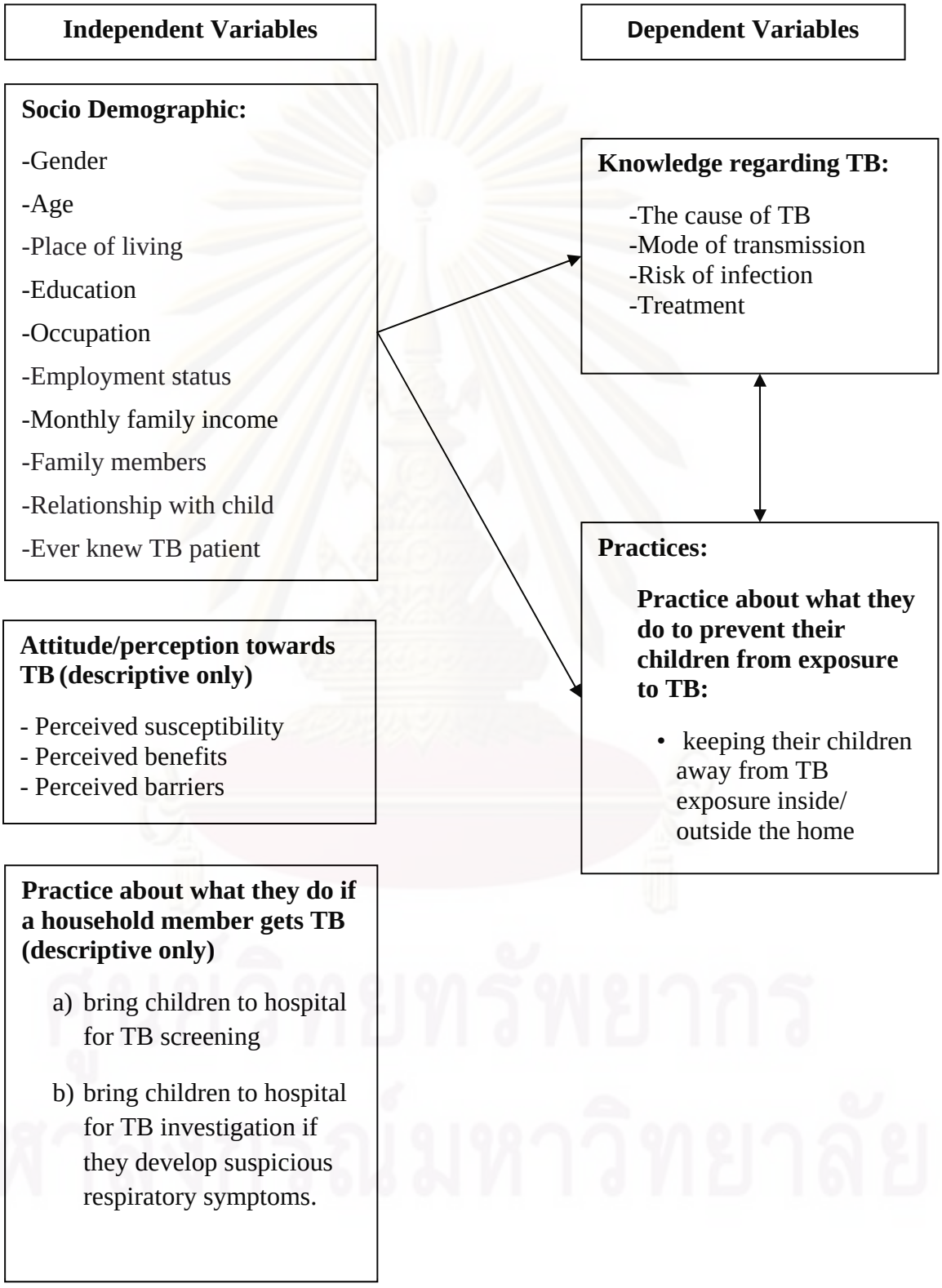

Figure 1 Conceptual framework

CHAPTER II
LITERATURE REVIEW

2.1 Childhood TB

2.1.1 Mycobacterium tuberculosis

Childhood tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*. The genus *Mycobacterium* consists of a diverse group of acid-fast bacilli (AFB) with a cell wall high in lipid content. The bacilli are aerobic, nonspore-forming, non-motile, and slightly curved or straight, ranging in length from 1 to 10μm and in width from 0.2 to 0.6μm.

M. tuberculosis is almost always transmitted through an airborne route, with the infecting organisms being carried in droplet nuclei that are expelled into the surrounding air when pulmonary TB patient coughs, talks, sings, or sneezes. (Nolan CM et al., 2005) Droplets containing tubercle bacilli dry, becoming droplet nuclei, which can remain suspended in the air for hours. Airflow and air currents affect transmission. Factors that diminish air circulation or introduction of fresh air into a space promote transmission. Only small droplet nuclei (< 10μm in diameter) reach alveoli. Transmission by direct contact with infected body fluids rarely occurs such as urine and purulent sinus tract drainage, fomites such as syringes, gastric lavage tubes, or bronchoscopes. (Starke and Jacobs, 2003)

2.1.2 National history of Childhood Tuberculosis

Primary infection occurs when a previously uninfected child inhales a single infectious aerosol droplet that penetrates into a terminal airway. Timetable of clinical disease after pulmonary infection in childhood is divided into 5 phases as follows;

- Phase 1 occurrs 3-8 weeks after primary infection. The end of the initial asymptomatic incubation period was heralded clinically by hypersensitivity reactions including initial fever, erythema nodosum, a positive tuberculin skin test and formation of the primary complex visible on chest radiograph.
- Phase 2 occurrs 1–3 months after primary infection. This period followed the occult haematogenous spread that occurred during incubation, and represented the

period of highest risk for the development of tuberculous meningitis and miliary tuberculosis in young children. However, tuberculous meningitis and miliary disease occurred after anytime interval following disease progression with haematogenous dissemination.

• Phase 3 occurrs 3–7 months after primary infection. This was the period of pleural effusions in children aged over 5 years, and bronchial disease in children aged less than 5 years.

• Phase 4 lasts until the primary complex was calcified, 1–3 years after primary infection. This was the period of osteo-articular tuberculosis in children aged under 5 years, and adult-type disease in adolescents. The risk of disease progression following primary infection had passed by the time calcification appeared. However, adult type disease with delayed clinical onset after primary infection did occur after calcification was present.

• Phase 5 occurrs after calcification was completed, more than 3 years after primary infection. This represented the period in which the late manifestations of tuberculosis, including pulmonary reactivation disease, developed. (Marais et al., 2004)

There are 5 phases of disease described common clinical patterns of disease and does not represent rigid rules regarding the course of tuberculosis in children. The majority of disease manifestations occurred in the first 6–12 months following primary infection. (Marais et al., 2004)

0 Incubation phase

I Hypersensitivity phase

II Phase of miliary tuberculosis and tuberculous meningitis

III Phase of segmental lesions in children aged under 5 years and pleural effusion in those aged over 5 years

IV Phase of osteo-articular tuberculosis in children aged under 5 years and adult-type disease in those aged over 10 years

V Phase of late manifestations including pulmonary reactivation disease.

2.1.3 Risk factors of Childhood Tuberculosis infection and disease

Various factors determine an individual's risk of developing disease once infected. The risk of infection depends on the duration of exposure, the closeness of contact and the microbial load of the source case(s). Infants and young children aged under 5 years are at higher risk of developing disease, probably due to immature cellular immunity. The majority of children who present with symptomatic disease do so within one year following infection, and for infants the time span may be as short as 6–8 weeks and infected children who do not develop symptomatic disease in childhood may become infectious adults many years later. Among infants (age < 1 year), 43% of those infected will develop disease compared to 24% of children aged 1–5 years, 15% of adolescents, and 5–10% of adults over a lifetime. In addition, children < 5 years of age are at higher risk of developing disseminated forms of TB, including miliary TB and TB meningitis, which are frequently associated with greater morbidity and mortality. Various immunosuppressive illnesses, such as HIV infection, measles, pertussis and malnutrition, may help rapid progression of infection to disease. Young age and HIV infection are risk factors for more severe and disseminated disease. (Graham et al., 2004: 648-657; Nelson and Wells, 2004: 637)

2.1.4 Clinical manifestrations

Intrathoracic Disease

Pulmonary Disease

The majority of children with *M. tuberculosis* infection have silent pulmonary infection weeks after acquisition with no signs, symptoms, or radiographic abnormality. Several days of low-grade fever and mild cough may be the initiation signs and symptoms of infection. Children rarely experience high fever, cough, malaise, and flulike symptoms that resolve within 1 to 2 weeks. Some children have fever and mild systemic symptoms at the onset of tissue hypersensitivity several weeks after infection: such symptoms resolve over 1 to 3 weeks. The likelihood of symptom development at primary infection depends on the child's age. Between 80% and 90% of newly infected older children have completely asymptomatic infection, whereas 40% to 50% of infected infants have symptoms or radiographic

abnormalities. The hallmark of primary tuberculosis is disproportionately enlarged regional lymph nodes in comparison with a relatively small parenchymal focus.

In most children, infiltrate and adenopathy resolve quickly**.** In some children, espectially infants, the lymph nodes continue to enlarge. External compression can cause partial or complete bronchial obstruction. A common radiographic sequence is adenopathy followed by localized hyperinflation and then atelectasis of contiguous parenchyma, regarding as segmental lesions.

Resolution of obstruction usually occurs spontaneously and may be hastened with the use of corticosteroids; however, complete resolution often takes several months. Up to 40% of children < 1 year of age who are infected with *M. tuberculosis* have a segmental lesion, compared with 15% of children aged 11 to 15 years of age. The symptoms and signs of pulmonary tuberculosis in children are usually minor and are more common in infants and young children. More than half of infants and children with radiographic evidence of moderate to severe pulmonary tuberculosis have no symptoms or findings and are only detected by contact tracing. Nonproductive cough and mild dyspnea are the most common symptoms in infants. Fever, night sweats, anorexia, and irritability are less common. Some infants have failure to thrive, which may not improve for months after appropriate therapy. A rare but serious complication of primary pulmonary tuberculosis occurs when the parenchymal focus enlarges and develops a large caseous center. The clinical course and radiographic appearance of progressive primary tuberculosis can look like bacterial pneumonia. Hyperpyrexia, moderate to severe cough, night sweats, dullness on chest percussion, rales, and decreased breath sounds over the affected area are common**.** A cavity can cause rupture into either the pleural space and develop a bronchopleural fistula or pyopneumothorax. Acute pericarditis with constriction can develop after cavity rupture into the pericardium, Before treatment with anti-tuberculosis drug, the mortality of progressive primary tuberculosis in children was 30% to 50%. Older children can have reactivation pulmonary tuberculosis that looks like disease in adults. Children with a healed primary tuberculous infection acquired before 2 years of age rarely have chronic pulmonary tuberculosis. This form of tuberculosis is more common when infection is acquired after 7 years, especially at

the onset of puberty. Fever, anorexia, weight loss, night sweats, productive cough, chest pain, and hemoptysis are typical**.** (Starke and Jacobs, 2003)

Pleural Disease

Pleural tuberculosis is caused by the hypersensitivity response to the discharge of a few bacilli from a subpleural focus into the pleural space. Pleural tuberculosis is uncommon in children < 6 years of age and is rare in those < 2 years of age. Onset is usually abrupt, fever, chest pain, and shortness of breath, with dullness to percussion and diminished breath sounds on the affected side. Fever is often high and can persist for several weeks during treatment. (Starke and Jacobs, 2003)

Cardiac Disease

Pericarditis is the most common form of cardiac tuberculosis, occurring in 1% to 4% of tuberculosis cases in children but rarely during miliary disease. Early symptoms of serofibrinous pericarditis are nonspecific and usually consist of low-grade fever, malaise, weight loss, and cough; in children, chest pain is unusual. (Starke and Jacobs, 2003)

Extrathoracic Disease

Lymphohematogenous Disease

Tubercle bacilli can disseminate to distant anatomic sites in both asymptomatic and symptomatic infections of the lung. Clinical manifestations of dissemination depend on the burden of organisms and the host immune response. Infants and HIV-infected children are more likely to have severe forms of disseminated disease. The most common clinical of disseminated tuberculosis is miliary disease, which occurs when massive bacteremia causes disease in two or more organs. Miliary tuberculosis usually occurs as an early complication of the primary infection (such as within 2 to 6 months). Miliary tuberculosis is usually a disease of infants and young children, but breakdown of a healed primary pulmonary lesion can also cause miliary spread in older individuals. Lesions are usually larger and most numerous in the lungs, spleen, liver, and bone marrow.

The clinical symptoms were nonspecific: cough (72%); fever (61%); loss of appetite and weight (40%); and diarrhea and vomiting (33%). The main presenting signs were hepatomegaly (82%), splenomegaly (54%), lymphadenopathy (46%) and pyrexia (39%). Most of the patients were malnourished. Meningitis occurred in 19% of patients and this was the only significant risk factor for mortality. (Hussey et al., 1991)

Lymphatic Disease

Tuberculosis of the superficial lymph nodes (scrofula) is the most common form of extrapulmonary tuberculosis among children, around 67% of cases. Most current cases are due to primary pulmonary infection with *M. tuberculosis* acquired by droplet nuclei. Most cases of tuberculous lymphadenitis occur within 6 to 9 months of the initial infection, although some cases develop years later. (Starke and Jacobs, 2003)

Children present with a painless, slowly evolving lymph node enlargement usually involving cervical, submandibular, supraclavicular, preauricular or submental lymp hnodes. Any nodes in the body may be involved. If untreated, swelling progresses, the nodes become rubbery, matted and adherent to overlying skin which eventually develop a purplish hue, the centre becomes soft and caseous material discharges. Few are symptomatic with anorexia, weight loss, malaise, and pyrexia. (Carrol et al., 2001)

Central Nervous System Disease

Central nervous system disease is the most serious complication of tuberculosis in children because it is usually fatal without treatment. Early diagnosis and treatment are necessary for the prevention of severe neurological sequelae or death. Overall mortality is reported to be between 13% and 23% with permanent neurological sequelae occurring in 30–40%. (Carrol et al., 2001) It arises from either the renewed activity in a caseous lesion in the cerebral cortex or meninges that was established during early occult lymphohematogenous dissemination, or rapidly from direct invasion during uncontrolled dissemination. It is extremely rare in infants younger than 4 months, and is most common in children between 6 months and 4

years of age. Meningitis often occurs within 2 to 6 months of initial infection. The clinical onset of tuberculous meningitis can be rapid or gradual. Rapid progression common occurs among infants and young children, who may have symptoms for only several days before the onset of hydrocephalus, seizures, or cerebral edema. (Starke and Jacobs, 2003)

Osteoarticular Disease

Osteoarticular tuberculosis results from lymphohematogenous seeding during primary infection, usually pulmonary. Rarely, bone and joint infections can originate from direct seeding, extension of a caseous regional lymph node, or extension from adjacent infected bone. The interval between infection and clinical manifestations can be 1 month to years. The average risk to all children infected under 5 years is about 2%. (Carrol et al., 2001) Vertebrae is the most affected site of weight-bearing bones and joints. The most common manifestations in children are low-grade fever, irritability, and restlessness; back pain and abnormal positioning or refusal to walk. (Starke and Jacobs, 2003)

Abdominal and Gastrointestinal Disease

Tuberculous enteritis can be caused by hematogenous dissemination or swallowing of tubercle bacilli discharged from the patient's lungs. Shallow ulcers that cause pain, diarrhea or constipation, and weight loss are the usual findings. (Starke and Jacobs, 2003)

Genitourinary Disease

Renal tuberculosis is rare in children because the incubation period is at least several years**.** (Starke and Jacobs, 2003) Dysuria, haematuria and sterile pyuria are the common presenting features but renal tuberculosis often presents at an advanced stage. (Carrol et al., 2001)

Cutaneous Disease

Miliary tubercles in the skin can appear as tiny papules with ‘apple jelly centres’, most commonly on the trunk, thighs and face, similar to papular urticaria or

early chicken pox lesions. Erythema nodosum was previously a manifestation of extreme hypersensitivity to TB, most commonly seen in young teenage girls. (Carrol et al., 2001)

Congenital Disease

Congenital tuberculosis is a very rare condition**.** Congenital TB may occur as a result of maternal TB when it involves the genital tract or placenta. Hematogenous infection via the umbilical vein, fetal aspiration of infected amniotic fluid and fetal ingestion of infected amniotic fluid are the three possible modes of the infection of the fetus. The affected infant is frequently born premature, but signs of disease usually appear after several days or weeks. The most common clinical manifestration is respiratory distress, lethargy, poor feeding, fever, irritability, abdominal distension and failure to thrive. Hepatosplenomegaly and lymphadenopathy are common. Meningitis is uncommon. (Hassan et al., 2006)

2.1.5 Treatment of Childhood Tuberculosis

Anti-TB treatment is divided into two phases: an intensive phase and a continuation phase. The purpose of the intensive phase is to rapidly eliminate the majority of organisms and to prevent the emergence of drug resistance. This phase uses a greater number of drugs than the continuation phase. The purpose of the continuation phase is to eradicate the dormant organisms. Fewer drugs are generally used in this phase because the risk of acquiring drug resistance is low, as most of the organisms have already been eliminated. In either phase, treatment can be given daily or three times weekly. (WHO, 2006)

Table 1 Recommended doses of first-line anti-TB drugs for adults and children

	Recommended dose in mg/kg body weight (range)	
Essential drug	Daily	Three times weekly
Isoniazid (H)	5 (4-6) Max. 300 mg daily	10 (8-12)
Rifampicin (R)	10 (8-12) Max. 600 mg daily	10 (8-12) Max. 600 mg daily
Pyrazinamide (Z)	25 (20-30)	35 (30-40)
Ethambutol (E)	20 (15-25)	30 (25-35)
Streptomycin (S)*	15 (12-18)	15 (12-18)

*Should be avoided when possible in children because the injections are painful and irreversible auditory nerve damage may occur. The use of S in children is mainly reserved for the first 2 months of treatment of TB meningitis.

Source: Adopted from Stop TB Partnership Childhood TB Subgroup, World Health Organization, 2006.

2.1.6 Contact Investigation and Management

People may have been exposed to TB bacteria if they spent time near someone with TB disease. The TB bacteria are put into the air when a person with active TB disease of the lungs or throat coughs, sneezes, speaks, or sings but they cannot get TB from clothes, drinking glass, eating utensils, handshake, toilet or other surfaces. Persons with TB disease are most likely to spread the bacteria to people they spend time with every day, such as family members, friends, coworkers, or schoolmates. (CDC, 2009)

Contact investigations are a valuable means of identifying new TB cases, and they are recommended by WHO and the International Union Against Tuberculosis and Lung Disease that all NTPs screen household contacts for symptoms of disease and offer isoniazid preventive therapy (i.e. daily isoniazid for at least 6 months) to children aged less than 5 years and all HIV-infected children who are household contacts. (WHO, 2006) a study of Schaaf et al revealed a history of contact with an infectious pulmonary TB case in 295 (49.5%) children. The main source case was a parent (41.0%), an uncle/aunt (23.1%), a grandparent (8.8%), an older sibling in (5.1%), other household cases in 27 (9.2%), a neighbor (6.4%) and another or unknown case in 28 (9.5%). Twenty three children (7.8%) had more than one. source case. (Schaaf et al, 2007)

Nguyen TH et al. conducted a cross sectional survey of 30 randomly selected villages, 72 tuberculosis patients were traced and their 317 contacts (148 were children) investigated using a questionnaire, a tuberculin skin tests (positive: > = 10 mm), a 3-day sputum examination for acid-fast bacilli (AFB), and chest radiography. The risk of latent tuberculosis infection (LTBI) among children (0–15 years) living with tuberculosis patients in rural northern Laos was evaluated and found that none of the 148 contact-children received prophylaxis, one had cervical tuberculosis; the risk for LTBI was 31.0%. Awareness of the infectiousness of tuberculosis was low among patients (31%) and their contacts (31%), and risky behavior was common. After multivariate logistic analysis, increased LTBI was found in children with contact with sputum positive adults (OR: 3.3, 95% CI: 1.4–7.7), patients highly positive sputum prior to treatment (AFB >2+; OR: 4.7, 95% CI: 1.7–12.3), and living in ethnic minorities (OR: 5.4, 95% CI: 2.2–13.6). (Nguyen et al, 2009)

2.2 Childhood tuberculosis in Thailand

Rangsima Lolekha et al. studied Childhood TB epidemiology and treatment outcomes in all districts in three provinces (Chiang Rai, Phuket, Ubon-ratchathani), selected districts in Bangkok (2 in 2005; 9 in 2006), and one national infectious diseases hospital (Bamrasnaradura Institute), Thailand during 2004-2006 and found that Only 279 (2%) of 14,487a total cases occurred in children. The incidence per 100,000 for all new TB cases was 14 for children, 12 for age 0–4, and 14 for age 5–14. The median age of children was 8 years (range: 4 months, 14 years). Of 197 children with pulmonary TB, 63 (32%) were bacteriologically-confirmed: 56 (28%) were smear-positive and 7 (4%) were smear-negative, but culture-positive. One was diagnosed with multi-drug resistant TB. HIV infection was documented in 75 (27%).Thirteen (17%) of 75 HIV-infected children died during TB treatment compared with 4 (2%) of 204 not known to be HIV-infected ($p < 0.01$). Based on this study, childhood TB is infrequently diagnosed in Thailand. Understanding whether this is due to absence of disease or diagnostic effort requires further research. (Lolekha et al, 2008)

Tornee et al. studied the prevalence of tuberculosis infection and risk factors for tuberculosis infection among household contacts aged less than 15 years in

Bangkok, Thailand, between August 2002 and September 2003. During the study period, 342 index cases with sputum smear positive pulmonary tuberculosis patients were recruited into the study and their 500 household contacts aged under 15 years were identified. The prevalence of tuberculosis infection among household contacts was found to be 47.80% (95%CI = 43.41-52.19). The risk of tuberculosis infection was significantly associated with close contact (adjusted OR = 3.31, 95%CI = 1.46-7.45), exposure to female index case (adjusted OR = 2.75, 95%CI = 1.25-6.08), exposure to mother with tuberculosis (adjusted OR = 3.82, 95%CI = 1.44-10.14), exposure to father with tuberculosis (adjusted OR = 2.55, 95%CI = 1.19-5.46), exposure to index case with cavitation on chest radiograph (adjusted OR = 4.43, 95%CI = 2.43-8.05), exposure to index case with 3+ sputum smear grade (adjusted OR = 3.85, 95%CI = 1.92-7.70), and living in crowded household (adjusted OR = 2.63, 95%CI = 1.18-5.85). The distribution of tuberculosis infection and risk factors among contact cases are significant for health care staff in strengthening and implementing tuberculosis control programs in Thailand. (Tornee et al., 2004)

Demissie, Lindtjorn and Berhane studied patient and health service delay in the diagnosis of pulmonary tuberculosis in Ethiopia in 700 pulmonary TB patient and founded that the time before diagnosis in TB patients was long and appears to be associated with patient inadequate knowledge of TB treatment and distance to the health center, a substantial delay from onset of symptoms to reporting to a health facility for pulmonary tuberculosis patients. Close to 90% of the total delay is due to the patient, which identifies a possible area of intervention. (Demissie, Lindtjorn, and Berhane, 2002)

Lobato, Mohle-Boetani, and Royce identified 43 source cases for 59 of the child cases; most source cases (91%) were either smear- or culture-positive. The adult source cases were family members, lived in the same household as the child, or cared for the child; they were 15 mothers, 14 aunts or uncles, 13 grandparents, 9 fathers, 6 family friends, and 2 child-care providers (1 in-home and 1 institutional). Thirty-six of the adult TB patients (84%) lived in the same house. Important missed opportunities to prevent TB in children include the failure to find and appropriately manage adult source cases and failure to completely evaluate and properly treat children exposed to TB. Improvements in case detection, case management, and

contact investigations are necessary to eliminate TB in children. (Lobato, Mohle-Boetani, and Royce, 2000)

2.3. Review of related literature

2.3.1 Concepts and Theories of Knowledge Attitude Practice (KAP)

A KAP survey is conducted to investigate human behavior related to a certain topic. It identifies what people know (knowledge), how they feel (attitude) and what they do (practice).

Practical guidance for conducting a KAP survey for TB programmes (WHO, 2008) by following a six-step process:

Step 1: *Define the survey objectives* - contains information about how to access existing information, determine the purpose of the survey and main areas of enquiry, and identify the survey population and sampling plan.

Step 2: *Develop the survey protocol* - outlines elements to include in the survey protocol and suggestions to help identify the key research questions. Determining whether the survey needs ethical review is critical to this step, as well as creating a work plan and budget.

Step 3: *Design the survey questionnaire* - propose important steps for developing, pre-testing and finalizing the questionnaire, and for making a data analysis plan.

Step 4: *Implement the KAP survey* - includes considerations for choosing survey dates, recruiting and training survey supervisors and interviewers, and managing survey implementation.

Step 5: *Analyse the data* - consists of entering and checking the quality of the survey data, and implementing the data analysis plan created in Step 3.

Step 6: *Use the data* - highlights ideas on how to translate the survey findings into action, elements to include in the study report, and how to disseminate the survey findings.

2.3.2 Knowledge, Attitude and Practice (KAP) on Tuberculosis

Navio et al. conducted a study on socio-ecdonomic determinants of knowledge and attitudes about tuberculosis and intended health-seeking behavior for TB symptoms among the general population of Metro Manila, Philippines in 2002 revealed that general knowledge score about TB of total 3,070 subjects were low. Mean knowledge socre on TB was 3.64 $\pm$ 1.78 (range 0 - 10). Level of education was the only independent variable associated with TB knowledge. There was a significant correlation between college education and TB knowledge score 5 points or higher (OR 4.35, 95%CI 6.60 – 2.87, $p < 0.001$). The majority of respondents linked TB with poor living conditions (86.2%) and air pollution (73.3%). 21.4% showed dissemination of droplets during coughing as vehicle of disease. College level of education had significant correlation with knowledge of coughing (OR 2.58, 95%CI 1.69 – 3.35, $p = 0.000002$). Regarding treatment of TB, 21.9% knew that standard treatment lasts for 6 months. The main sources were radio messages, family members or friend and TV advertisements. Almost half of subjects (49.7%) would seek medical advice if they were suffering from clear TB symptoms. One third of them would not seed medical care, while 16.9% would self-treat. No intention to seek medical care was a significant correlation with family monthly income. (Navio et al., 2002)

Knowledge, attitudes, and practices (KAP) regarding tuberculosis (TB) among Somalian subjects in inner London was studied by structured fixed-response questionnaires, to 23 patients (culture proven TB), and two groups of controls: 25 contacts (family members) and 27 lay controls (general Somali immigrant population). Responses were summed on a five-point scale. Most of respondents were aware of the infectious nature of TB but uncertain of other risk factors. Many respondents were uncertain about dealing with the disease and its effect on lifestyle. Belief in biomedicine for TB was conclusive with men having a significantly higher belief score than women ($p = 0.02$); the need to follow with TB medication was unambiguously understood. Somalians interviewed were educated, multilingual, and aware of important health issues. Uncertainties in core TB knowledge need to be addressed with direct educational input, especially in women and recent entrants into the country. Volunteers from the established Somalian community could play a

valuable part as links in the community to fight TB. (Shetty, Shemko, and Abbas, 2004)

Tornee et al. studied the adherence level to the contact screening policy and to explore factors associated with household contact screening adherence among tuberculosis patients in Bangkok and found that 169 of 325 (52%, 95% CI= 47 – 57) tuberculosis patients brought their household contacts to the TB clinic. Half of respondents (50.2%) had poor TB knowledge levels, 170 (52.3%) had a low perceived susceptibility, 171 (52.6%) had a low perceived severity, 181 (55.7%) had a low perceived benefit, and 178 (54.8%) had low perceived barriers. Psychosocial and cues to action factors were also analyzed as indicators of the household contact screening adherence of tuberculosis patients. Household contact screening adherence of tuberculosis patients was significantly associated with a higher perceived susceptibility (Adjusted OR=2.90, 95% CI=1.18-7.16), lower perceived barriers (Adjusted OR=4.60, 95% CI=1.99-10.60), a higher intention to bring the contacts to the TB clinic (Adjusted OR=3.35, 95% CI=1.44-7.76), and a short distance from home to the TB clinic (Adjusted OR=11.47, 95% CI=4.57-28.79). Respondents who live near the TB clinic were 11 times more likely to bring their household contact to the TB clinic than those who lived far from the TB clinic (Adjusted OR=11.47, 95% CI=4.57 – 28.79). The household contact screening adherence of the TB patients was not significantly associated with family income, status in the household, knowledge of TB, perceived severity, or perceived benefits. (Tornee et al., 2005)

In 2006, a study on the knowledge and attitude of sand-stone quarry workers of Jodhpur regarding tuberculosis was carried out by Yadav, Mathur, and Dixit (2006). Nineteen sand-stone quarry sites were randomly selected in Jodhpur district from which 376 quarry workers were interviewed and classified to literacy and illiterate groups. Majority of the respondents (79.3%) were in the age-group of 20-39 years, 95.5% were males. Only few (1.6%) workers knew that TB was caused by germs and 45.2% respondents had misconception that TB was a hereditary disease. This misconception was equally prevalent among literate subjects. Only 6.9% knew that this disease required prolonged treatment 6-8 months. Only 56.4% thought TB is a curable disease. The respondents were cough with expectoration for more than 21 days (45.2%); coughing out blood (44.1%) and low grade fever (28.9%). About two

third of respondents were not aware of chest pain, loss of appetite, breathlessness and enlargement of neck glands (lymph nodes) in TB. Majority of workers said that TB patients should be isolated from family and food should not be shared with them. Respondent's agreement on quitting TB patients job (53.5%), separation of the baby from the tuberculous mother (41%), prohibition of the patient from getting married (27.6%) and shunning him from attending social functions (25.3%) were indicators of deep rooted social stigma. Person to person communications were main sources of information about TB. (Yadav, Mathur, and Dixit, 2006)

Civil society actors, such as recovered TB patients and community health activists, do not play an active role in TB policy development. The NTP's media outreach efforts have been minimal, and few nongovernmental organizations (NGOs) have initiated TB advocacy and treatment education efforts. In the absence of easily accessible, accurate information about TB and TB/HIV, public awareness of the basic facts about TB—and the serious threat TB poses to public health—is low. TB is widely viewed as a curable but rare disease. Stigmatization of people living with TB and TB/HIV, and of women in particular, is an issue of concern. (Civil Society Institute, 2006)

Wang et al. compared knowledge of tuberculosis and associated health-care seeking behaviors towards gender of Yangzhong County, the proportion of men and and women in this study population were 46.4% and 53.6% respectively, with the average age of 43.1 ± 12.9 years. Nearly all of the subjects (99.2%) have heard about TB and a most of them regarded it as a contagious disease (men 92.6%; women 91.6%). Men significantly more actively learned knowledge about TB than women (men 20.1% vs. women 11.7%, $p < 0.001$). Sixteen percent of them (men 17.1% vs. women 15.0%) realized that the prolonged cough with the duration over 3 weeks was a suspicious symptom for TB. (Wang et al., 2008)

In 2008, a study on TB preventive behavior of patients consulting at the general out-patient department at Paholpolpayuhasana hospital, Kanchanaburi province, Thailand was carried out by Sokhanya et al. The study aimed at finding out Socio-demographic and economic factors, TB knowledge, perception on TB, and accessibility to TB information of the patients. TB preventive behavior of the OPD

patients was at a good level of 25.78%. 26.22% of the respondents had good TB knowledge and 19.11% had the good TB perception. There were significant associations between education, occupation, TB knowledge, perception on tuberculosis, and accessibility to TB information with TB preventive behavior. Public health officers and friends who provide TB information to the OPD patients were also significantly associated with TB preventive behavior. Almost half of the respondent (45.33%) reported that they could not access TB information. Therefore, it is recommended that to improve the TB preventive behavior, it is highly of value to improve accessibility to TB information which could lead to an increase in the level of knowledge on tuberculosis. (Sokhanya et al., 2008)

A population-based cross-sectional KAP survey was conducted in Vietnam by Hoa et al., (2008) on knowledge, attitudes, and practices about tuberculosis and choice of communication channels in a rural community in a rural district in Vietnam among 12,143 people. The average knowledge score was 4.3±2.1 (maximum = 8). Cough was the most frequently said symptom (92.5%). The majority of all respondents reported that TB was curable. Men had a significantly higher knowledge score than women (4.8 vs. 4.0). More than half of the respondents thought TB was hereditary. Gender, occupation, economic status, education, and sources of information were significantly associated with level of TB knowledge. More women than men related heavy stigma with a TB diagnosis (48.7% vs. 35.1%, $p < 0.0001$). More women than men would hide their TB diagnosis from friends and neighbours (12.8% vs. 10.9%, $p < 0.01$). A majority of respondents reported that they would inform their family members if they got TB (94.2% among both sexes). The most common reason for not taking action was that the symptom was not considered serious (50.4%). Hospital care seeking was significantly associated with mean knowledge score. The majority of respondents reported main sources of information included television (64.6%) and friends/relatives (42.7%). (Hoa et al., 2008)

In 2008, Savicevic et al. studied tuberculosis knowledge among patients in out-patient settings in Split, Croatia. Majority of respondents were in the 18–29 years age group (27%). The most common level of education of the respondents was secondary school (64%). 58% of the respondents earned between a minimal and average monthly salary. Contact with a TB patient was reported by 43 (11.1%)

respondents including; 11 (2.9%) were contact in the same household, 13 (3.4%) were contact in the family and 15 (3.9%) were other contacts. Four respondents had contact with two TB patients. Overall, there were 73.6% correct responses. The mean TB knowledge score for the 12 selected questions was 9.4 $\pm$ 1.98 (range 1–12, median 10). Scores were not significantly different by sex, personal income and contact with TB patients. Knowledge score of the youngest age group was significantly lower than others ($p = 0.018$). The TB knowledge score showed a significant correlation with more than 12 years of education ($p = 0.002$). Respondents with less than12 years of education had significantly less knowledge including; germs as a cause of disease ($p = 0.028$), cough as a mode of transmission ($p = 0.018$). Knowledge that TB is a contagious disease was stated by 86% of respondents. 83.4% of respondents regarded coughing as the most common mode of transmission. It was common knowledge that TB was curable (94.8%). The duration of treatment was correctly identified by 79.3% of respondents. (Savicevic et al., 2008)

Brassard et al. (2008) conducted a study on knowledge and perceptions of tuberculosis among a sample of urban aboriginal people. There were a total of 164 subjects. Many respondents had minimal knowledge on TB both general TB knowledge and specific disease-related items. Less than half of participants correctedly answered each question about symptoms, transmission, causes, and risk factors for TB. Moreover, majority of respondents were not concerned about contracting TB. The most effective means of disseminating information about TB were community organizations (82.9%, 136/164), physicians' offices (78.7%, 129/164), and schools (73.8%, 121/164) (Brassard et al., 2008)

One research of Rahman, Kamsrichan, Keiwkarnka (2008) identified factors related to acceptance of tuberculosis case detection among urban slum population. All respondents (100%) accepted tuberculosis case detection which means they want to go or advice or take a family member to TB-DOTS center for sputum examination, if develop persistent cough for 3 weeks or more. About half of the respondents (50.40%) had 'Poor' knowledge (< 60% score) and 51.21% of respondents had 'Poor' attitude (< Median=19.0) towards tuberculosis. Significant associations were found between knowledge of tuberculosis and education, occupation, monthly family income, level of attitude ($p < 0.001$). 48.79% of the respondents had a 'Good' attitude

towards tuberculosis disease (score from 19.01 to 24) while 51.21% of respondents had 'Poor' attitude (score 11 to 19.0). 39.92% disagreed or not sure about TB treatment including drugs is free of cost. Main source of information about TB was television and radio (71.77%) (Rahman, Kamsrichan, and Keiwkarnka, 2008)

A survey of knowledge, attitudes and practices was conducted in Iraq by Yousif, Khayat, and Khayat (2008) on TB. This study aimed to obtain estimates of the KAP from the population that can defensibly be construed as population from poor and vulnerable areas. There were total 1,271 respondents. 22.66% of the respondents had not heard of TB. Nearly half of the respondents did not realize the mode of TB transmission, as well as, the ways to prevent TB. Almost all respondents would like to talk with the health workers, spouse, parents, or close friend respectively about their illness about contracting TB. According to the respondents, the best mass media to send out TB information and increase awareness of the population about TB was TV, newspapers/magazines and radio. Regarding TB stigma, felling shamed from the stigma of having TB constituted 41.31%. On the contrary, 54.92% of respondents would hide the disease if they had had TB. (Yousif, Khayat, and Khayat, 2008)

There have been numerous studies on KAP as well as on TB. Nevertheless, knowldege on KAP on childhood TB is scant. In 2009, the recent published study of the knowledge, attitudes and practices on tuberculosis among treatment partners of pediatric patients (0-18 years old) diagnosed, on follow-up, recently completed treatment with TB at Tarlac Provincial Hospital from August to October 2005 was found that there were totally 62 treatment partners. The level of knowledge attitude and practice was categorized by the total score they received compared to the median score. Those with a total score equal to or below the median score were categorized as having poor knowledge or attitudes and practices. 35 out of the 62 (57%) respondents scored “good” in their overall knowledge on TB. Sixty-one percent of the respondents had acceptable attitudes and practices toward the disease. Better knowledge about TB was seen in the older age group (>40 years old) and in those who have higher levels of education (high school and college levels). 66% of treatment partners were parents, they were more likely to have good knowledge about TB than the other treatment partners. About knowledge of TB, 96% were aware that TB is a highly infectious disease and curable disease. 85% of the respondents knew that TB is transmitted by

respiratory droplets through coughing. The main sources of information about TB were television, radio and newspaper (41.9), the hospital staff (22.5%), and from lay persons and/or personal experience (22.5%), respectively. Main Reasons for not seeking medical consult in 14.5% of the respondents were due to financial difficulties (54%). There was no significant difference in the proportion with good knowledge between sexes, different levels of education and economic class. (Bacay-Domingo and Ong-Lim, 2009)

2.3.3 Conclusion about KAP studies

There were many previous studies about KAP studies on TB from various countries such as Philippines, England, Rajasthan, China, Vietnam, Croatia, Iraq and Thailand. Most of these studies found that knowledge regarding TB was poor except the studies of Savicevic et al. (2008) found satisfactory TB knowledge among the respondents, and Bacay-Domingo and Ong-Lim (2009) found more than half of pediatric TB treatment partners scored good knowledge level. There was also negative or stigmatized attitude/perception towards TB in many studies such as studies of Yadav et al. (2006), Sokhanya et al. (2008), Hoa et al. (2008), Rahman et al. (2008) and Yousif et al. (2008). Health seeking behavior was significant associated with knowledge score (Hoa et al. 2008). Knowledge was significant associated between knowledge and attitude (Rahman et al. 2008).

Practice regarding TB, the studies of Sokhanya et al (2008) found that only 25.78% of OPD patients had good level of TB preventive behavior while the study of Bacay-Domingo and Ong-Lim (2009) found that more than half of the respondents had acceptable attititude and practices toward TB.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Research Design

The research design was a cross-sectional study concerning knowledge, attitude/perception, and practice towards childhood tuberculosis in guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok.

3.2 Study Area

The study area of this study was pediatric out-patient department and well child clinic at Sirindhorn hospital, Bangkok.

3.3 Study Population

The study population of this study was guardians who brought their children to the pediatric out-patient department and well child clinic, Sirindhorn hospital, Bangkok.

Inclusion criteria

- Parents or guardians of children aged less than 15 years visiting to the pediatric out-patient department for any medical complaint or routine well child care at well child clinic.

Exclusion criteria

- One of parents or guardians already entered into the study during the same visiting.
- Parents or guardians refuse to participate in the study.

3.4 Sample size calculation

The following formula was used for calculating sample size.

$$n = \frac{Z^2_{1-\alpha/2} \cdot p.(1-p)}{d^2}$$

Where:

n: Sample size

α: level of significance (0.05)

$Z_{1-\alpha/2}$: reliability of coefficient based on level of significance

(With α = 0.05, $Z_{1-\alpha/2}$ = 1.96)

p = expected proportion of good level of knowledge about TB was 57% based on the data from Bacay-Domingo and Ong-Lim. (2009)

d = degree of acceptable accuracy (5% or 0.05)

Therefore:

$$n = \frac{(1.96)2\,(0.57)\,(1-0.57)}{(0.05)2} = 377$$

The minimal sample size required was 377 subjects.

With estimate 10% was added to account for incomplete or missing data.

Therefore, the total number of sample size was 415 subjects.

3.5 Sampling method

All samples were taken from guardians visiting the pediatric out-patient department and well child clinic, Sirindhorn hospital, Bangkok. Systematic random sampling was applied to the patient selection, in which the sampling interval was 2. In case of multiple guardians, we selected only one guardian per patient who was the most intimate caregiver.

3.6 Research instruments and measurements

This thesis used one data collection instrument by self-administrated questionnaire in Thai language. The questionnaire was conducted based on a guide to developing knowledge, attitude and practice surveys (WHO, 2008). After a few modifications the questionnaire was implemented. The designed and approved (by supervisor) questionnaires were administered to 415 persons who brought their children to pediatric out-patient department.

The structured questionnaire which consists 4 parts (Socio-demographic, TB knowledge, TB attitudes, TB practices towards childhood TB).

Part 1 (Socio-demographic characteristics):

There were 11 questions in this part. The questions include age, gender, education levels, occupation, and family monthly income, place of living, distance to

hospital, relationship with the child, number of children in family, status in household, know TB patient.

Part 2 (Knowledge regarding childhood tuberculosis):

Seven questions (22 specific items) were asked to evaluate the participants' level of knowledge about childhood tuberculosis and each correct response was assigned a score of 1 as compared to an incorrect response that was assigned a score of 0. The range of knowledge scores was from 0 – 22 with higher scores reflecting increased number of correct responses and the cut-off point for classification was based on Benjamin Bloom scale rate: respondents who got higher than 80% of total score (18 - 22 points) were classified as having good knowledge, while those who got 60% - 80% of the total score (14 - 17 points) were classified as moderate and those who got lower than 60% of total score (0 - 13 points) were classified as having poor knowledge level.

Part 3 (Attitude/perception towards childhood tuberculosis):

The attitude/perception of the study participants' about the attitudes towards the childhood TB was gathered using a series of seven questions. These questions were multiple choice questions and there were some questions could answer more than once. These questions were primarily focused to gather study participants' attitude/perception towards the childhood TB. This part was descriptive only; due to the nature of the attitude/perception questions, an attitude/perception score could not be reliably calculated.

Part 4 (Practice regarding childhood tuberculosis):

Practice of childhood TB was assessed based on the study participants' response to two parts of questions

1. Practice about prevention of the disease.

There was 1 question with consisted of 11 items in this part. The participant was asked about how to prevent their children from exposure to TB patient. Each correct response was assigned a score of 1 as compared to an incorrect response that was assigned a score of 0. The range of knowledge scores was from 0 – 11 with higher scores reflecting increased number of correct responses and the cut-off point for classification was based on Benjamin Bloom scale rate: respondents who got higher than 80% of total score (9 - 11 points) were classified as having good practice, while

those who got 60% - 80% of the total score (7 - 8 points) were classified as moderate and those who got lower than 60% of total score (0 - 6 points) were classified as having poor practice level.

2. Practice if someone in their family gets TB. This part had only 1 question with multiple choice lists of options. This question was allowed to check more than once. Therefore, practice regarding childhood TB could not be calculated all practice in one score and only descriptive statistics were used for this part.

3.7 Data Collection

The study was carried out at pediatric out-patient department and well child clinic, Sirindhorn hospital, Prawet district, Bangkok. The aims and objectives regarding the research were explained to the study subjects. Subjects were assisted by the four trained assistants to fill the questionnaire. The participants were available to answer questions and give clarification. The objective of this study and questionnaire was explained to the subjects before interview. Informed consent had been taken from the subjects before the interview and confidentiality was maintained. During that period, there were no children who had suspicious TB symptoms.

3.8 Data Analysis

After the collection, data was coded and analyses were performed using SPSS statistical software, version 17.

Descriptive statistics such as frequency, percentage, median and interquartile range were used primarily to summarize and describe the data to make it more apprehensible. Analytical statistics were used to describe relationships between dependent variables and categorical independent variables using Mann Whitney U test and Kruskal-Wallis test. Spearman's rho was used to analyze the strength and direction of the relationship between knowledge and practice score. Categorical independent variables were socio-demographic characteristic and dependent variable was knowledge score or practice score. Non-parametric statistics were used because knowledge score and practice score were not normally distributed. Variables that had the p value less than 0.2 in bivariate analysis were entered as fixed factors or covariates in multiple linear regression analysis. The dependent variable was

knowledge score or practice score. Multiple linear regression analysis described those variables independently related to knowledge and practice about childhood tuberculosis. Statistical significance was considered at $p \leq 0.05$.

3.9. Ethical Consideration

This study was reviewed and approved (certified code 118/2552) by the Ethics Committee of the College of Public Health Sciences, Chulalongkorn university. Parental or guardian informed consent was obtained.

The research did not specify name, ID number, hospital number, admission number in the Record from, and questionnaire. All information that the respondents provide was kept confidential and the data was used for research purposes only. For patients who refused to participate to this study, they received standard medical care and services without any difference from the patients who participated to this study.

CHAPTER IV
RESEARCH RESULTS

This chapter presents the results of this study. The data were collected from guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok. The total number of completed questionnaires was 400. The variables are described as simple percentages, means, and standard deviations as appropriateness depends on the nature of the variables. It starts with the demographic data followed by the responses for each section of the questionnaire. The attitudes/perceptions towards childhood TB are described as numbers and percentages. The level of knowledge, and practice score were then presented followed by the results of non-parametric tests used for data with skewed distributions whether there is any association between socio demographic characteristics and knowledge or practice score. Bivariate analysis, Mann Whitney U test and Kruskal-Wallis test, were used to show the relationships between the socio-demographic characteristics and knowledge or practice score. Spearman rho test was used to show the relationship between knowledge and practice among the respondents. Lastly, multiple linear regression was used to identify the factors associated with knowledge and practice, using the SPSS General Linear Model (GLM) routine.

The result of this study comprise 8 sections

Descriptive section;

4.1 Socio – demographic characteristic information

4.2 Knowledge regarding childhood tuberculosis

4.3 Attitude/perception towards childhood tuberculosis

4.4 Practice regarding childhood tuberculosis

Analytical section (testing association);

4.5 The association between knowledge and practice by using Spearman rho

4.6 The relationship between socio-demographic characteristics and knowledge score by using Mann Whitney U test and Kruskal-Wallis test

4.7 The relationship between socio-demographic characteristics and practice score by using Mann Whitney U test and Kruskal-Wallis test

4.8 Multiple linear regression analysis of factors associated with knowledge and practice

4.1 Socio – Demographic characteristics

This study was conducted in Sirindhorn hospital, Prawet district, Bangkok, Thailand. Four hundred participants (n=400, 95.24%) were consented to complete the questionnaires. Table 2 presents the Socio – Demographic characteristic information of guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok. The majority of the respondents were female (74.5%). The age distributions were positively skewed that means the frequencies of younger ages were greater than the frequencies of the older ages therefore median was considered appropriate for measures of central tendency in the respondents. The median was 31 years, interquartile range (IQL) was 10 and the age ranged from 15 to 57 years. The majority of the respondents were in the range of 21 – 30 (38.8%) and 31 – 40 years (37.8%), respectively. Most of them were educated in Bachelor's degree or higher (23.8%), and lower secondary school (22.3%), in contrast, only 0.5% of respondents had no school. Almost one third of the respondents (31.3%) were employee, 12.8% were merchant, and 17.3% were unemployed. Most of them (80.9%) have family monthly income between 10,000 - 20,000 baht per month while 37.3% have family income less than 10,000 baht. Most of the participant (41.5) had detached house for place of living. It should be noted that 8.5% had on the work-site temporary stay. Most of the respondents (45.3%) lived not far from the hospital, 0–10 kilometres. The majority of relationship with the child was mother and second most common relationship was father. About three fourth of respondents had only 1 or 2 child in family, 41.3 and 31.3 respectively. Most of the respondents were member status in family. 38.5% of the respondents have known people who have/had TB. However, in this study did not ask whether anyone in family ever had TB.

Table 2: Socio-demographic characteristics of guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok.

Socio-demographic characteristics	Number	Percentage (100%)
Gender	400	100.0
Male	102	25.5
Female	298	74.5
Age (years)		
15 – 20	23	5.8
21 – 30	159	39.8
31 – 40	151	37.8
41 – 50	51	12.8
50 years old and over	16	4.0
Median (IQL)	31(10)	
Range (Minimum – Maximum)	42 (15 - 57)	
Education		
No school and Elementary school	74	18.5
Lower secondary school	89	22.3
Upper secondary school	78	19.5
Diploma/vocational Certificate	64	16.0
Bachelor's degree or higher	95	23.8
Occupation		
Unemployed	69	17.3
Labor	51	12.8
Employee	125	31.3
Merchant	44	11.0
Others	111	27.8
Family monthly income (Baht)		
< 10,000	149	37.3
10,000 - 20,000	170	42.5
> 20,000	81	20.3
Place of living		
On the work-site temporary stay	34	8.5
Row house	36	9.0
Town house	48	12.0
Detached house	166	41.5
Apartment/ Condominium	93	23.3
Others	23	5.8
Distance from home to nearest hospital (kilometres)		
0–10	181	45.3
11–20	125	31.3
21–30	51	12.8
> 30	43	10.8

Table 2: Socio-demographic characteristics of guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok. (Continued)

Socio-demographic characteristics	Number	Percentage (100%)
Relationship with the child		
Mother	246	61.5
Father	84	21.0
Others	70	17.5
Number of children in family		
1 children	165	41.3
2 children	141	35.3
3 children	51	12.8
> 3 children	43	10.8
Status in household		
Head	106	26.5
Member	294	73.5
Do you know people who have/had TB?		
Yes	154	38.5
No	246	61.5

4.2 Knowledge regarding childhood tuberculosis

Participants answered a total of 7 questions (22 specific items) regarding knowledge of TB. Each correct answer was given one point with a total of 22 points. Table 5 presents the Number distribution of the participants with correct responses to the items of knowledge in the questionnaire summarized in table 3, only 49.3 heard about the disease called childhood tuberculosis while many respondents (94.8%) knew that TB is contagious. About the symptom of the disease, the majority of the respondents (85.3%) knew that cough is the symptom of the disease, 71.5% knew that cough that lasts longer than 3 weeks is also the symptom of childhood tuberculosis, but only few of them knew other symptoms, such as coughing up blood, loss of appetite, low grade fever lasted for an average of 14 to 21 days, chest pain, shortness of breath, ongoing fatigue, enlargement neck glands (lymph nodes).

About the transmission of the disease, the majority of the respondents (90.8%) recognized that a child can get TB through the air when a person with TB coughs or sneezes, cough in shared rooms, sharing sleeping place with TB patient, 90.8%, 84.5% and 72.3%, respectively. It should be noted that they didn't know that children

can not get tuberculosis through other mode of transmission. 69.8% knew that HIV patient increase risk to develop TB. About three-fourths of the respondents knew that TB can be cured but only 40.3% knew that childhood TB have to treat with specific drugs for 6 months.

The range of knowledge scores was from 0-22 and the cut-off point for classification was based on Benjamin Bloom scale. Respondents who got 80% of total score were classified as having good knowledge, while those who got 60% - 80% of the total score were classified as moderate and those who got lower than 60% of total score were classified as having poor knowledge level. The level of knowledge regarding childhood tuberculosis as shown in table 4 indicated that almost 60% of respondents had poor level of knowledge, 31% had moderate knowledge and 13.2% had good knowledge. The median knowledge score of correct answers was 13 out of possible 22 points with interquartile range of 7. The knowledge score was in the range of 0 – 22. Only 4 respondents were able to answer all the questions correctly.

Table 3: Numbers and percentages of correct responses to knowledge questions

Items	Number	Percentage (100%)
1. Heard about the disease called childhood tuberculosis	197	49.3
2. TB is contagious	379	94.8
3. Signs and symptoms of childhood TB		
3.1 Cough	341	85.3
3.2 Cough that lasts longer than 3 weeks	286	71.5
3.3 Coughing up blood	129	32.3
3.4 Loss of appetite	249	62.3
3.5 Low grade fever lasted for an average of 14 to 21 days	190	47.5
3.6 Chest pain	245	61.3
3.7 Shortness of breath	277	69.3
3.8 Ongoing fatigue	288	72.0
3.9 Enlargement neck glands (lymph nodes)	145	36.3
4. A child can get TB		
4.1 Through handshakes with an infected person	137	34.3
4.2 Through the air when a person with TB coughs or sneezes	363	90.8
4.3 Through sharing sleeping place with TB patient	289	72.3
4.4 Through cough in shared rooms	338	84.5
4.5 Through blood	129	32.3
4.6 Through sharing dishes with infected person	45	11.3
4.7 Through eating from the same plate	62	15.5
4.8 Through touching items in public places	106	26.5
5. Childhood TB can be cured	308	77.0
6. Childhood TB can be treated with specific drugs for 6 months	161	40.3
7. HIV patient increase risk to develop TB	279	69.8

Table 4: Level of knowledge on childhood tuberculosis among respondents

Level of knowledge (based on 22 knowledge questions)	Number	Percentage (100%)
Good knowledge (> 80% of maximum possible score = 22); 18-22 points	53	13.2
Moderate knowledge (60% - 80% of maximum possible score = 22); 14-17 points	124	31.0
Poor knowledge (<60% of maximum possible score = 22); 0 - 13 points	223	55.8
Median = 13; IQR = 7; Range. = 22; Max = 22; Min = 0		

4.3 Attitude/perception towards childhood tuberculosis

Attitude/perception was difference from the knowledge and practice which was evaluated by descriptive discussion. There were 7 questions in this part.

Figure 3 presents attitude on the person whom the respondents would talk to about the child illness. In the questionnaire, respondents were allowed to select more than one choice. The majority of respondents (97.8%) would talk to doctor or other medical worker. The other three persons who the respondents would talk to were spouse (40%), parent (33.3%) and other family member (29%), respectively.

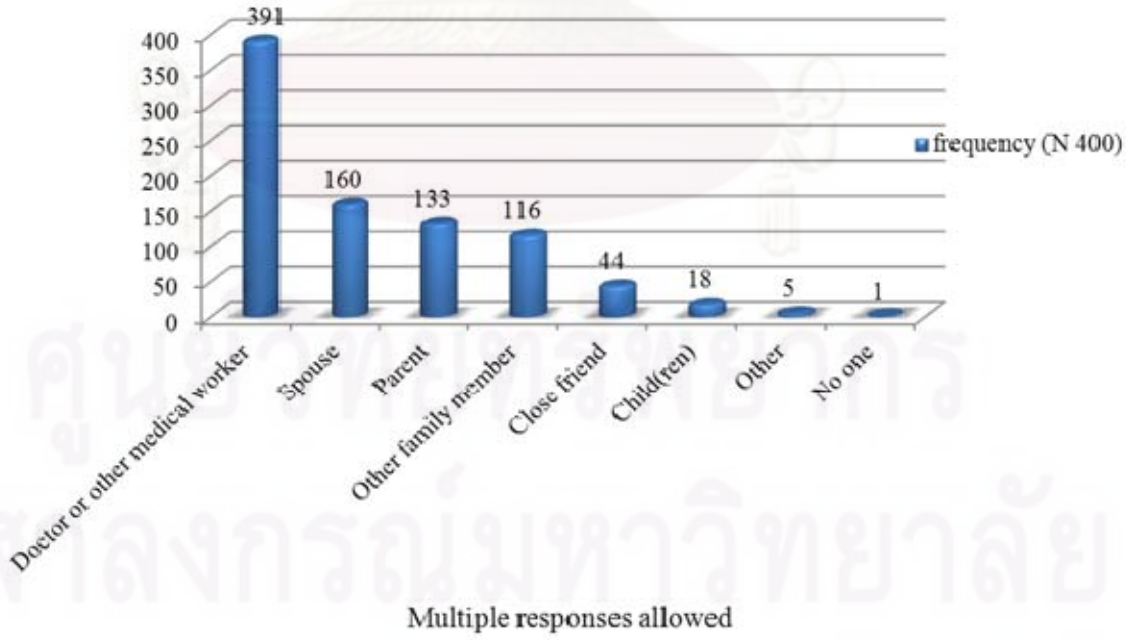

Figure 2 Person whom the respondents would talk to about the child's illness

The attitude towards cost of diagnosis and treatment of childhood TB as shown in table 5 indicated that nearly 40% of respondents thought that cost of diagnosis and treatment of childhood TB was free of charge, followed by reasonably priced (33.3%). However, there were around 25% thought that the cost of diagnosis and treatment of childhood TB was expensive with somewhat or moderately expensive was 17.3% and very expensive was 8.3%, respectively.

Table 5: Respondents' perception about cost of diagnosis and treatment of childhood TB

Cost of diagnosis and treatment	Number	Percentage (100%)
Free of charge	152	38.0
Reasonably priced	133	33.3
Somewhat/moderately expensive	69	17.3
Very expensive	33	8.3
Don’t know	13	3.3

Table 6 shows response numbers and frequencies for four selected items of attitude questions among the respondents as follows:

1. In your community, how is a child who has TB usually regarded/treated?

About the stigmatizing attitudes and behaviors of the community members towards the childhood TB, 171 (42.8%) of the respondents reported that most people in their community are friendly, but they generally try to avoid the child who has TB. The second most common response (31.0%) was the community mostly supports and helps the child who has TB while 22.5% of respondents reported that most people reject the child who has TB.

2. In a given scenario of a sick relative has completed TB treatment from a hospital whether the respondents would take him to their home for aftercare? Most of them (85%) would take the patient to their home for aftercare. Nevertheless, 2.5% would not take the patient to their home.

3. Most of the respondents (86%) did not perceive well informed about childhood TB, only 14% had an attitude that they perceive well informed about childhood TB.

4. The majority of the respondents wish to get more information about childhood TB. However, about 9% of the respondent did not wish to get more information.

Table 6: Response numbers and frequencies for four attitude/perception questions among the respondents

Items of attitude questions	Number	Percentage (100%)
In your community, how is a child who has TB usually regarded/treated?		
Most people reject him or her	90	22.5
Most people are friendly, but they generally try to avoid him or her	171	42.8
The community mostly supports and helps him or her	124	31.0
Others	15	3.8
A sick relative has completed TB treatment in a hospital. Would you take him to your home for aftercare?		
Yes	340	85.0
No	10	2.5
Don't know	50	12.5
Do you perceive well informed about childhood TB?		
Yes	56	14.0
No	344	86.0
Do you wish you could get more information about childhood TB?		
Yes	363	90.8
No	37	9.2

Distribution of respondents according to source of information on childhood tuberculosis is given in Figure 4. Each respondent chose their three most effective sources. The respondents reported receiving TB information from various sources. Doctor or other medical worker communication, 267 (66.8%), was the main sources of information about childhood tuberculosis. Television was next important source of information (61.5%) for them. The third most common sources of information were newspapers and magazines (40.5). The other sources of information were brochures, posters and other printed materials (37%), billboards (25.8%), radios (16.8%), teachers (15.5%), and family, friends, relatives, neighbours and colleagues (15%).

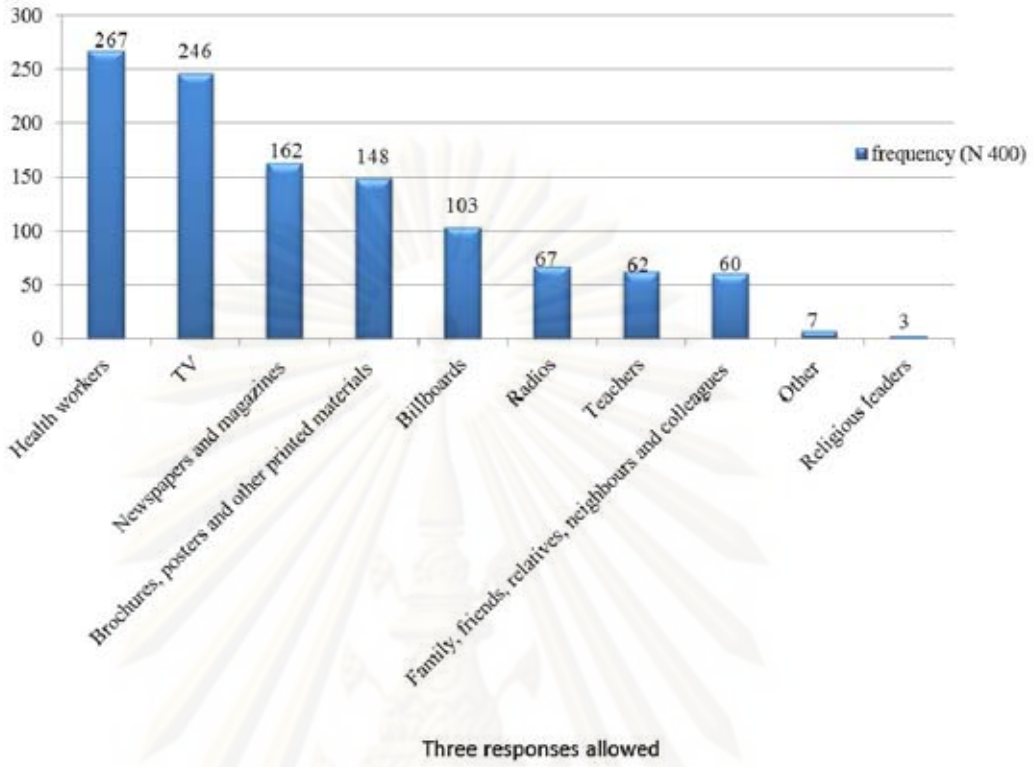

Figure 3 Sources of information regarding childhood tuberculosis

4.4 Practice regarding childhood tuberculosis

Practice regarding childhood tuberculosis in this research was classified into three aspects as follows;

1. Regarding preventing their children from exposure to TB patient, participants answered a total of 11 questions. Each correct answer was given one point with a total of 11 points. The covering mouth and nose when coughing or sneezing seem to be general practices of the responders (94.5%), follow by isolation from TB patient (84.3%) and avoid contact with TB patients (83.3%). However, there are hardly any practices such as getting BCG vaccination, washing hands after touching items in public places, consume good nutrition and avoid sharing dishes. It should be noted that the high percentage of correct response is the positive question statements. (Table 7)

Table 7: Numbers and percentages of correct responses to practice questions

Items	Number	Percentage (100%)
1. Avoid shaking hands	110	27.5
2. Covering mouth and nose when coughing or sneezing	378	94.5*
3. Avoid sharing dishes	25	6.3
4. Washing hands after touching items in public places	11	2.8
5. Closing windows at home	291	72.8
6. Clean environment	22	5.5
7. Through good nutrition	24	6.0
8. Avoiding contact with TB patients	333	83.3*
9. BCG vaccination	7	1.8
10. Prophylactic drugs	81	20.3
11. Isolation from TB patient	337	84.3*

* Positive statements (accounted for in coding data)

According to the level of practice score on preventing their children from exposure to TB, the range of practice was from 0-11 point and the cut-off point for classification was based on Benjamin Bloom scale. Respondents who got 80% of total score were classified as having good practice, while those who got 60% - 80% of the total score were classified as moderate and those who got lower than 60% of total score were classified as having poor practice level. The level of practice regarding childhood tuberculosis as shown in table 8 indicated the high proportion of the poor practice (< 60 percent of total score) compared to moderate practice (60-80 percent of total score) and good practice (> 80 percent of total score) with the median equal to 4. 96% of the respondents had poor practice score. It should be noted that from the 400 questionnaires only 1 respondent demonstrated the good practice.

Table 8: Level of practice on childhood tuberculosis among respondents

Level of practice (based on 11 practice questions)	Number	Percentage (100%)
Good practice (> 80% of of maximum possible score = 11); 9 - 11 points	1	0.3
Moderate practice (60% - 80% of of maximum possible score = 11); 7 – 8 points	15	3.7
Poor practice (<60% of maximum possible score = 11); 0 - 6 points	384	96.0
Median = 4; IQR = 2; Range. = 9; Max = 9; Min = 0		

2. Regarding practice if someone in their family gets TB. The best answer of this question is bringing their children in family to hospital to check for TB. In a given scenario of having TB patient in family by the guardians, the most practice was bringing children to hospital for checking TB (75.8%). The practice such as cleaning the environment and isolation of the affected from family for 2 weeks and in the figure is almost the same at 59.3 and 51.3 respectively. Another role of the mother practice is baby separation which contributes about 43.5 percent (Table 9).

Table 9: Numbers and percentages of hypothetical practice if someone in family gets TB by the guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok.

Items	Number	Percentage (100%)
1. Isolation of the affected patient from family for 2 weeks	205	51.3
2. Clean environment	237	59.3
3. Bring children in family to hospital to check for TB	303	75.8*
4. Separate baby from affected mother for 2 weeks	174	43.5
5. Pursue other self-treatment options (herbs, etc.)	14	3.5
6. Others e.g. covering mouth and nose, advice practice to other family members	8	2.0

* Positives statements (accounted for in coding data)

4.5. The association between knowledge and practice by using Spearman rho

The knowledge and practice score distributions were not normal (asymmetrically distributed). Therefore, Spearman rho was considered appropriate for measures the association between knowledge and practice score.

Table 10 presents the result of Spearman's rho analysis of association between knowledge score and practice score of the respondents. Knowledge, and practice score regarding to childhood TB were also treated as continuous variable, and correlation coefficients were computed. The correlation coefficient of 0.315 indicated a positive correlation between knowledge score and practice score. In addition, Knowledge score was regarded as highly significant correlation with practice score ($p < 0.001$) as shown in table 10.

Table 10: Association between knowledge and practice score by using Spearman's rho

Variable	Knowledge score	
	Correlation Coefficient	**p value**
Practice score	0.315	<0.001

4.6 The relationship between socio-demographic characteristics and knowledge score by using Mann Whitney U test and Kruskal-Wallis test

The socio-demographic characteristics and knowledge score distributions were not normally distributed. Therefore, Mann Whitney U test and Kruskal-Wallis test were considered appropriate for measures the association between socio-demographic characteristics and knowledge score.

Table 11 shows the result of the relationship between knowledge score mean rank and socio-demographics characteristics. Among 11 characteristic groups, five of them were statistically significant at $p < 0.05$ levels including age ($p < 0.001$), education ($p < 0.001$), occupation ($p < 0.001$), family monthly income ($p < 0.001$), ever knew TB patient ($p = 0.002$). It was notable that people 50 years old and older, bachelor degree or higher, high monthly income and know some people who affect TB has the highest knowledge score mean rank. Gender, place of living, distance from nearest hospital, relationship with the child, number of family member and role in the family was no statistically significant with knowledge score.

Table 11: Bivariate analysis: childhood tuberculosis knowledge score by socio-demographic characteristics among guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok. (N = 400)

Socio-demographic characteristics	Knowledge score Mean Rank	p value
Gender		
Male	197.9	0.792
Female	201.4	
Age (years)		
15 – 20	99.0	<0.001
21 – 30	210.6	
31 – 40	208.5	
41 – 50	183.4	
50 years old and over	225.4	
Education		
No school and Elementary school	158.0	<0.001
Lower secondary school	176.9	
Upper secondary school	202.6	
Diploma/vocational Certificate	194.1	
Bachelor's degree or higher	258.3	
Occupation		
Unemployed	173.9	<0.001
Labor	174.8	
Employee	191.3	
Merchant	189.8	
Others	254.5	
Family monthly income		
< 10,000	168.2	<0.001
10,000 - 20,000	209.7	
> 20,000	240.5	
Place of living		
On the work-site temporary stay	182.3	0.366
Row house	192.6	
Town house	205.2	
Detached house	203.8	
Apartment/ Condominium	212.5	
Others	157.6	
Distance from home to nearest hospital		
0–10 kilometres	206.1	0.426
11–20 kilometres	201.0	
21–30 kilometres	176.0	
> 30 kilometres	204.6	

Table 11: Bivariate analysis: childhood tuberculosis knowledge score by socio-demographic characteristics among guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok. (N = 400) (Continued)

Socio-demographic characteristics	Knowledge score Mean Rank	p value
Relationship with the child		
Mother	176.1	0.442
Father	183.3	
Others	215.2	
Number of children in family		
1 children	216.0	0.161
2 children	188.1	
3 children	192.1	
> 3 children	191.7	
Status in household		
Head	207.4	0.475
Member	198.0	
Ever knew TB patient		
Yes	223.1	0.002
No	186.3	

4.7 The relationship between socio-demographic characteristics and practice score by using Mann Whitney U test and Kruskal-Wallis test

Table 12 presents the result of Mann Whitney U test and Kruskal-Wallis test of relationship between socio-demographic characteristics and practice score. Among 11 characteristic groups, three of them were statistically significant with childhood tuberculosis practice at 0.05 levels including gender (p = 0.041), family monthly income (p = 0.023), ever knew TB patient (p = 0.001).

Table 12: Bivariate analysis: childhood tuberculosis practice score by socio-demographic characteristics among guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok. (N = 400)

Socio-demographic characteristics	Practice score Mean Rank	p value
Gender		
Male	181.0	0.041
Female	207.2	
Age (years)		
15 – 20	144.9	0.059
21 – 30	203.2	
31 – 40	205.3	
41 – 50	215.6	
>50	160.4	
Education		
No school and Elementary school	194.6	0.512
Lower secondary school	194.4	
Upper secondary school	199.8	
Diploma/vocational Certificate	190.9	
Bachelor's degree or higher	218.0	
Occupation		
Unemployed	186.5	0.182
Labor	192.8	
Employee	198.4	
Merchant	191.8	
Others	222.4	
Family monthly income		
< 10,000	194.3	0.023
10,000 - 20,000	191.5	
> 20,000	230.9	
Place of living		
On the work-site temporary stay	164.7	0.216
Row house	211.9	
Town house	197.0	
Detached house	194.6	
Apartment/ Condominium	217.3	
Others	217.8	
Distance from home to nearest hospital		
0–10	213.6	0.075
11–20	180.7	
21–30	208.7	
> 30	193.3	
Relationship with the child		
Mother	207.6	0.168
Father	181.0	
Others	198.9	

Table 12: Bivariate analysis: childhood tuberculosis practice score by socio-demographic characteristics among guardians who brought their children to the pediatric out-patient department, Sirindhorn hospital, Bangkok. (N = 400) (Continued)

Socio-demographic characteristics	Practice score Mean Rank	p value
Number of children in family		
1 children	207.6	0.536
2 children	192.1	
3 children	209.5	
> 3 children	190.1	
Status in household		
Head	187.4	0.158
Member	205.2	
Ever knew TB patient		
Yes	224.8	0.001
No	185.3	

4.8 Multiple linear regression analysis of factors associated with knowledge and practice

Because knowledge and practice score were continuous data, multiple linear regression analysis was employed to demonstrate the effects of the multiple independent variables on one dependent variable. The dependent variable was knowledge score or practice score. Variables that had the p value less than 0.2 in bivariate analysis (tables 11 and 12) were entered as fixed factors or covariates in multiple linear regression analysis. Occupation was the fixed factor and ever knew TB patient, age group, education, monthly family income and number of children in family were the covariates for knowledge while occupation, relationship with the child were fixed factor and age group, gender, monthly family income, status in family, distance from home to nearest hospital, ever knew TB patient were the covariates for practice. A p-value of 0.2 was chosen to allow variables that were not significant in bivariate analysis to become significant, or marginally significant, in multiple linear regression models.

Occupation, education and ever knew TB patients were statistical significantly associated with knowledge score. Regarding occupation, a person work as unemployed (β = -1.51, P = 0.044) and a labor (β = -2.64, P = <0.001) were negative

statistical significant with knowledge score compared to others occupation (i.e. civil servant, student, housewife) which means that these type of occupation lessen the knowledge score compared to others occupation. Ever knowing a TB patient (β = 1.31, P = 0.004) and education level (β = 0.62, P = 0.001) were positively and significantly associated with knowledge score. (Table 13)

Table 13: Multiple linear regression analysis: associations of variables with knowledge score as dependent variable.

Variables	β	95% CI Lower, Upper	p-value
Occupation (Reference group = others)			<0.001*
Unemployed	-1.51	-2.98, -0.04	0.044
Labor	-2.64	-3.79, -1.50	<0.001
Employee	-1.52	-3.04, -0.00	0.051
Merchant	-1.43	-3.03, 0.18	0.081
Ever knew TB patient (Yes vs. No)	1.31	0.42, 2.20	0.004
Age group	0.32	- 0.17, 0.81	0.202
Education	0.62	0.25, 1.00	0.001
Monthly family income	0.68	-0.02, 1.38	0.056
Number of children in family	-0.23	-0.68, 0.22	0.306
Intercept	9.74	7.32, 12.17	<0.001

* P-value for fixed factor as a whole.

Regression model results for practice score are shown in table 14. Ever knowing a TB patient was the only covariate significantly associated with practice score. The direction of this association was positive (β = 0.39, P = 0.004). Occupation as a factor was also significantly associated with practice score, with modeled score being lowest for "labor" and highest for "other occupations."

Table 14: Multiple linear regression analysis: associations of variables with practice score as dependent variable.

Variables	β	95% CI Lower, Upper	p-value
Age group	0.04	-0.11, 0.18	0.637
Gender (Female vs. Male)	-0.12	-0.79, 0.56	0.732
Monthly family income	0.12	-0.07, 0.31	0.209
Occupation (Reference group = others)			0.240*
Unemployed	-0.40	-0.82, 0.03	0.067
Labor	-0.38	- 0.73, -0.02	0.039
Employee	-0.25	-0.70, 0.19	0.261
Merchant	-0.38	-0.86, -0.10	0.122
Relationship with the child (Reference group = others)			0.671*
Mother	0.17	-0.21, 0.56	0.373
Father	0.02	-0.66, 0.71	0.944
Status in family (Head vs. Member)	0.16	-0.22, 0.55	0.410
Distance from home to nearest hospital	-0.06	-0.19, 0.07	0.348
Ever knew TB patient (Yes vs. No)	0.39	0.13, 0.66	0.004
Intercept	3.60	2.54, 4.65	<0.001

* P-value for fixed factor as a whole.

CHAPTER V
DISCUSSION AND RECOMMENDATIONS

This is a cross-sectional analytic study with aim to evaluate the KAP towards childhood tuberculosis from guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok. Based on the author's knowledge, this is the first study of KAP of this type conducted in Thailand. Childhood TB is an important public health problem. It is a significant cause of morbidity, mortality, and health care expenditure. Discussion of the results is organized into the following sections.

5.1 Summary of the results

5.2 Knowledge regarding childhood tuberculosis

5.3 Attitude/perception towards childhood tuberculosis

5.4 Practice regarding childhood tuberculosis

5.5 The relationship between socio-demographic characteristics and knowledge score and practice score

5.6 Limitations of the study

5.7 Policy Implications

5.8 Recommendations for further study

5.1 Summary of results

The study of knowledge, attitude and practice towards from guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok could be concluded that almost 60% of respondents had poor level of knowledge (>80% of total score), 31% had moderate knowledge (60% - 80% of the total score) and 13.2% had good knowledge (lower than 60% of total score). The majority of respondents (97.8%) would talk to doctor or other medical worker about the child illness. The other three persons who the respondents would talk to was spouse (40%), parent (33.3%) and other family member (29%), respectively. About 25% thought that the cost of diagnosis and treatment of childhood TB was expensive with somewhat or moderately expensive was 17.3% and very expensive was 8.3%, respectively. There were some stigmatizing attitudes and behaviors of the community members towards the childhood TB. 42.8% of the respondents reported that most people in their

community are friendly, and while 22.5% of respondents reported that most people reject the child who has TB. 2.5% would not take the patient to their home even though they completed TB treatment. Most of the respondents (86%) did not perceive well informed about childhood TB and doctor or other medical worker communication, 267 (66.8%), was the main sources of information about childhood tuberculosis. There was high proportion of the poor practice (< 60 percent of total score) compare to moderate practice (60-80 percent of total score) and good practice (> 80 percent of total score). The health facility itself was the main recourse (98.5%) when mother discover their child that had symptoms of TB. By the guardians the most common practice is bringing children to hospital for checking TB (75.8%). Only 0.5% of the respondents would not go to the doctor because of financial problem. Knowledge score was positively and statistically significantly correlated with practice score (Spearman's rho coefficient=0.315, $p<0.001$). Multiple linear regression analysis indicated occupation ($p<0.001$), education ($\beta=0.62$, $p=0.001$) and ever knowing TB patients ($\beta=1.31$, $p=0.004$) were significantly associated with knowledge score, while only ever knowing TB patients was significantly associated with practice score ($\beta=0.39$, $P=0.004$).

5.2 Knowledge regarding childhood tuberculosis

Tuberculosis in children has some different clinical features from adult TB which can present in children in many ways depending upon the age when they become infected, the time since infection, HIV infection, immunological status and other factors. (Graham et al., 2004: 648-649; Nelson and Wells, 2004: 637; Marais et al., 2004) However, the knowledge score in this study was similar to the study of TB in various countries such as Bangladesh, Canada, Philippines (Rahman et al., 2008; Brassard et al., 2008; and Navio et al., 2002) and also poor TB knowledge level among TB patient in Bangkok, Thailand. (Tornee S, 2005) The plausible explanation was that knowledge questions in this study evaluated the symptoms of childhood TB which is similar symptoms found in adult TB. In addition, general knowledge, mode of transmission, risk factor and course of treatment was same as adult TB.

Concerning overall knowledge on childhood tuberculosis, almost 60% of respondents had poor level of knowledge. Only 4 respondents (1%) were able to

answer all the questions correctly. This may be suggestive of inadequate public health education.

When items of knowledge were examined, only 49.3% of respondents had heard about childhood tuberculosis. Many respondents (94.8%) knew that TB is contagious. About the symptom of the disease, the majority of the respondents (85.3%) knew that cough is the symptom of the disease, but only few of them knew other symptoms. it was similar to the study in desert parts of Rajasthan regarding to quarry workers' knowledge and attitude towards TB, only 56.4% thought TB is a curable disease. The respondents were cough with expectoration for more than 21 days (45.2%); coughing out blood (44.1%) and low grade fever (28.9%). About two third of respondents were not aware of chest pain, loss of appetite, breathlessness and enlargement of neck glands (lymph nodes) in TB. (Yadav et al., 2006)

About the transmission of the disease, the minority of the respondents did not recognize that a child can get TB through the air when a person with TB coughs or sneezes, cough in shared rooms, sharing sleeping place with TB patient, 9.2%, 15.5% and 27.7%, respectively. Moreover, there was misconception on the mode of infection such as they did not know that children can not get tuberculosis through other mode of transmission except airborne transmission. 69.8% knew that HIV patient increase risk to develop TB. About three-fourths of the respondents knew that TB can be cured but only 40.3% knew that childhood TB have to treat with specific drugs for 6 months. This was in accordance with the study of Brassard et al. (2008) which conducted a study on knowledge and perceptions of tuberculosis among a sample of urban aboriginal people which found that many respondents had minimal knowledge on TB both general TB knowledge and specific disease-related items. Less than half of participants correctly answered each question about symptoms, transmission, causes, and risk factors for TB. (Brassard et al., 2008) A study of Savicevic et al. also found that misconceptions about possible mode of transmission like blood transfusion, drinking water, food, sexual intercourse, and touching which was common in less educated respondents. (Savicevic et al., 2008)

Lack of knowledge can lead TB to a serious public health problem which needs urgent attention because TB patients could have continued sharing a room with

a child, coughing or sneezing without covering mouth and nose, because of lack of adaptation, and inadequate knowledge on TB transmission.

5.3 Attitude/perception towards childhood tuberculosis

5.3.1 Attitude/perception towards the person who the respondents would talk to about the child illness, the majority of respondents (97.8%) would talk to doctor or other medical worker. The other three persons who the respondents would talk to was spouse (40%), parent (33.3%) and other family member (29%), respectively. This result was consistent with a study of Yousif et al. in which found that almost all respondents would like to talk with the health workers, spouse, parents, or close friend respectively about their illness about contracting TB. (Yousif et al., 2008) Public health officers and friends who provide TB information to the OPD patients were also significantly associated with TB preventive behavior. (Sokhanya, Sermsri, and Chompikul, 2008)

5.3.2 The attitude/perception towards cost of diagnosis and treatment of childhood TB. There were around 25% had negative attitude that the cost of diagnosis and treatment of childhood TB was expensive with somewhat or moderately expensive was 17.3% and very expensive was 8.3%, respectively. This was in accordance with Rahman et al. which found that around 40% disagreed or not sure about TB treatment including drugs is free of cost. (Rahman et al., 2008) This would be the perceived potential barriers when the respondents have to take a particular health action like bringing their children to hospital for TB screening or investigation if their children develop suspicious symptoms. Tornee et al. (2005) found that perceived barriers were significantly associated with the household contact screening adherence of TB patients. Patients with low perceived barriers were more likely to bring their household contact to TB clinic. (Tornee et al., 2005) The financial capacity and health perception of treatment partner of pediatric TB patients also affected the practices of these people. The main reason of 14.5% of the respondents who didn't seek medical consult was financial difficulties (54%). (Bacay-Domingo and Ong-Lim, 2009)

5.3.3 Attitudes and behaviors of the community members towards childhood TB. The majority of the respondents reported the negative attitude of the community

members towards the childhood TB. 22.5% of respondents reported that most people reject the child who has TB. 42.8% of the respondents reported that most people in their community are friendly, but they generally try to avoid the child who has TB. This was relatively consistent with study of Bacay-Domingo and Ong-Lim, 2009 which found that 8% of the respondents who were treatment partner of pediatric TB patient would hide the disease from other people. The study of Yadav et al. which also found that respondent's agreement on quitting TB patient's job (53.5%), separation of the baby from the tuberculous mother (41%), prohibition of the patient from getting married (27.6%) and shunning him from attending social functions (25.3%) were indicators of deep rooted social stigma. The study of Yousif et al. which also found that felling shamed from the stigma of having TB constituted 41.31%. 54.92% of respondents would hide the disease if they had had TB. Half of the respondents believed that it affects their relationships with others, affects marital relationships.

The social concepts of tuberculosis in community play an important role in the management of TB patients. Social stigma with a lack of understanding of tuberculosis leads to delays in seeking treatment and poor adherence to therapy. (Grange, Story, and Zumla, 2001) Stigma seems to be a very important main barrier to proper and timely health-seeking behavior. (Yadav et al., 2009) This finding disclosed that the negative attitude in this study may add to the illness burden in many ways such as it may delay appropriate help-seeking, fair case detection or terminate treatment for treatable disease. This negative attitude is in point of fact preventable if people had a good knowledge about childhood TB because knowledge is associated attitude. It contributes to good attitude and the social acceptability.

5.3.4 Attitude/perception towards information on childhood tuberculosis. Most of the respondents (86%) did not perceive well informed about childhood TB. However, there was 9% of the respondent did not wish to get more information. This may revealed that the lack of awareness in childhood tuberculosis. When main sources of information on childhood tuberculosis were considered, doctor or other medical worker communication (66.8%) was the main sources of information about childhood tuberculosis. Television was next important source of information (61.5%) for them. The third most common sources of information were newspapers and

magazines (40.5%). This finding was relatively consistent with the finding in the study of Bacay-Domingo and Ong-Lim, 2009. In that study the main sources of information about TB were television, radio and newspaper (41.9), the hospital staff (22.5%), and from lay persons and/or personal experience (22.5%), respectively. (Bacay-Domingo and Ong-Lim, 2009) The study of Brassard et al. also found that the most effective means of disseminating information about TB were community organizations (82.9%, 136/164), physicians' offices (78.7%, 129/164), and schools (73.8%, 121/164) (Brassard et al., 2008)

Study participants expressed that doctor or medical worker communication remained the most highly trusted information source to patients and played an important role in disseminating information. In addition, the result in this study also suggested that the mass media such as television, newspapers and magazines is a tool to advocate community health education to increase knowledge, promote awareness, and to prevent and early detection of childhood tuberculosis which was inconsistent with other studies which found that main source of information about TB was television and radio (71.77%) (Rahman et al., 2008) According to the respondents, the best mass media to send out TB information and increase awareness of the population about TB was TV, newspapers/magazines and radio. (Yousif et al., 2008) The main sources were radio messages, family members or friend and TV advertisements. (Navio et al., 2002) The majority of respondents reported main sources of information included television (64.6%) and friends/relatives (42.7%). (Hoa et al., 2008) Nevertheless, these show the importance of incorporating all the available measures for dissemination of information to people.

5.4 Practice regarding childhood tuberculosis

5.4.1 Regarding preventing their children from exposure to TB patient**,** the majority of the respondents were poor practice with the median equal to 4. It should be noted that from the 400 questionnaires only 1 respondent demonstrated the good practice. In this study also found that knowledge score was regarded as highly significant correlation with practice score ($p<0.001$), which strongly suggests that knowledge also affected practices of these respondents.

5.4.2 Regarding practice if someone in their family gets TB. The best answer of this question is bringing their children in family to hospital to check for TB. Most respondents reported to bring children to hospital for checking TB (75.8%). This study was relatively consistent with the study of Tornee et al., 2005 which found that the adherence level to the contact screening policy 52%. Household contact screening adherence of tuberculosis patients was significantly associated with a higher intention to bring the contacts to the TB clinic (Adjusted OR=3.35, 95% CI=1.44-7.76). (Tornee et al., 2005) Although the finding in this study showed the majority of respondents had a good practice on bringing their children to check TB, they also had other high risk practice.

5.5 The relationship between socio-demographic characteristics and knowledge Score/ practice Score

5.5.1 The relationship between socio-demographic characteristics and knowledge score

Occupation, education and ever knew TB patients were statistical significant with knowledge score. Regarding occupation, an unemployed person (β=-1.51, p=0.044) and a laborer (β =-2.64, p=<0.001) were negative statistical significant with knowledge score compared to others occupation while ever knew TB patient (β=1.31, p=0.004) and education level (β=0.62, p=0.001) was positively and significantly associated with knowledge score. This result indicated that respondents who had known TB patient before or higher education were more likely to have good knowledge score while unemployed and labor occupation were more likely to had poor knowledge score compared to others occupation. This was consistent with the result of the study of Bacay-Domingo and Ong-Lim. This studied conducted in Philippines which is one of the 22 high-burden TB countries on WHO's list similar as Thailand. The treatment partners of those TB pediatric patients at the OPD of Tarlac Provincial Hospital showed good knowledge (57%) about the disease, its presenting symptoms, its infectiousness and curability, and modes of transmission. In addition, in those who had better knowledge was seen in higher levels of education especially high school and college levels. (Bacay-Domingo and Ong-Lim, 2009)

Results from several other studies were not consistent with this finding. Gender, occupation, economic status, education, and sources of information were significantly associated with level of TB knowledge. (Hoa et al., 2008) Level of education was the only independent variable associated with TB knowledge. There was a significant correlation between college education and TB knowledge score 5 points or higher (OR 4.35, 95%CI 6.60 – 2.87, $p < 0.001$). The TB knowledge score showed a significant correlation with more than 12 years of education ($p = 0.002$). Respondents with less than12 years of education had significantly less knowledge. (Savicevic et al., 2008) Significant association found between knowledge of tuberculosis and education, occupation, monthly family income, level of attitude ($p < 0.001$). (Rahman, Kamsrichan, and Keiwkarnka, 2008) There were significant associations between education, occupation, TB knowledge, perception on tuberculosis, and accessibility to TB information with TB preventive behavior. (Sokhanya, Sermsri, and Chompikul, 2008)

5.5.2 The relationship between socio-demographic characteristics and practice score

In multiple linear regression analysis, only ever knowing a TB patient had a significant (and positive) association with practice score. ($\beta=0.39$, $p=0.004$).indicating that respondents who had known TB patient before were more likely to had good practice score. This was consistent with a study of Bacay-Domingo and Ong-Lim, 2009 which also found that 61% of respondents who were pediatric TB patient treatment partners had good practices with respect to the disease. (Bacay-Domingo and Ong-Lim, 2009). Further study about the factors that associated with practice is needed to develop the effective way to improve practice regarding childhood TB.

The observed significant positive relationship between knowledge score and practice score was consistent with the study of Sokhanya et al. (2008), which found that TB knowledge was strongly significantly associatied with TB preventive behavior ($p = 0.003$). (Sokhanya et al., 2008)

5.6 Limitations of the study

Some limitations of the study should be noted.

1. This study was conducted at Sirindhorn hospital which may not fully represent the community that uses services of the study hospital. Also, the study population is probably not representative of the Bangkok population, so generalizability of results is somewhat limited.

2. This questionnaire was conducted by researcher and approved by advisor, so this study can be used as a pilot study for further development of standardized questionnaire

5.7 Policy Implication

Along with other research, the results of this study can be helpful for health care providers, policy makers and other health authorities regarding childhood tuberculosis. Policy implication and recommendations consists of two parts, as presented below.

1. **Recommendations from the results of this study**

1.1 Guardians education is needed to improve knowledge, attitude and practice on childhood tuberculosis. Therefore educational programs should be organized for improving knowledge especially about mode of transmission, prevention, and case detection. Influence attitude and behavioral change, especially combat stigma and discrimination. Socio-economic factors should be considered in the design of health education campaigns specially occupation, and level of education.

1.2 Implementation of community mass media health education programme to raise the awareness and the knowledge about TB using all forms of media especially TV, newspapers and magazines.

1.3 Local authorities should provide free publishing materials (brochures or posters) focusing on general TB knowledge, mode of transmission, prevention and practice should be provided.

1.4 Health care providers who are involved in the TB control program need to set schedule to provide education, increase awareness of contact case screening, early identifying and treating TB infection and disease in children especially in TB clinic. Additionally, training in interpersonal communication and counseling skills is also needed in order to improve communication between health care provider and patient and conduce to better outcome.

2. General recommendations

2.1 The local and state authorities should organize health education programme to the communities especially at guardians or caregiver group, and increasing collaboration with relevant community members to develop social mobilization and sensitization in disseminating childhood TB information.

2.2 Community participation in TB preventive efforts should be increased. Specific efforts should include recruiting community volunteers, organizing and engaging local community groups to participate in case detection, and encouraging home visits by the health staff.

5.8 Further study

Extend this survey to the community to gain a better understanding about knowledge, attitudes and practice of the guardians of our populations. Moreover, knowledge, attitude and practice towards childhood tuberculosis among TB patients who have children in their household should be conducted. Factors associated to practice regarding childhood TB is another issue that needs to be addressed. Furthermore, future area research should be concerned about the effectiveness of the education program on the knowledge, perception and practice of childhood tuberculosis.

REFERENCES

WHO. (2008). **Advocacy, communication and social mobilization for TB control: a guide to developing knowledge, attitude and practice surveys.** [Online]. Available from: http://www.tbtoolkit.org/assets/ 0/184/ 286/074e7ce8-e0dd-4579-a26f-29ac680154ca.pdf [2009, October 1]

Al-Marri HA. (2001). Childhood tuberculosis in the state of Qatar: the effect of a limited expatriate screening programme on the incidence of tuberculosis**. Int J Tuberc Lung Dis** 5: 831-7.

Bacay-Domingo MCN, Ong-Lim AL. (2009). **A descriptive study of the knowledge, attitudes and practices on tuberculosis among treatment partners of pediatric patients in Tarlac city.** [Online]. Available from: http://www.pidsphil.org/pdf/ Journal_02011035/jo35_ja04.pdf [2010, January 28].

Barnes PF, Yang Z, Preston-Martin S, Pojoda JM, Jones BE, Otaya M, et al. (1997). Pattern of tuberculosis transmission in central Los Angeles. **JAMA** 278: 1159-63.

Bass JB Jr, Farer LS, Hopewell PC, O'Brien R, Jacobs RF, Ruben F, et al. (1994). American Thoracic Society and the Center for Disease Control and Prevention. Treatment of tuberculosis and tuberculosis infection in adults and children. **Am J Respir Crit Care Med** 149:1359-74.

Bock NN, Mallory JP, Mobley N, De Voc B, Brooks Taylor B. (1998). Outbreak of tuberculosis associated with a floating card game in the rural South: lessons for tuberculosis contact investigation. **Clin Infect Dis** 27: 1221-6.

Brassard P, Anderson KK, Menzles D, Schwartzman K, Macdonald ME. (2008). Knowledge and perceptions of tuberculosis among a sample of urban aboriginal people. **J Community Health.** 33:192-198.

Carrol ED, Clark JE, Cant AJ. (2001). Non-pulmonary tuberculosis. **Paediatr Respir Rev** 2: 113-9.

CDC. (2009). **What to Do If You Have Been Exposed To TB.** [Online]. Available from: http://www.cdc.gov/tb/topic/basics/exposed.htm [2010,

January 10]

Chin DP, Crane CM, Ya Diul M, Sun SJ, Agrag R, Taylor S. (2000). Spread of Mycobacterium tuberculosis in a community implementing recommended elements of tuberculosis control. **JAMA** 283: 2968-74.

Corbett EL, Watt CJ, Walker N, Maher D, Williams BG, Raviglione MC, et al. (2003). The growing burden of tuberculosis: global trends and interactions with the HIV epidemic. **Arch intern Med** 163: 1009-21.

Demissie M, Lindtjorn B, and Berhane Y. (2002). Patient and health service delay in the diagnosis of pulmonary tuberculosis in Ethiopia. **BMC Public Health** 2:23.

Doerr CA, Starke JR, Ong LT. (1995). Clinical and public health aspects of tuberculous meningitis in children. **J Pediatr.** 127(1):27-33.

Graham SM, Gie RP, Schaaf HS, Coulter JB, Espinal MA, Beyers N. (2004). Childhood tuberculosis: clinical research needs. **Int J Tuberc Lung Dis** 8(5):648-57.

Grange J, Story A, and Zumla A. (2001). Tuberculosis in disadvantaged groups. **Curr Opin Pulm Med** 7:160-164.

Hassan G, Qureshi W, Kadri SM. (2006). **Congenital Tuberculosis** [online]. Available from: http://www.jkscience.org/archive/vol8a/tubercul.pdf [2009, December 25]

Hoa NP, Thi N, Chuc K, Thorson A. (2009). Knowledge, attitudes, and practices about tuberculosis and choice of communication channels in a rural community in Vietnam. **Health Policy**. 90:8–12.

Hussey G, Chisholm T, Kibel M. **(**1991). Miliary tuberculosis in children: a review of 94 cases. **Pediatr Infect Dis J** 10:832-836.

Jacobs Richard F, Starke Jeffrey R. (2003) Mycobacterium tuberculosis. In: Long Sarah S., Pickering Larry K., Prober Charles G. **Principles and Practice of Pediatric Infectious Diseases, Third Edition**, 791-810. USA: Churchill Livingstone.

Lobato MN, Mohle-Boetani JC, and Royce SE. (2000). Missed Opportunities for Preventing Tuberculosis Among Children Younger Than Five Years of Age.

PEDIATRICS 106: p. e75.

Lolekha R, Anuwatnonthakate A, Nateniyom S, Sumnapun S, Yamada Norio, Wattanaamornkiat W, et al.(2008). Childhood TB epidemiology and treatment outcomes in Thailand: a TB active surveillance network, 2004 to 2006. **BMC Infectious Diseases** 8:94.

Marais, B.J., Gie, R.P., Schaaf, H.S., et al. (2004). The natural history of childhood intra-thoracic tuberculosis:a critical review of literature from the pre-chemotherapy era. **Int J Tuberc Lung Dis** 8:392-402.

Marks SM, Taylor Z, Qualls NL, Shrestha-Kuwahara RJ, Wilce MA, Nguyen CH. (2000). Outcomes of contact investigations of infectious tuberculosis patients. **Am J Respir Crit Care Med** 162:2033-8.

Nelson LJ, Wells CD. (2004). Global epidemiology of childhood tuberculosis. **Int J Tuberc Lung Dis** 8: 636-47.

Nguyen TH, Odermatt P, Slesak G, Barennes H. (2009). Risk of latent tuberculosis infection in children living in households with tuberculosis patients: a cross sectional survey in remote northern Lao People's Democratic Republic. **BMC Infect Dis.** 9:96.

Nolan CM, Blumberg HM, Taylor Z, Bernardo J, et al. (2005). American Thoracic Society/Centers for Disease Control and Prevention/Infect Diseases Society of America: Controlling Tuberculosis in the United States. **Am J Respir Crit Care Med** 172:1169-1227.

Open Society Institute. (2006). **Civil Society Perspectives on TB Policy in Bangladesh, Brazil, Nigeria, Tanzania, and Thailand.** [Online]. Available from: http://www.reliefweb.int/rw/lib.nsf/db900sid/LTIO-6VRQCR/$file/open-society-health-nov2006.pdf?openelement [2010, January 20].

Rahman KA, Kamsrichan W, Keiwkarnka B. (2008). Factors related to acceptance of tuberculosis case detection among urban slum population in Mohammadpur, Dhaka city corporation, Bangladesh. **Journal of Public Health and Development.** 6 (1):81-90.

Ruddy MC, Davies AP, Yates MD, Yates S, Balasegarm S, Drabu Y, et al. (2004).

Outbreak of isoniazid resistant tuberculosis in north London. **Thorax** 59: 279-85.

Savicevic AJ, Popovic-Grle S, Milovac S, Ivcevic I., Vukasovic M, Viali V et al. (2008). Tuberculosis knowledge among patients in out-patient settings in Split, Croatia**. Int J Tuberc Lung Dis**. 12(7):780–785.

Schaaf HS, Marais BJ, Whitelaw A, Hesseling AC, Eley B, Hussey8 GD et al. (2007). Culture-confirmed childhood tuberculosis in Cape Town, South Africa: a review of 596 cases. **BMC Infectious Diseases**.7:140.

Shetty, N., Shemko, M., Abbas, A. (2004). Knowledge, attitudes and practices regarding tuberculosis among immigrants of Somalian ethnic origin in London: a cross-sectional study**. Commun Dis Public Health.** 7(1):77-82.

Sirindhorn Hospital. (2009a). **Internal Document: Hospital general data of Sirindhorn hospital, Prawet district, Bangkok.** Thailand: Sirindhorn hospital.

Sirindhorn Hospital. (2009b). **Internal Document: TB clinic of Sirindhorn hospital, Prawet district, Bangkok.** Thailand: Sirindhorn hospital.

Sokhanya I, Sermsri S, Chompikul J. (2008). TB Preventive Behavior of Patients Consulting at The General Out-Patinet Department at Paholpolpayuhasana Hospital, Kanchanaburi province, Thailand. **Journal of Public Health and Development** 6: 59-67.

Starke J. (2002) Childhood tuberculosis: ending the neglect. **Int J Tuberc Lung Dis** 6: 3734.

Tornee S, Kaewkungwal J, Fungladda W, Silachamroon U, Akarasewi P, Sunakorn P. (2005). Factors associated with the household contact screening adherence of tuberculosis patients. **Southeast Asian J Trop Med Public Health** 36: 331-340.

Tornee S, Kaewkungwal J, Fungladda W, Silachamroon U, Akarasewi P, Sunakorn P.(2004). Risk factors for tuberculosis infection among household contacts in Bangkok, Thailand. **Southeast Asian J Trop Med Public Health** 35:375-83.

Wang J, Yang F**,** Shen H, Biao X. (2008). Gender difference in knowledge of tuberculosis and associated health-care seeking behaviors: a cross-sectional study in a rural area of China. **BMC Public Health.** 8**:**354.

WHO Report. (2008). **Global Tuberculosis Control Surveillance, Planning, Financing** [Online]. Available from: http://www.who.int/tb/publications /global_report/2008/pdf/annex3_sea.pdf [2009, December 19]

WHO Report. (2007). **Global Tuberculosis Control Surveillance, Planning, Financing** [Online]. Available from: http://library.cph.chula.ac.th/Ebooks/ Annual%20Report/WHO%20Report/WHO%20REP ORT%202007.pdf [2009, December 19]

WHO. **A guide to developing knowledge, attitude, and practice surveys**. 2008.

World Health Organization. (2006). **Guidance for national tuberculosis programmes on the management of tuberculosis in children.** *Geneva, Switzerland: WHO* 2006 [Online]. Available from: http://whqlibdoc.who.int/ hq/2006/WHO_HTM_TB_2006.371_eng.pdf [2009, January 20]

World Health Organization. (2003). **Treatment of tuberculosis: guidelines for national programmes.** Geneva, Switzerland: WHO 3rd edition. (WHO/CDS/TB/2003.313).

World Health Organization. (2002). **Global Tuberculosis Control Surveillance, planning, financing communicable diseases.** WHO/CDS/TB/2002.295 Geneva: World Health Organization.

World Health Organization. Stop TB Partnership Childhood TB Subgroup. (2006). Guidance for national tuberculosis programmes on the management of tuberculosis in children. Chapter 2: anti-tuberculosis treatment in children. **Int J Tuberc Lung Dis**10(11):1205-11.

Yadav SP, Mathur ML, Dixit AK. (2006). Knowledge and attitude towards tuberdulosis among sandstone quarry workers in desert parts of Rajasthan**. Indian J Tuberc**. 53:187-195.

Yousif TK, Khayat IMA, and Salman DH. (2008). Survey of Knowledge, Attitudes and Practices: Enhanced Response to TB ACSM, Iraq**. Middle East Journal of Family Medicine.** 7: 23-38.

APPENDICES

APPENDIX A
QUESTIONNAIRE (English version)

KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS CHILDHOOD TUBERCULOSIS IN GUARDIANS OF PATIENTS VISITING THE PEDIATRIC OUT-PATIENT DEPARTMENT, SIRINDHORN HOSPITAL, BANGKOK

Date: ___ / ___ / ___

Code: _____

Survey objective: To assess the knowledge, attitudes, stigma and health-seeking practices towards childhood TB tuberculosis in guardians of patients at the pediatric out-patient department, Sirindhorn hospital, Bangkok.

There were 7 pages in this questionnaire which comprised of 4 parts as follows;

Part 1. Socio-demographic characteristic questions	11 questions
Part 2. TB knowledge questions	7 questions
Part 3. Attitudes and awareness towards childhood TB	7 questions
Part 4. Practices towards childhood TB	5 questions

Information to read to respondent:

We wish to learn about your knowledge, attitudes and practices regarding childhood tuberculosis (TB).

We hope to understand your needs and the best way to bring information to you, as well as barriers to seeking medical care. The information you provide will be used to improve childhood TB control.

Your answers will not be released to anyone and will remain anonymous. Your name will not be written on the questionnaire or be kept in any other records. Your participation is voluntary and you may choose to stop the interview at any time.

Thank you for your assistance.

Part I. Socio-demographic characteristic questions

1. How old are you?

1. ☐ 15-20 2. ☐ 21-30 3. ☐ 31–40

4. ☐ 41–50 5. ☐ Over 50

2. What is your gender?

1. ☐ Male 2. ☐ Female

3. What is the highest level of education you have completed?

1. ☐ No school 2. ☐ Elementary 3. ☐ High school

4. ☐ College 5. ☐ Higher education (professional or post-graduate)

6. ☐ Religious schooling only 7. ☐ Literacy classes only

4. What is your occupation?

1. ☐ Unemployed 2. ☐ Officer

3. ☐ Labor 4. ☐ Merchant 5. ☐ Others_____

5. How much do your family income?

1. ☐ < 10,000 baht 2. ☐ 10,000 - 20,000 baht

3. ☐ > 20,000 baht

6. What is your place of living?

1. ☐ On the work-site temporary stay 2. ☐ Row house 3. ☐ Town house

4. ☐ Detached house 5. ☐ Apartment/ Condominium

6. ☐ Others_____

7. How far do you live from the nearest hospital?

1. ☐ 0–10 kilometres 2. ☐ 11–20 kilometres

3. ☐ 21–30 kilometres 4. ☐ More than 30 kilometres

8. What is your relationship with the child you brought to the hospital?

1. ☐ Father 2. ☐ Mother

3. ☐ Grandparent 4. ☐ Other(specify):_____

9. How many children does your family have? 1. ☐ 1 children 2. ☐ 2 children 3. ☐ 3 children 4. ☐ More than 3 children
10. What is your status in household? 1. ☐ Head 2. ☐ Member
11. Do you know people who have/had TB? 1. ☐ Yes 2. ☐ No

Part II. TB knowledge questions	**Yes**	**No**	**Don't know**
12. Have you heard about the disease called Childhood Tuberculosis?			
13. Is TB contagious?			
14. What are the signs and symptoms of childhood TB? (Please check all that are mentioned.)			
14.1 Cough			
14.2 Cough that lasts longer than 3 weeks			
14.3 Coughing up blood			
14.4 Loss of appetite			
14.5 Low grade fever lasted for an average of 14 to 21 days			
14.6 Chest pain			
14.7 Shortness of breath			
14.8 Ongoing fatigue			
14.9 Enlargement neck glands (lymph nodes)			
15. How can a child get TB? (Please check all that are mentioned.)			
15.1 Through handshakes with an infected person			
15.2 Through the air when a person with TB coughs or sneezes			
15.3 Through sharing sleeping place with TB patient			
15.4 Through cough in shared rooms			
15.5 Through blood.			
15.6 Through sharing dishes with infected person			
15.7 Through eating from the same plate			
15.8 Through touching items in public places (doorknobs, handles in transportation, etc.)			
16. Can childhood TB be cured?			
17. Can childhood TB be treated with specific drugs for 6 months?			
18. Does HIV patient increase risk to develop TB?			

Part III. Attitudes and awareness towards childhood TB

19. Who would you talk to about your child illness if your child had TB?
(Can answer more than once)

1. ☐ Doctor or other medical worker
2. ☐ Spouse
3. ☐ Parent
4. ☐ Child(ren)
5. ☐ Other family member
6. ☐ Close friend
7. ☐ No one
8. ☐

Other:_____

20. How expensive do you think TB diagnosis and treatment is in this country? (Please check one.)

1. ☐ It is free of charge
2. ☐ It is reasonably priced
3. ☐ It is somewhat/moderately expensive
4. ☐ It is very expensive

Interviewer: If respondent gives monetary amount, note the amount here:_____

21. In your community, how is a child who has TB usually regarded/treated?

1. ☐ Most people reject him or her
2. ☐ Most people are friendly, but they generally try to avoid him or her
3. ☐ The community mostly supports and helps him or her
4. ☐ Others (please explain):_____

22. A sick relative has completed TB treatment in a hospital. Would you take him to your home for aftercare?

1. ☐ Yes
2. ☐ No
3. ☐ Don't know/don't remember

23. Do you perceive well informed about childhood TB?

1. ☐ Yes
2. ☐ No

24. Do you wish you could get more information about childhood TB?

1. ☐ Yes
2. ☐ No

25. What are the sources of information that you think can most effectively reach people like you with information on childhood TB? (Please choose the three most effective sources.)

1. ☐ Newspapers and magazines
2. ☐ Radios
3. ☐ TV
4. ☐ Billboards
5. ☐ Brochures, posters and other printed materials
6. ☐ Health workers
7. ☐ Family, friends, relatives, neighbours and colleagues
8. ☐ Religious leaders
9. ☐ Teachers
10. ☐ Other (please explain):

Part IV. Practices towards childhood TB

26. What would you do to prevent your children from exposure to TB patient? (Check all that apply.)

	Contents	Yes	No	Don't know
1.	Avoid shaking hands	[ ]	[ ]	[ ]
2.	Covering mouth and nose when coughing or sneezing	[ ]	[ ]	[ ]
3.	Avoid sharing dishes	[ ]	[ ]	[ ]
4.	Washing hands after touching items in public places	[ ]	[ ]	[ ]
5.	Closing windows at home	[ ]	[ ]	[ ]
6.	Clean environment	[ ]	[ ]	[ ]
7.	Through good nutrition	[ ]	[ ]	[ ]
8.	Avoiding contact with TB patients	[ ]	[ ]	[ ]
9.	BCG vaccination	[ ]	[ ]	[ ]
10.	Prophylactic drugs	[ ]	[ ]	[ ]
11.	Isolation from TB patient	[ ]	[ ]	[ ]

27. What would you do if someone in your family gets TB. (Can answer more than once)

1. ☐ Isolation of the affected patient from family for 2 weeks
2. ☐ Clean environment
3. ☐ Bring children in family to hospital to check for TB
4. ☐ Separate baby from affected mother for 2 weeks
5. ☐ Pursue other self-treatment options (herbs, etc.)
6. ☐ Other:_____

28. What would you do if you thought your child had symptoms of TB?
(Can answer more than once)

1. ☐ Go to health facility
2. ☐ Go to pharmacy
3. ☐ Got to traditional healer

4. ☐ Pursue other self-treatment options (herbs, etc.)

5. ☐ Other:_____

29. If your child had symptoms of TB, at what point would you go to the health facility?
(Please check one.)

1. ☐ When treatment on my own does not work

2. ☐ When symptoms that look like TB signs last for 3–4 weeks

3. ☐ As soon as I realize that symptoms might be related to TB

4. ☐ I would not go to the doctor > go to Q#30

30. If you would not go to the health facility, what is the reason?
(Can answer more than once)

1. ☐ Not sure where to go

2. ☐ Cost

3. ☐ Difficulties with transportation/distance to clinic

4. ☐ Do not trust medical workers

5. ☐ Do not like attitude of medical workers

6. ☐ Cannot leave work (overlapping work hours with medical facility working hours)

7. ☐ Do not want to find out that something is really wrong

8. ☐ Other (please explain):_____

Thank you very much for participating in our survey.

APPENDIX B

QUESTIONNAIRE (Thai version)

แบบสอบถาม

การศึกษาความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร

วันที่: ___ / ___ / ___

เลขที่แบบสอบถาม: _____

คำชี้แจง

แบบสอบถามชุดนี้จัดทำขึ้นเพื่อศึกษา ความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร โดยแบบสอบถามมีทั้งหมด 7 หน้า แบ่งออกเป็น

ส่วนที่ 1	ข้อมูลทั่วไปและลักษณะทางประชากร	จำนวน 11 ข้อ
ส่วนที่ 2	แบบสอบถามด้านความรู้ของโรควัณโรคในเด็ก	จำนวน 7 ข้อ
ส่วนที่ 3	แบบสอบถามเกี่ยวกับทัศนคติต่อโรควัณโรคในเด็ก	จำนวน 7 ข้อ
ส่วนที่ 4	แบบสอบถามเกี่ยวกับการปฏิบัติต่อโรควัณโรคในเด็ก	จำนวน 5 ข้อ

โปรดตอบแบบสอบถามนี้ให้ตรงกับความรู้ ทัศนคติ และความเป็นจริง เพื่อที่จะนำข้อมูลที่ได้ ไปใช้เป็นแนวทางในการศึกษาและหาข้อเสนอแนะ และใช้ในการวางแผนส่งเสริมความรู้ ทัศนคติ และการปฏิบัติตนที่ถูกต้องเหมาะสม เพื่อเป็นประโยชน์ต่อการคัดกรองวัณโรคในเด็ก การค้นหาผู้ป่วย การรักษาผู้ป่วยที่ติดเชื้อวัณโรคและผู้ที่เป็นโรควัณโรคในเด็กตั้งแต่ระยะเริ่มแรก รวมทั้งยังสามารถควบคุมการติดเชื้อวัณโรคในระยะยาวต่อไป

ส่วนที่ 1 ข้อมูลทั่วไปและลักษณะทางประชากร
1. คุณอายุ……ปี (เต็ม) 1. ☐ 15-20 2. ☐ 21-30 3. ☐ 31–40 4. ☐ 41–50 5. ☐ มากกว่า 50
2. เพศ 1. ☐ ชาย 2. ☐ หญิง
3. การศึกษาสูงสุด 1. ☐ ไม่ได้เรียน 2. ☐ ประถมศึกษา 3. ☐ มัธยมศึกษาต้น 4. ☐ มัธยมศึกษาปลาย 5. ☐ อนุปริญญา/ปวส. 6. ☐ ปริญญาตรี 7. ☐ ปริญญาโทขึ้นไป
4. อาชีพหลักของท่าน 1. ☐ ว่างงาน 2. ☐ พนักงานบริษัท 3. ☐ คนงาน 4. ☐ ค้าขาย 5. ☐ อื่นๆ_____
5. รายได้เฉลี่ยของครอบครัว.....บาท ต่อเดือน 1. ☐ < 10,000 บาท 2. ☐ 10,000 - 20,000 บาท 3. ☐ > 20,000 บาท
6. ลักษณะบ้านของท่าน 1. ☐ อยู่บริเวณที่ทำงานแบบชั่วคราว 2. ☐ ตึกแถว 3. ☐ ทาวน์เฮ้าส์ 4. ☐ บ้านเดี่ยว 5. ☐ อพาร์ทเมนต์/ คอนโดมิเนียม 6. ☐ อื่นๆ_____
7. ระยะทางระหว่างบ้านของท่านและสถานพยาบาลที่ใกล้ที่สุด 1. ☐ 0–10 กิโลเมตร 2. ☐ 11–20 กิโลเมตร 3. ☐ 21–30 กิโลเมตร 4. ☐ มากกว่า 30 กิโลเมตร
8. ท่านมีความสัมพันธ์อย่างไรกับเด็กที่พามาโรงพยาบาล 1. ☐ บิดา 2. ☐ มารดา 3. ☐ ปู่ ย่า ตา ยาย 4. ☐ อื่นๆ(ระบุ)_____
9. จำนวนเด็กในครอบครัวของท่าน 1. ☐ 1 คน 2. ☐ 2 คน 3. ☐ 3 คน 4. ☐ มากกว่า 3 คน
10. ท่านอยู่ในสถานะใด 1. ☐ ผู้นำครอบครัว 2. ☐ สมาชิกในครอบครัว
11. คุณเคยรู้จักคนที่ติดเชื้อวัณโรคหรือไม่ 1. ☐ เคย 2. ☐ ไม่เคย

ส่วนที่ 2 แบบสอบถามด้านความรู้ของโรควัณโรคในเด็ก	**ถูก**	**ผิด**	**ไม่ทราบ**
12. คุณเคยได้ยินโรควัณโรคในเด็กหรือไม่			
13. วัณโรคเป็นโรคติดต่อได้			
14. อาการและอาการแสดงของโรควัณโรคในเด็ก (ตอบทุกข้อย่อย) **14.1** ไอ			
14.2 ไอนานมากกว่า **3** สัปดาห์			
14.3 ไอมีเลือดปน			
14.4 เบื่ออาหาร			
14.5 ไข้ต่ำๆ นาน **14** ถึง **21** วัน			
14.6 เจ็บหน้าอก			
14.7 หายใจลำบาก			
14.8 อ่อนเพลียต่อเนื่อง			
14.9 ต่อมน้ำเหลืองที่คอโต			
15. เด็กได้รับเชื้อวัณโรคได้จาก (ตอบทุกข้อย่อย) 15.1 โดยการจับมือกับผู้ที่ติดเชื้อ			
15.2 ผ่านทางอากาศเมื่อผู้ป่วยวัณโรคไอหรือจาม			
15.3 นอนร่วมห้องกับผู้ที่เป็นวัณโรคปอด			
15.4 ผ่านการไอในห้องที่อาศัยอยู่ร่วมกัน			
15.5 ผ่านทางเลือด			
15.6 ผ่านการกินอาหารจานเดียวกับผู้ติดเชื้อวัณโรค			
15.7 โดยการกินอาหารร่วมกัน			
15.8 ผ่านการจับสิ่งของสาธารณะ เช่น(ลูกบิดประตู, ราวจับในที่สาธารณะ)			
16. โรควัณโรครักษาให้หายได้			

17. วัณโรคในเด็กรักษาโดยการทานยานาน 6 เดือน			
18. ผู้ป่วยเอดส์มีโอกาสเสี่ยงต่อการเกิดวัณโรคหลังติดเชื้อเพิ่มมากขึ้น			

ส่วนที่ 3 แบบสอบถามเกี่ยวกับทัศนคติต่อโรควัณโรคในเด็ก

19. หากเด็กของท่านเป็นวัณโรคปอด ท่านจะปรึกษากับ (ตอบได้มากกว่า 1 ข้อ)

1. ☐ แพทย์และบุคลากรทางการแพทย์
2. ☐ คู่สมรส
3. ☐ พ่อแม่
4. ☐ ลูกๆ
5. ☐ สมาชิกอื่นๆในครอบครัว
6. ☐ เพื่อนสนิท
7. ☐ ไม่ปรึกษาใคร
8. ☐ อื่นๆ:_____

20. ในความคิดเห็นของท่าน ค่าตรวจวินิจฉัยและการรักษาโรควัณโรคในประเทศไทยเป็นอย่างไร (ตอบ 1 ข้อ)

1. ☐ ฟรี
2. ☐ ราคาเหมาะสม
3. ☐ ราคาปานกลาง
4. ☐ ราคาแพงมาก

สำหรับผู้สัมภาษณ์ : หากผู้ตอบแบบสอบถามระบุจำนวน :_____ บาท

21.หากเด็กเป็นวัณโรค คน ในชุมชนของท่านจะปฏิบัติต่อเด็กอย่างไร

1. ☐ คนส่วนใหญ่จะไม่ยอมรับเด็กที่เป็นโรค

2. ☐ คนส่วนใหญ่ยังเป็นมิตร แต่ก็พยายามหลีกเลี่ยงเด็กที่เป็นโรค

3. ☐ คนในชุมชนส่วนใหญ่ให้ความช่วยเหลือเด็กเหล่านี้

4. ☐ อื่นๆ อธิบาย:_____

22. หากมีญาติของท่านซึ่งได้รับการรักษาวัณโรคที่โรงพยาบาลครบแล้ว ท่านจะนำเขาไปพักฟื้นดูแลต่อที่บ้านของท่านได้หรือไม่

1. ☐ ได้

2. ☐ ไม่ได้

3. ☐ ไม่ทราบ

23. คุณรู้สึกว่าคุณรู้ข้อมูลเกี่ยวกับวัณโรคในเด็กเป็นอย่างดี ใช่หรือไม่

1. ☐ ใช่

2. ☐ ไม่ใช่

24. คุณมีความต้องการอยากรับทราบข้อมูลเกี่ยวกับวัณโรคในเด็กเพิ่มเติม ใช่หรือไม่

1. ☐ ใช่

2. ☐ ไม่ใช่

25. คุณคิดว่าแหล่งข้อมูลใดที่สามารถทำให้คุณรับทราบข้อมูลเกี่ยวกับโรควัณโรคในเด็กได้ดีที่สุด (กรุณาเลือก 3 ข้อ)

1. ☐ หนังสือพิมพ์และนิตยสาร

2. ☐ วิทยุ

3. ☐ ทีวี

4. ☐ ประกาศหรือโฆษณา

5. ☐ โบชัวร์ โปสเตอร์และสื่อสิ่งพิมพ์ต่างๆ

6. ☐ บุคลากรทางการแพทย์

7. ☐ ครอบครัว เพื่อน เพื่อนบ้านและเพื่อนร่วมงาน

8. ☐ ผู้นำศาสนา

9. ☐ ครูหรืออาจารย์

10. ☐ อื่นๆ อธิบาย:_____

ส่วนที่ 4 แบบสอบถามเกี่ยวกับการปฏิบัติต่อโรควัณโรคในเด็ก

26. คุณจะทำอย่างไรในการป้องกันเด็กของท่านไม่ให้สัมผัสกับผู้ป่วยวัณโรค (กรุณาตอบทุกข้อ)

	รายละเอียด	ใช่	ไม่ใช่	ไม่ทราบ
1.	หลีกเลี่ยงกับจับมือกันกับผู้ป่วยวัณโรค	[ ]	[ ]	[ ]
2.	ปิดปากผู้ป่วยเมื่อไอหรือจาม	[ ]	[ ]	[ ]
3.	หลีกเลี่ยงการใช้จานชามร่วมกันกับผู้ป่วย	[ ]	[ ]	[ ]
4.	ล้างมือหลังจากสัมผัสกับสิ่งของสาธารณะต่างๆ	[ ]	[ ]	[ ]
5.	ปิดหน้าต่างในบ้าน	[ ]	[ ]	[ ]
6.	ทำความสะอาดสิ่งแวดล้อม	[ ]	[ ]	[ ]
7.	เสริมโภชนาการ	[ ]	[ ]	[ ]
8.	หลีกเลี่ยงการสัมผัส ใกล้ชิดกับผู้ป่วยวัณโรค	[ ]	[ ]	[ ]
9.	ฉีดวัคซีน บี.ซี.จี.	[ ]	[ ]	[ ]
10.	ทานยาป้องกันโรควัณโรค	[ ]	[ ]	[ ]
11.	แยกผู้ป่วยวัณโรค	[ ]	[ ]	[ ]

27. คุณจะทำอย่างไร หากมีคนในบ้านของท่านป่วยเป็นวัณโรคปอด (สามารถตอบได้มากกว่า 1 ข้อ)

1. ☐ แยกผู้ป่วยจนกว่าจะรับประทานยาครบ 2 สัปดาห์
2. ☐ ทำความสะอาดสิ่งแวดล้อม
3. ☐ นำเด็กในบ้านทุกคนไปพบแพทย์เพื่อตรวจหาโรควัณโรค
4. ☐ แยกเด็กทารกจากมารดาที่ป่วยจนกว่าจะรับประทานยาครบ 2 สัปดาห์
5. ☐ รักษาด้วยวิธีการอื่นๆ ด้วยวิธีของตนเอง เช่น สมุนไพร
6. ☐ อื่นๆ :_____

28. คุณจะทำอย่างไร หากเด็กของท่านมีอาการที่เข้าได้กับโรควัณโรค (สามารถตอบได้มากกว่า 1 ข้อ)

1. ☐ พาไปตรวจที่สถานพยาบาล
2. ☐ ไปร้านขายยา
3. ☐ พบแพทย์แผนโบราณ
4. ☐ รักษาด้วยวิธีการอื่นๆ ด้วยวิธีของตนเอง เช่น สมุนไพร
5. ☐ อื่นๆ:_____

29. หากเด็กในบ้านของท่านมีอาการเข้าได้กับโรควัณโรค คุณจะพาไปพบแพทย์เมื่อไหร่ (เลือกตอบ 1 ข้อ)

1. ☐ เมื่อรักษาด้วยตัวเองไม่ได้ผล
2. ☐ เมื่อมีอาการนานประมาณ 3-4 สัปดาห์
3. ☐ ทันทีที่ตระหนักได้ว่าอาการเหล่านั้นน่าจะเข้าได้กับโรควัณโรค
4. ☐ ไม่พาไปพบแพทย์ (หากเลือกข้อนี้ กรุณา ตอบข้อ 30 ด้วยค่ะ)

30. ถ้าคุณไม่ได้พาเด็กไปพบแพทย์ สาเหตุเพราะ (สามารถตอบได้มากกว่า 1 ข้อ)

1. ☐ ไม่แน่ใจว่าจะไปที่ใด
2. ☐ กังวลเรื่องค่าใช้จ่าย
3. ☐ การเดินทางลำบาก / ระยะทางไกลจากโรงพยาบาล
4. ☐ ไม่ไว้ใจบุคลากรทางการแพทย์
5. ☐ ไม่ชอบทัศนคติของบุคลากรทางการแพทย์
6. ☐ ไม่สามารถลางานได้
7. ☐ ไม่ต้องการค้นหาว่าเด็กติดเชื้อจริงๆ หรือไม่
8. ☐ อื่นๆ อธิบาย:_____

ขอขอบพระคุณทุกท่านในการตอบแบบสอบถาม

APPENDIX C
CONSENT FORM (Thai version)

หนังสือแสดงความยินยอมเข้าร่วมการวิจัย

ทำที่ โรงพยาบาลสิรินธร สำนักการแพทย์

วันที่.....เดือน.....พ.ศ. .....

เลขที่ ประชากรตัวอย่างหรือผู้มีส่วนร่วมในการวิจัย…..……

ข้าพเจ้า ซึ่งได้ลงนามท้ายหนังสือนี้ ขอแสดงความยินยอมเข้าร่วมโครงการวิจัย

ชื่อโครงการวิจัย การศึกษาความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร

ชื่อผู้วิจัย นางสาวสุรีย์ จิรไพบูลย์สุข

ที่อยู่ที่ติดต่อ หน่วยกุมารเวชกรรม โรงพยาบาลสิรินธร

โทรศัพท์ โทร 02-328-6900-19 ต่อ 10468

ข้าพเจ้า**ได้รับทราบ**รายละเอียดเกี่ยวกับที่มาและวัตถุประสงค์ในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ความเสี่ยง/อันตราย และประโยชน์ซึ่งจะเกิดขึ้นจากการวิจัยเรื่องนี้ โดยได้อ่านรายละเอียดในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด และ**ได้รับคำอธิบาย**จากผู้วิจัย **จนเข้าใจเป็นอย่างดี**แล้ว

ข้าพเจ้าจึง**สมัครใจ**เข้าร่วมในโครงการวิจัยนี้ ตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย โดยข้าพเจ้ายินยอมตอบแบบสอบถามเรื่องการศึกษาความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอกกุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร จำนวน 1 ครั้ง *โดยตอบแบบสอบถามทั้งหมด 30 ข้อ จำนวน 7 หน้า แบ่งออกเป็น*

ส่วนที่ 1	*ข้อมูลทั่วไปและลักษณะทางประชากร*	*จำนวน 11 ข้อ*
ส่วนที่ 2	*แบบสอบถามด้านความรู้ของโรควัณโรคในเด็ก*	*จำนวน 7 ข้อ*
ส่วนที่ 3	*แบบสอบถามเกี่ยวกับทัศนคติต่อโรควัณโรคในเด็ก*	*จำนวน 7 ข้อ*
ส่วนที่ 4	*แบบสอบถามเกี่ยวกับการปฏิบัติต่อโรควัณโรคในเด็ก*	*จำนวน 5 ข้อ*

ข้าพเจ้ามีสิทธิ**ถอนตัว**ออกจากการวิจัยเมื่อใดก็ได้ตามความประสงค์ **โดยไม่ต้องแจ้งเหตุผล** ซึ่งการถอนตัวออกจากการวิจัยนั้น จะไม่มีผลกระทบในทางใดๆ ต่อข้าพเจ้าทั้งสิ้น โดยไม่ต้องได้รับโทษหรือสูญเสียประโยชน์ซึ่งพึงได้รับ และยังมีสิทธิที่จะได้รับการดูแลรักษาจากแพทย์ตามปกติ

ข้าพเจ้าได้รับคำรับรองว่า ผู้วิจัยจะปฏิบัติต่อข้าพเจ้าตามข้อมูลที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และข้อมูลใดๆ ที่เกี่ยวข้องกับข้าพเจ้า ผู้วิจัยจะ**เก็บรักษาเป็นความลับ** โดยจะนำเสนอข้อมูลการวิจัยเป็นภาพรวมเท่านั้น ไม่มีข้อมูลใดในการรายงานที่จะนำไปสู่การระบุตัวข้าพเจ้า

หากข้าพเจ้าไม่ได้รับการปฏิบัติตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถร้องเรียนได้ที่คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย ชั้น 4 อาคารสถาบัน 2 ซอยจุฬาลงกรณ์ 62 ถนนพญาไท เขตปทุมวัน กรุงเทพฯ 10330

โทรศัพท์ 0-2218-8147 โทรสาร 0-2218-8147 **E-mail: eccu@chula.ac.th**

ข้าพเจ้าได้ลงลายมือชื่อไว้เป็นสำคัญต่อหน้าพยาน ทั้งนี้ข้าพเจ้าได้รับสำเนาเอกสารชี้แจงผู้เข้าร่วมการวิจัย และสำเนาหนังสือแสดงความยินยอมไว้แล้ว

ลงชื่อ.....
(.....)
ผู้วิจัยหลัก

ลงชื่อ.....
(.....)
ผู้มีส่วนร่วมในการวิจัย

ลงชื่อ.....
(.....)
พยาน

APPENDIX D
APPROVAL PAGE (Thai version)

AF 01-11

คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย
อาคารสถาบัน 2 ชั้น 4 ซอยจุฬาลงกรณ์ 62 ถนนพญาไท เขตปทุมวัน กรุงเทพฯ 10330
โทรศัพท์: 0-2218-8147 โทรสาร: 0-2218-8147 E-mail: eccu@chula.ac.th

COA No. 118/2552

ใบรับรองโครงการวิจัย

โครงการวิจัยที่ 105.1/ 52 : การศึกษาความรู้ ทัศนคติ และการปฏิบัติต่อวัณโรคในเด็กของผู้ปกครองเด็กที่แผนกผู้ป่วยนอก กุมารเวชกรรม โรงพยาบาลสิรินธร กรุงเทพมหานคร

ผู้วิจัยหลัก : นางสาวสุรีย์ จิรไพบูลย์สุข นิสิตระดับมหาบัณฑิต

หน่วยงาน : วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย

คณะกรรมการพิจารณาจริยธรรมการวิจัยในคน กลุ่มสหสถาบัน ชุดที่ 1 จุฬาลงกรณ์มหาวิทยาลัย ได้พิจารณา โดยใช้หลัก ของ The International Conference on Harmonization – Good Clinical Practice (ICH-GCP) อนุมัติให้ดำเนินการศึกษาวิจัยเรื่องดังกล่าวได้

ลงนาม.....
(รองศาสตราจารย์ นายแพทย์ปรีดา ทัศนประดิษฐ)
ประธาน

ลงนาม.....
(ผู้ช่วยศาสตราจารย์ ดร.นันทรี ชัยชนะวงศาโรจน์)
กรรมการและเลขานุการ

วันที่รับรอง : 6 พฤศจิกายน 2552 **วันหมดอายุ** : 5 พฤศจิกายน 2553

เอกสารที่คณะกรรมการรับรอง

1) โครงการวิจัย
2) ข้อมูลสำหรับกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัยและใบยินยอมของกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย
3) ผู้วิจัย
4) แบบสอบถาม

เลขที่โครงการวิจัย 105.1/52
วันที่รับรอง - 6 พ.ย. 2552
วันหมดอายุ - 5 พ.ย. 2553

เงื่อนไข

1. ข้าพเจ้ารับทราบว่าเป็นการผิดจริยธรรม หากดำเนินการเก็บข้อมูลการวิจัยก่อนได้รับการอนุมัติจากคณะกรรมการพิจารณาจริยธรรมการวิจัยฯ
2. หากใบรับรองโครงการวิจัยหมดอายุ การดำเนินการวิจัยต้องหยุดิ เมื่อต้องการต่ออายุต้องขออนุมัติใหม่ล่วงหน้าไม่ต่ำกว่า 1 เดือน พร้อมส่งรายงานความก้าวหน้าการวิจัย
3. ต้องดำเนินการวิจัยตามที่ระบุไว้ในโครงการวิจัยอย่างเคร่งครัด
*4. ใช้เอกสารข้อมูลสำหรับกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย ใบยินยอมของกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย และเอกสารเชิญเข้าร่วมวิจัย (ถ้ามี) **เฉพาะที่ประทับตราคณะกรรมการเท่านั้น แล้วส่งสำเนาใบแรกที่ใช้เอกสารดังกล่าวมาที่คณะกรรมการ***
5. หากเกิดเหตุการณ์ไม่พึงประสงค์ร้ายแรงในสถานที่เก็บข้อมูลที่ขออนุมัติจากคณะกรรมการ ต้องรายงานคณะกรรมการภายใน 5 วันทำการ
6. หากมีการเปลี่ยนแปลงการดำเนินการวิจัย ให้ส่งคณะกรรมการพิจารณารับรองก่อนดำเนินการ
7. โครงการวิจัยไม่เกิน 1 ปี ส่งแบบรายงานสิ้นสุดโครงการวิจัย (AF 03-11) และบทคัดย่อผลการวิจัยภายใน 30 วัน เมื่อโครงการวิจัยเสร็จสิ้น สำหรับโครงการวิจัยที่เป็นวิทยานิพนธ์ให้ส่งบทคัดย่อผลการวิจัย ภายใน 30 วัน เมื่อโครงการวิจัยเสร็จสิ้น

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Jirapaiboonsuk S. (2009). Emerging Respiratory Tract Infection: Human Metapneumovirus (hMPV). **Vajira Medical Journal.** 53 (1): 101-108.