FACTORS RELATED TO DENTAL NURSE PREPARATION FOR WORKING IN TAMBON HEALTH PROMOTING HOSPITAL IN THAILAND

SOMRIT JIROJVANICHAKORN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF PRIMARY HEALTH CARE MANAGEMENT
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2015

Thesis
entitled

FACTORS RELATED TO DENTAL NURSE PREPARATION FOR WORKING IN TAMBON HEALTH PROMOTING HOSPITAL IN THAILAND

……
Mr. Somrit Jirojvanichakorn
Candidate

……
Assistant Professor (Special) Nate Hongkrilert, Ph.D. (Educational Communication and Technology)
Member

……..
Assoc. Prof. Boonyong Keiwkarnka, Dr.P.H.
Member

……
Prof.Santhat Sermsri,
Ph.D.(Sociology Demography)
Member

……..….
Prof. Patcharee Lertrit,
M.D., Ph.D. (Biochemistry)
Dean
Faculty of Graduate Studies
Mahidol University

……
Lect. Aroonsri Mongkolchati,
Ph.D. (Public Health)
Program Director
Master of Primary Health Care Management
ASEAN Institute for Health Development
Mahidol University

Thesis
entitled

FACTORS RELATED TO DENTAL NURSE PREPARATION FOR WORKING IN TAMBON HEALTH PROMOTING HOSPITAL IN THAILAND

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Primary Health Care Management
on
June 11, 2015

……
Mr. Somrit Jirojvanichakorn
Candidate

……..	……
Prof.Santhat Sermsri, Ph.D.(Sociology Demography) Member	Asst. Prof.Khongdej Leethochawalit, Ph.D. (Medical and Social Science) Chair
……..	……
Assoc. Prof. Boonyong Keiwkarnka, Dr.P.H. Member	Assistant Professor (Special) Nate Hongkrilert, Ph.D. (Educational Communication and Technology) Member
……..	……
Prof. Patcharee Lertrit, M.D., Ph.D. (Biochemistry) Dean Faculty of Graduate Studies Mahidol University	Prof. Supa Pengpid, Dr.P.H. Director ASEAN Institute for Health Development Mahidol University

ACKNOWLEDGEMENTS

Firstly, I would like to express my deepest gratitude to Dr.Prateep Thanakitjarean, Deputy Secretary General of National Health Security Office (NHSO) and Dr.Supattra Srivanichakorn, Director of ASEAN Iinstitute forHealth Development (2009 – 2013)for their kindness, funded me for studying this program, Master of Primary Health Care Management.

I would like to express my deep gratitude to Dr.Nate Hongkrailert my major advisor, for his precious guidance, generous supports, helpful suggestions and his continuous special attention, which had led me to accomplish this study. I am also deeply grateful to Dr.Boonyong Keiwkarnka and Asst. Prof.Khongdej Leethochawalit , my co-advisors for their valuable suggestion and comments. I obtained a rewarding learning experience from their suggestions and comments.

I greatly appreciate Dr.Sumalee Arunrattadilok, Chairman of Thailand Dental provincial health office association, all member and committee for helping me collect the data. I also give my special thank to Mrs.Benjamas Alishak, Mrs.Nureyah Jaelae my dental department of Pattani Provincial Health Office's staff and the respondents for their good work and cooperation during the time for data collection.

Particular thanks to my sponsor National Health Security Office (NHSO) and also Pattani Provincial Health Office for the fellowship and financial support.

I would like to express my thanks to all my professors, my teachers whose able teaching, guiding and experience broadened my knowledge in Primary Health Care Management.

I wish to extend my appreciation to the director, all of staff in ASEAN Institute for Health Development (AIHD) for their helpful and worthy suggestion.

My heartfelt thanks to my wife, Mrs.Pornsulee Jirojvanichakorn and, all of my AIHD classmate batch26th for their suggestion and encouragement.

Somrit Jirojvanichakorn

FACTORS RELATED TO DENTAL NURSE PREPARATION FOR WORKING AT TAMBON HEALTH PROMOTING HOSPITALS IN THAILAND

SOMRIT JIROJVANICHAKORN 5437358 ADPM/M

M.P.H.M.

THESIS ADVISORY COMMITTEE: NATE HONGKRAILERT, Ph.D., BOONYONG KEIWKARNKA, Dr.P.H., PROF.DR.SANTHAT SERMSRI, PH.D.,

ABSTRACT

Dental caries are still a serious problem in Thailand. Dental nurses are often the major influence on promoting dental public health at the sub-district (Tambon) level. This cross-sectional descriptive study aimed to identify factors associated with dental nurse preparation by chiefs of dental departments of community hospitals all over Thailand.

Self-administered questionnaires were filled out by 290 respondents to assess their socio-demographic characteristics, psycho-social factors, cues to action and enabling factors, which were considered related to their dental nurse preparation performance. Data were analyzed by descriptive statistics, Chi-square test. Multiple logistic regression was performed to determine associations between the dental nurse preparation and influential factors.

Half of respondents had a low level of dental nurse preparation. Those who received information said this was mostly from their Provincial Health Office personnel. Factors that were found to have a significant association with dental nurse preparation were age group, high perception group, mass media, advice from NHSO personnel, advice from other chiefs of a dental departments in a community hospital, hospital policy, hospital assignment, hospital budget support and The hospital manpower management system.

The most significant predictors were advice from other junior chiefs and hospital assignments. Therefore the department chiefs need to be encouraged to achieve better dental nurse preparation. Meanwhile, the important sources of information on respondents' dental nurse preparation need to be reassessed and strategies need to be developed to improve the levels of preparation and management among department chiefs.

KEY WORDS: DENTAL CARIES/ DENTAL NURSE/ CHIEF OF DENTAL DEPARTMENT/ PREPARATION BEHAVIOR

116 pages

ปัจจัยที่ส่งผลต่อการเตรียมการทันตาภิบาล เพื่อลงปฏิบัติงานทันตสาธารณสุขในโรงพยาบาลส่งเสริมสุขภาพตำบล ในประเทศไทย

FACTORS RELATED TO DENTAL NURSE PREPARATION FOR WORKING AT TAMBON HEALTH PROMOTING HOSPITALS IN THAILAND

สมฤทธิ์ จิโรจน์วณิชชากร 5437358 ADPM / M

สม.ม.

คณะกรรมการที่ปรึกษาวิทยานิพนธ์ : เนตรหงษ์ไกรเลิศ, Ph.D., บุญยง เกี่ยวการค้า, Ph.D.

บทคัดย่อ

โรคฟันผุก็ยังคงเป็นปัญหาที่ส่งผลกระทบอย่างมากต่อประชากรทุกกลุ่มอายุ โดยเฉพาะเด็กเล็กในเมืองไทย ทันตาภิบาลเป็นบุคลากรที่มีความสำคัญและมักจะได้รับมอบหมายให้รับผิดชอบในการปฏิบัติงานทันตสาธารณสุข เพื่อดูแลสุขภาพช่องปากของประชาชนในระดับตำบล การศึกษานี้เป็นการเก็บข้อมูลแบบภาคตัดขวางเพื่อศึกษาปัจจัยที่เกี่ยวข้องกับการเตรียมการทันตาภิบาลเพื่อลงปฏิบัติการในรพ.สต. ของหัวหน้ากลุ่มงานทันตสาธารณสุขโรงพยาบาลชุมชน ทั่วประเทศ เก็บข้อมูลโดยใช้แบบสอบถามกลุ่มตัวอย่าง จำนวน 290 คน ในเดือนมกราคม-มิถุนายน 2557 วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณาร่วมกับการทดสอบไคสแควร์และการถดถอยโลจิสติกเพื่อค้นหาปัจจัยที่มีความสัมพันธ์กับการเตรียมการทันตาภิบาลของหัวหน้ากลุ่มงานทันตสาธารณสุขในโรงพยาบาลชุมชน

พบว่าครึ่งหนึ่งของหัวหน้ากลุ่มงานทันตสาธารณสุขมีการเตรียมการในระดับต่ำกว่า 90 เปอร์เซ็นต์ที่ได้รับคำแนะนำจากบุคลากรสำนักงานสาธารณสุขจังหวัด ปัจจัยที่พบว่ามีความสัมพันธ์อย่างมีนัยสำคัญทางสถิติกับการเตรียมการทันตาภิบาล คือความอาวุโสของหัวหน้ากลุ่มงาน, กลุ่มการรับรู้ต่อผลกระทบสูง, กลุ่มที่ได้รับข่าวสารสาธารณะ, กลุ่มที่ได้รับคำแนะนำจากบุคลากรของ สปสช., กลุ่มที่ได้รับคำแนะนำจากหัวหน้ากลุ่มงานทันตสาธารณสุขของโรงพยาบาลอื่น ๆ นโยบายโรงพยาบาล การมอบหมายภารกิจ การสนับสนุนงบประมาณของโรงพยาบาลและระบบการบริหารจัดการกำลังคนของโรงพยาบาล

การคาดการณ์พยากรณ์ตัวแปรที่สำคัญที่สุดคือกลุ่มที่ได้รับคำแนะนำจากหัวหน้า รุ่นน้องและ กลุ่มที่โรงพยาบาลมอบหมายภารกิจการเตรียมการให้จะมีการเตรียมการอยู่ในระดับดีเป็นพิเศษ

ข้อเสนอจากผลการวิจัยคือหัวหน้ากลุ่มงานทันตสาธารณสุขโรงพยาบาลชุมชนควรได้รับการสนับสนุนจากโรงพยาบาลและได้รับคำแนะนำที่เหมาะสมได้แก่การกำหนดเป็นนโยบาย การมอบหมายเป็นภารกิจ การสนับสนุนด้านงบประมาณ ตลอดจนคำแนะนำจากทันตบุคลากร รอบข้างเพื่อให้เกิดการเตรียมการทันตาภิบาลที่ดีในการลงปฏิบัติงานในรพ.สต.ต่อไป

116 หน้า

CONTENTS

CONTENTS (cont.)

LIST OF TABLES

LIST OF TABLES (cont.)

LIST OF FIGURES

CHAPTER I
INTRODUCTION

1.1 Rationale and Justification

Dental caries is not just a children's disease; it can happen as long as natural teeth are in the mouth. Dental caries is caused by bacteria that normally live in the mouth. The bacteria cling to teeth and form a sticky, colorless film called dental plaque. The bacteria in plaque live on sugars and produce decay causing acids that dissolve minerals on tooth surfaces.(1) And now there is evidence that caries is not a classical infectious disease. Rather it results from an ecological shift in the tooth surface biofilm, leading to a mineral imbalance between plaque fluid and tooth and, hence, net loss of tooth mineral. Therefore, caries belongs to the group of common 'complex' or 'multi-factorial' diseases, which include cancer, cardiovascular diseases, and diabetes, in which many genetic, environmental and behavioural risk factors interact. (2)

Dental caries is the most important index of oral health status and an integral part of general health, and shares common risk factors with other conditions which greatly impact human well-being. Oral health is a major concern as it is related to several Millennium Development Goals of the World Health Organization(WHO) and their specific targets(3). Dental caries and periodontal disease have been considered the most important global oral health disease burden (4). However, the contribution of dental caries to the burden of oral disease is about ten times higher than that of periodontal disease (5).

Dental caries can be prevented by a combination of community, professional, and individual measures including water fluoridation, professionally-applied topical fluorides and dental sealants, and use of fluoride toothpastes. Yet tooth decay is the most common chronic disease of childhood. (6)

Thailand spent roughly more than two billion baht, or 40 baht per capita, on dental care in 2011 and reported over ten million dental visits.(7) Nevertheless,

millions of Thai children continue to suffer needlessly from preventable oral diseases and have limited access to basic dental services. Over of 60% of Thai children experience dental caries (tooth decay) by the age of three and 80% by the age of five. Fully 4.3% of twelve year-olds and 4.1% of 15 year-olds missed school 2.5 and 4.4 days, respectively, due to toothache. Only two in ten Thai youth received routine preventive dental services. The problem of dental caries is especially severe in three provinces of deep South (Pattani, Yala, Narathiwat) where more than 80% of children experience dental caries in permanent teeth by the age of twelve years. (8)

Furthermore, a high prevalence and severity of early childhood caries (ECC) was found in preschool-aged children, who mostly came from the low socioeconomic status (SES) families in suburban areas of Thailand. Studies also found limitations of the treatment of dental caries in this population. The strengthening of oral health promotion and disease prevention and care is necessary and would of great benefit. (9)

Studies have identified multiple barriers to ensuring access to care for children. (11-15) Significant among these barriers is the professional dental workforce including inadequacy in the number of dentists, as well as an imbalance in geographic distribution, ethnicity, education, and practice orientations of dentists. (16)Although the Ministry of Public Health (MOPH) has a policy and to distribute dental health care to cover the population in need at the Tambon (sub-district) level, actual coverage of dental care is not optimal. The chronic shortage of dental personnel means that there is a persistent lack of these practitioners at the Tambon Health Promotion Hospital (THPH). Most dental personnel who work for a THPH are dental nurses. In 2015, there were 4,853 dental nurses in Thailand, with approximately 1,500 dental nurses actively practicing in 9,810 THPH. The vast majority of dental nurses are general, two-year graduate dental nurses, and these practitioners provide the bulk of primary care dental services for children and adults. (17)

Dental nurses carry out a range of procedures including health promotion, prevention and basic treatment. The general model for the care they provide embodies the fundamental components of primary care: First point of contact, continuity of care, emphasis on prevention, and coordinated, comprehensive services. Second, the majority of the services they provide are not available from other types of health care

practitioners. (18) These include:

- intra and extra oral assessment
- scaling and polishing
- applying materials to teeth such as fluoride and fissure sealants
- providing dental health education on a one-to-one basis or in a group situation
- undertaking routine restorations in both deciduous and permanent teeth for children
- using all materials except pre-cast or pinned placements
- extracting deciduous teeth under local infiltration analgesia

It is rather difficult to accurately define the personnel needs for the dental public health system in Thailand. The baseline information derived from the National Oral Health Survey in 1984, 1989 and 1994suggest that the appropriate number of all types of dental personnel were 6,164 in 1995 and 11,970 in 2015. These figures suggest that the minimum dental personnel-to-population ratio for dental services in Thailand was 1:9,636 in 1995 and 1: 5,813 in 2015. Based on these data, various scenarios were developed for classification of the role of dentists and dental nurses according to the level of basic tasks delegated to dental nurses. (10)

Estimating the extent of the Thai dental public health problem and needs is complex and influenced by many factors. These include SES of the population, natural history of oral diseases, service utilization system, distribution of dental personnel, and population growth, among other related factors. Each factor itself also has its own independent influence on the problem. Thus, any attempt to define relationships among the factors and to identify pathways to improved coverage needs to employ a multivariate analysis of the data. In that way, more appropriate estimates of the dental personnel needs can be obtained, in the context of the dynamic situation of health problems in Thailand (18).

The education and training process for dental personnel is time-consuming and requires substantial resources and investment. Thus, an inaccurate estimation can cause the longer-term crisis of under- or over-supply of particular types of personnel, or their expected qualifications. As of 2011,there was still a significant shortage of dental health staff in rural areas, and few dentists at the THPH level. Most dental

personnel that work for THPH are dental nurses. Even though Thailand has 3,500 dental nurses, only 1,500 actively practice in a THPH. There are 9,770 primary care units (i.e., THPH) in 7,238 Tambon throughout Thailand, and most chiefs of the Dental Department of the local community (i.e., district) hospital did not send dental nurses to work at the THPH or below. Thus, most people in rural areas cannot address their dental problems near their home. In 2012, the MOPH began to focus on the service utilization system and distribution of dental personnel at the Tambon level. The MOPH also announced the ambitious policy to increase the number of dental nurses at THPH, which would require the seven dental nurse colleges to produce 3,200 dental nurses within three years. As planned, in 2014, there would be 1,600 new dental nurse graduates, increasing to 3,200 in 2015. The MOPH also pressured nursing colleges to produce 3,000 nurses for public hospitals and clinics in the Southern region. But there was no clear strategy on how to achieve this. Thus, Thailand still needs to find feasible mechanisms of producing and deploying dental nurses at THPH, including guidelines for Dental Department chiefs on ensuring better coverage at the sub-district level.

To address problems of personnel shortage in various sectors, Harvard University (20), IBM (21), and General Motors (22) have developed guidelines for “onboarding” new graduates to accelerate the pace at which they acquire essential skills. The goal is to more effectively orient new staff to the workplace by providing them with an overview of the organization and the resources and tools needed to excel at their job. These guidelines are designed tohelp new staff feel welcomed, engaged and prepared. It also helps to shorten a new worker’s time to achieving productivity. In the context of dental health care in Thailand, the preparation process is still an important and priority issue. All new health staff receive a three-day orientation conference and 100 hours of field practice in a local area. (23)There are no concrete guidelines for the 100 hours of field orientation; it depends on the needs and priorities of each province or district. Thus, there is uneven level of experience and competence resulting from the orientation across sites.

The imbalance in the dental health workforce has been a major concern in Thailand for a long time, and remains an important issue for policymakers at present. In 2015, Thailand will have around 1,664 new dental nurse graduates with field

assignments at THPH. This research studied the preparation of the dental nursing workforce and related factors among chiefs of Dental Sections of community hospitals throughout Thailand. This is the first study of its kind and is expected to generate background data which may assist future research, and serve as a reference for dental nurse preparation programs in the future.

Dental nursing is a complex issue that encompasses a wide range of possible situations. The dental nurse not only addresses the problem of ECC, but also conducts health education, promotion, prevention and management. Thus, proper preparation of these staff by the Dental Department chief is a very important intervention. In particular, this research focused on the key factors affecting dental nurse preparation.

Wijaranaphiti found that, when the dental nurse had more stress caused by role conflict, internal standards, and multiple responsibilities, their performance effectiveness was reduced. (24) Therefore, good preparation should cover the necessary knowledge and skills by convening formal meetings, providing lectures, showing videos and other media for new employees to promote job satisfaction, better job performance, greater organizational commitment, and reduction in occupational stress and lack of motivation to continue the work.

At the time of this study, there were few formal preparation programs for new dental nurses organized by the Dental Department of the community hospital, despite the recognition of the importance of this. Part of the problem was the heavy workload or lack of awareness on how to conduct effective preparation orientation. The lack of studies in this area which show the positive effect of good preparation, and which factors are most influential on performance, further contributes to the lack of motivation to conduct orientation. Thus, it is hoped that this study will establish a basis for planning and implementation dental nurse preparation, especially at the Tambon level, in order to increase effective management of dental nurses and reduce the burden of disease of dental caries in the rural population.

1.2 Research questions

What are the factors related to dental nurse preparation for THPH in Thailand?

1.3 Research objectives

1.3.1 General objectives.

To identify the factors related to dental nurse preparation for THPH in Thailand

1.3.2 Specific objectives

1) To describe factors affecting dental nurse preparation and dental nurse preparation by chiefs of the Dental Departments in community hospitals;

2) To identify the relationship between independent variables and dental nurse preparation;

3) To predict the influence of factors toward dental nurse preparation.

1.4 Conceptual framework

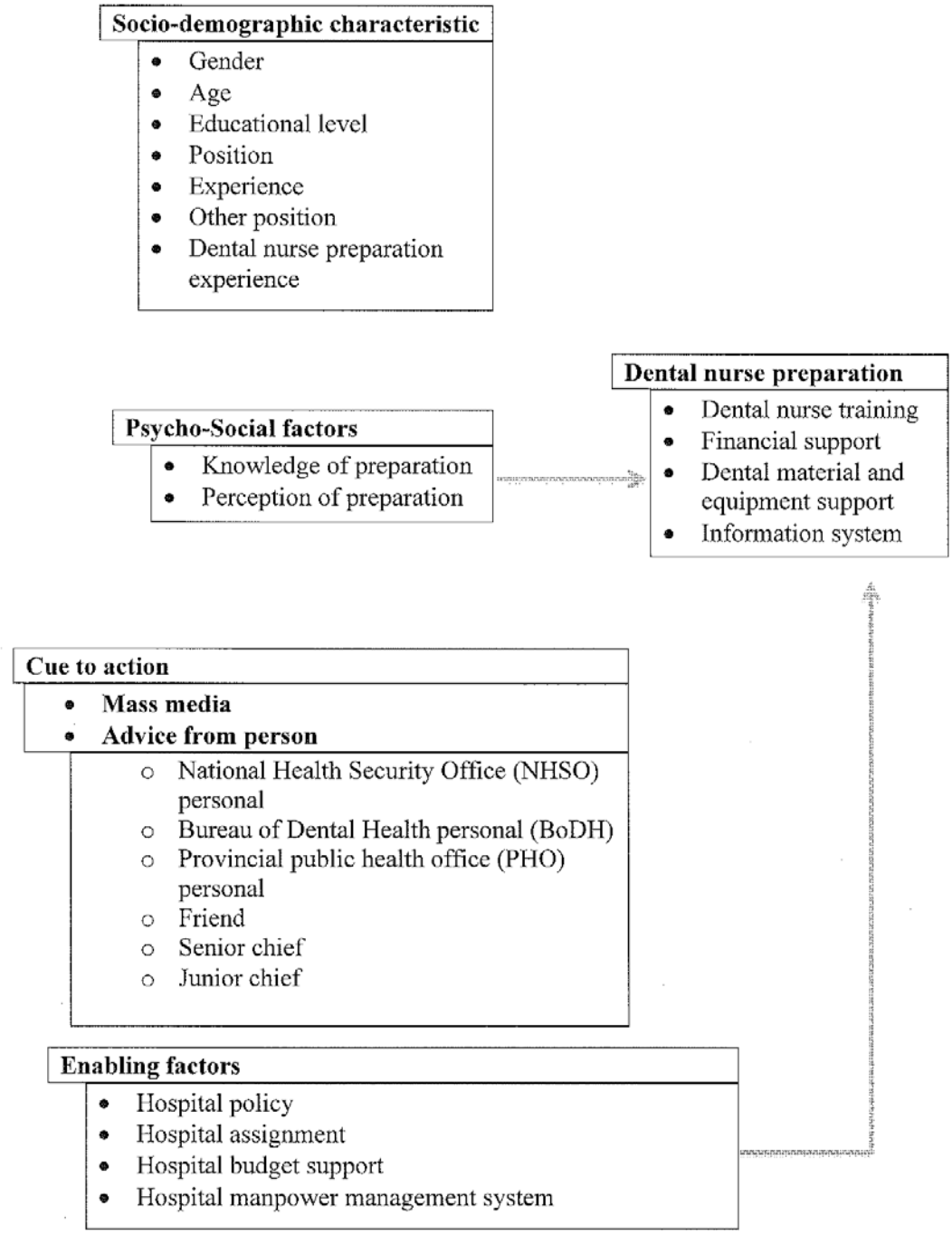


Figure 1.1 Conceptual Framework of the Study

1.5 Study variables

1.5.1 Independent variables

The Health Belief Model (HBM) was used to construct the independent variables in this study which include socio-demographic factors, psycho-social factors, cues to action and enabling factors.

Socio-demographic characteristic include:

- Gender
- Age
- Educational level
- Position
- Experience
- Other position
- Dental nurse preparation experience

Psycho-social factors cover:

- Knowledge of preparation
- Perception of preparation

Cue to action include:

- Social media
- Advice from others: NHSO personnel, BoDH personnel, PHO personnel, friend, junior chief, senior chief

Enabling factors cover:

- Hospital policy
- Hospital assignment
- Hospital budget support
- Hospital manpower management system

1.5.2 Dependent variables

Various aspects of dental nurse preparation were considered to construct the dependent variables for this study. Those aspects were then compiled and combined into four major aspects which cover dental nurse knowledge and skill

(according to dental service, dental project management training), budget support, dental material and equipment, dental information and dental handbook support for work at the THPH.

1.6 Operational definition of studied variables

1.6.1Socio-demographic characteristic of chief of the Dental Department of the community hospital:

- **Gender**: refers to the sex characteristic of the respondents.
- **Age**: refers to complete years of the respondents at the time of interview.
- **Educational level**: refers to the highest level of education attained by the respondent.
- **Position**: refers to the current working position of the respondents.
- **Experience**: refers to the number of years serving as chief of the Dental Department in the community hospital.
- **Other position**: refers to serving in another capacity besides chief of the Dental Department in the community hospital.
- **Dental nurse preparation experience**: refers to experience in dental nurse preparation for working at a THPH.

1.6.2 Psycho-social factors:

- **Knowledge of preparation** refers to the fact or state of knowing and understanding of the respondent, related to knowledge concerning dental nurse preparation, orientation and new staff training.
- **Perception of preparation** refers to perception of respondents concerning benefits, barriers and ability in preparing.

1.6.3 Cues to action:

- **Mass media** refers to social media such as Television, Newspaper and Internet websites which provide information to the chief of the Dental Department of community hospitals and potentially affecting knowledge, perception and action for dental nurse preparation.
- **Advice from persons** refers to types of persons that encouraged and supported the chief of the Dental Department of community hospitals to provide dental nurse preparation. These include personnel of the following:
  - **NHSO**
  - **BoDH**
  - **PHO**
  - **Friend** refers to a friend of the respondent
  - **Senior chief** refers to senior chief of the Dental Department of other community hospitals
  - **Junior chief** refer to junior chief of the Dental Department of other community hospital**s**

1.6.4 Enabling factors:

- **Hospital policy** refers to policy from the community hospital director that influences the chief of the Dental Department of community hospitals to prepare the dental nurse for work at THPH**;**
- **Hospital assignment** refers to directives from community hospital director to the chief of the Dental Department of community hospitals to prepare the dental nurse for work at THPH**;**
- **Hospital budget support** refers to budget for use in dental nurse preparation in the THPH.
- **Hospital manpower management system** refers to whether and how the community hospital has a culture or system to prepare newly arriving personnel.

1.6.5 Dental nurse preparation of the chief of the Dental Department of a community hospital refers to preparation routine of the chief in managing their newly arriving dental nurses that will work at the THPH level, and comprises dental

nurse knowledge and skills (according to dental service, dental project management training) budget support, dental material and equipment, and information system.

- **Dental nurse knowledge and skill** refers to meetings, supervision or training courses which include all basic dental services in the THPH for dental nurses, dental project management and any management issue for work at the THPH.
- **Budget support** refers to budget for preparing dental nurses to work at THPH.
- **Dental material and equipment** refers to appropriate dental material, equipment and dental chairs to enable proper use for dental nurses to work at THPH.
- **Information system** refers to dental information and dental handbook support for working at THPH

1.7 Expected outcomes:

1) The study results can be used for improving dental nurse preparation policy at different levels such as the ministry, provincial and district levels;

2) The outcome of the study is intended to motivate chiefs of Dental Departments in community hospitals to pay more attention to dental nurse preparation before sending nurses to work at THPH.

1.8 Limitations of the study

1. In case of non-response research questionnaire, the researcher obtains the sample quota by selecting another sampling site , that may affect of whole country representative.

2. Although the design of data collection is a cross-sectional. But in practice, Researcher cannot persuade the respondents to reply the questionnaire according to schedule. Therefore, the delayed of schedule may affect the result, discussion and conclusion of the study.

CHAPTER II
LITERATURE REVIEW

This chapter reviews and elaborates on the literature related to this study. This chapter focuses on the following five topics:

2.1 Global trendsinearlychildhoodcaries (ECC)

2.2 ECCinThailand

2.3 Dentalnurses

2.4 Dental nurse function at the Tambon Health Promoting Hospital (THPH)

2.5Dentalnursepreparation

- Sixbluidingblocks
- Preparationoronboardingprocessandorientation
- HealthBeliefModel(HBM)
- TheapplicationoftheHBMforthisstudy

2.6 Relatedstudies

2.1 Global trends in ECC

Dental caries remains a public health problem in many countries, even though it is preventable. It is one of the most common diseases of childhood, and can develop as early as the primary teeth begin to erupt, adversely affecting children's growth, and, if left untreated, may cause pain, or even potentially life-threatening forms of focal infection. In the USA, dental caries is fivetimes more common than asthma and seventimes more common than hay fever in children (25).

Dental caries is decreasing, often linked to an increasing use of fluorides and various types of dental health education and promotion programs, especially in most industrialized countries in northern Europe, North America, Australia and New Zealand.On the other hand, the prevalence in preschool children isstill high, and caries

in primary teeth is often left untreated.In Scandinavia, where all preschool children are included in an organized dental care program, dental caries decreasedmarkedly during the 1970s and at the beginning of the 1980s (26). Whilethe trend of ECC in most developed countries seems to be decreasing, ranging between 1 to 12 percent, the problemis greater in disadvantaged groups such as the poor, and vulnerable groups of children and the elderly(27).

In most developing countries in South East Asia, children have a high prevalence of dental caries in the primary dentition, often in contrast to the situation forthe permanent dentition.The reasons for this difference are not obvious, but may be linked to differences in diet. In Africa, dental caries prevalence in preschool children seems to be increasing somewhat in countries or parts of countries whichrestrict sugar intake, and the prevalence does not seem to be as high as in South East Asia(26).

2.2 ECC in Thailand

The 1984 national data from Thailand show that the mean decayed/missing/filled teeth (DMFT) among 35- to 44-year-old Thais varied between 3.0 in the northeastern region and 8.7 in the Bangkok region, with an overall mean DMFT of 5.4 and a prevalence of 80%.For all regions thesemeasureswere considerably higher than those observed approximately 25 years earlier (28). According to the 1994 National Oral Health Survey, the mean DMFT among the 35- to 44-year-olds was 6.5, and the prevalence was 86% (29). However, assessment of the trends in dental caries among the adult Thai population is difficult because major regional variations in the caries experience indicate that stability of the sampling frame for the different studies is crucial for a valid interpretation of possible trends (30). These regional variations have been ascribed to factors such as regional differences with regard to the water fluoride concentrations and the availability of and access to dental health care services (28). During implementation of an oral health care development project in rural southern Thailand,it was hypothesized that dental disease could be substantially higher in this population than for other EastAsian populations. Moreover, local dental professionals also suggested that dental diseaseis significantlymore prevalent among Muslims than Buddhists in Thailand. A recent

study of 2- to 6-year-old children found thatMuslim children hada higher risk of caries in the labial and lingual surfaces of the deciduous incisors but not in the deciduous dentition as a whole (31).However, data to support these contentions are sparse, and it was therefore decided to conduct an epidemiological study of the dental disease levels in two age cohorts in rural southern Thailand, with a view to address this hypothesis. The purpose of the present studyis to describe the prevalence and severity and some determinants of dental caries and the dental status among 30- to 39- and 50- to 59-year-old adults from rural southern Thailand.

2.3 Dentalnurses

Dental nurses, sometimes also known as oral health practitioners or dental therapists are dental care professionals and work as part of the dental team. Therefore, ‘dental therapist’ in the international context is equivalent to‘dental nurse’ in Thailand.

In Canada, adental therapist can carry out a range of procedures, including:(32)

- intra and extra oral assessment
- scaling and polishing
- applying materials to teeth such as fluoride and fissure sealants
- taking dental radiographs
- providing dental health education on a one-to-one basis or in a group setting
- undertaking routine restorations in both deciduous and permanent teeth, on adults and children
- using all materials except pre-cast or pinned placements
- extracting deciduous teeth under local infiltration analgesia

Provided that they have completed the appropriate training, dental therapists can perform such extended duties as the following:

- undertaking the pulp therapy treatment of deciduous teeth
- placing pre-formed crowns on deciduous teeth
- administering inferior dental nerve block analgesia under the

supervision of a dentist

- providing emergency temporary replacement of crowns and fillings
- taking impressions
- treating patients under conscious sedation provided the dentist remains in the surgery throughout the treatment

The dental therapist may treat a wide range of high-treatment-needs patients, e.g.,forthose who:

- are dentally anxious
- are medically compromised
- are physically disabled
- have learning disabilities
- have high levels of untreated decay
- are unable to access regular dental care in the general dental service

In Canada, adental therapists is the primary dental care provider for those living in remote areas of the country, particularly in the north. (33) Dental therapists follow treatment prescribed by a dentist supervisorwho visits the dental therapist regularly. The dentist examines patients and writes treatment plans which outline the specific procedures to be completed after the dentist has gone.□□The purpose of a dental therapist is to provide primary oral health care to children and adult clients in accordance with established standards of the Canadian Dental Therapists Association and the philosophy and objectives of the Authorityto ensure clients improve and maintain optimum oral health. □□Dentists are the main referral source for dental therapist's clients (recall examinations). A physician, community health nurse or parent may also refer. In addition, the dental therapistidentifiesschool-age clients needing treatment through screening. Direct client care executed by the incumbent includes restoring teeth to proper form, function and aesthetics, recognizing and managing dental/medical emergencies, managing post-extraction complications, and providing local anesthetics to manage pain to restore and maintain the health of the dental patient. Activities of the dental therapist include but are not limited to taking x-rays, providing fillings, performing extractions within a dental therapist's scope of practice, installing stainless steel crowns, providing fluoride treatment, sealants, and suturing, and performing recall examinations. The therapist may also perform oral

diagnosis and examination in emergency cases. When necessary the incumbent will administer local anesthesia for dental procedures.□□When treatment is outside the dental therapist's scope of practice, the incumbent will refer the client to a dentist (e.g., in the case of abnormal oral or pathological conditions). The therapist may also cross-refer the patient to other health care providers (e.g., a community health nurse or physician)for antibiotic treatment. □□**Responsibilities of a Dental Therapist:**1. To provide direct and independent dental therapy services to clients of the Authoritywithin a multi-disciplinary setting. □□2. To develop, coordinate and facilitate education/teaching based on the needs of the client, potential clients and other health care providers. □□3. To advocate practice environments that have the organizational and resource allocations necessary for safe, competent and ethical clinical dental care. □□4. To communicate with other members of the health care team (i.e., dentist) regarding the dental health care of clients to provide continuity of care and promote collaborative efforts directed toward quality client care. □□5. To effectively operate and maintain equipment by troubleshooting and ensuring timely and appropriate maintenance and repairs ofdental equipment.

Main Activities of a Dental Therapist:

- Screens and assesses patient need for dental treatment
- Provides treatment to the patient as per the treatment plan developed by a dentist
- Investigates and documents the medical history of the patient and informs at-risk patients of the necessary considerations for dental treatment
- Examines, diagnoses, and develops a comprehensive recall treatment plan that addresses all the patient's needs, refers when appropriate, and documents and evaluates care and modifies treatment as necessary to ensure a coordinated holistic approach which best meets the needs of the client
- Delivers prophylactic treatments to reduce the incidence of decay
- Assists clients in realizing and maintaining maximum oral /dental health
- Advocates for the dignity and self-respect of clients
- Remains aware of the importance of confidentiality, and is able to keep

personal and medical information private and confidential at all times

- Advocates for clients with other agencies, family and health care professionals (e.g., teacher, parents, dentists) so that needs relating to the treatment are met (e.g., orthodontic, antibiotic treatment, approval for treatment from the parent).
- Promotes the autonomy of clients and helps them to express their health needs and values to obtain appropriate information and services
- Safeguards the trust of clients that information learned in the context of a professional relationship is shared outside the health care team only with the client's permission or as legally required
- Applies and promotes principles of equity and fairness to assist clients in receiving unbiased treatment and a share of health services and resources proportionate to their needs
- Acts in a manner consistent with their professional responsibilities and standards of practice
- Uses a holistic approach to facilitate individual learning in relation to dental health (e.g., self-care, health promotion) in the clinic, school and community
- Conducts active preventative health education programs in schools and health centers to promote and reduce the incidence of dental caries
- Assesses the client for physical needs, their knowledge of their dental health, disease process and learning needs
- Assesses and evaluates the oral health of populations, gathers and interpretsepidemiological data, and plans, develops and initiatesan oral health program to address the identified needs
- Researches, develops, revises and evaluates on an-ongoing basis, educational resources necessary to support clients, stakeholders (i.e., parents, teachers, community members, etc.) and other health care professionals
- Maintains a clinical environment (e.g., sterilizing instruments and the immediate surroundings) that is absent of micro-organisms that produce disease (i.e., pathogens)
- Applies appropriate infection control measures
- Creates and maintains client records

- Provides coaching and leadership to peers, students and other members of the health care team to develop skill levels necessary to achieve the standard of care
- Collaborates with dentists, physicians, community health nurses and other members of the health care team to advocate for oral health care environments that are conducive to ethical practice and to the health and well-being of clients and others in the community
- Orients new employees to unit-specific programs and mandates
- Gives local freezing
- Preparesteeth for and placing routine fillings in teeth
- Performs uncomplicated extractions of teeth
- Performs scaling (cleaning) of teeth
- Takesand developsX-rays
- Conductspreventative dental health programs that include supervised brushing, topical fluoride application, and classroom teaching

2.4 Dental nurse and dental health service organizations in THPH in Thailand

Nearly all (97 percent) of the dental nurses in Thailand in 2006 were working under the Ministry of Public Health (MOPH) and 95.9 percent of their workplaces were outside Bangkok. These included 55.7 percent working in community hospitals and 32.5 percent in THPH. The ratio nationwide of dental nurses increased from 1:21,331 population in 2002 to 1:16,883 in 2006, excluding Bangkok.(34) Among those working in THPH, the workload of those involved in oral health care to other types of care was 3:1 in terms of time sharing. The proportion of jobs in curative care, promotion/prevention, and proactive services was cited as 3:1:1. With regard to capacity-building, training is required in oral health promotion and proactive activities, oral health prevention and disease control,health literacy and communication,project planning, management and evaluation according to local priorities, and first-aid treatment.(35)

An assessmentwas conducted for the oral care system and its supporting systems after the launch of Universal Health Care Coverage Project in 2002. The oral health services of 808 provincial public contracting units of primary care (CUP) were the focus of the assessment.Theassessment found that the budget for dental for oral care delivery was inadequate and the guidelines for supporting the primary care network were not appropriate, given the rapidly increasing demand of dental services at the CUPS level. Preventive and promotive oral health services had remained the same, relatively prior to the launch of the Universal Health Care Coverage Project. With respect to the full benefits package as specified by the project, CUPS could provide only 65 percent of the core health services and failed to adequately integrate oral health care into antenatal care/well baby clinic antenatal clinic well baby clinic (ANC/ WBC) and community services (i.e., in less than 50% of sites). The most relevant activities carried out by the dentists in primary care networks were secondary and tertiary care. The least was dental public health administration.(36)

There are several risk factors that were significantly related ECC including the age that child becomes colonized, mutans streptococci levels, the presenceof visible plaque on the teeth, dietary habits,and frequent intake of sucrose, sugared drinks sweet snacks between meals.However, many of these risk factors are ones whichinfants and young children are unable to manage themselves, especially oral hygiene, dietary habits and other related oral habits. Thus, for young children, oral health depends substantially upon the practices of parents and thecaretakers of the children, and those practices are influenced by the level of education and SES of the adults. The parent's role models have been shown to correlate with their children's caries experience, their own decay, DMFT scores, and their feeding habits. In addition, early professional intervention can have a great effect since it can reduce or eliminate commonoral disease in a diminutive scale. Without early care, extensive deterioration of the teeth may ensue, which causespainful and early loss of teeth,among other adverse consequences.Coverage of oral health services arelimited as a result of the shortage of dental manpower and economic constraints, especially in the lower-income settings. A study by the Department of Family Medicine of the Phramongkutklao College of Medicine was conducted among a group of children in TambonKoh-rean,Ayutthaya Province near Bangkok.This community is also a training

site for new dental students. Baseline surveys found that the first dental check-up might be delayed until age six, when most children areenrolled in public primary schools.However, the check-ups were conducted by teachers or other non-dental health care personnel who work in the local Tambonprimary care unit (PCU). The study found that the oral health of these children depended on the awareness of their parents and caretakers.(37)

The Operational Characteristics of THPH

The operational characteristics of the idealTHPH are as follows:

1)Provide holistic operations which areintegrated, continuous and provide comprehensive care for the catchment population.

2) Have clear definition of roles, as follows:

- Primary care concentrates on social quality, by fosteringgood relationships with the people and community.

-Secondary care, or hospital-based care,focuses on technical quality for specific treatment or management of more complicatedcases.

3)Promote good connections and relationships between service centers in referring patients and exchanging information among each other.This process must insure that the referred patient will be treated properly for both social and technological care.

4)Have plans in place to provide all services of the THPH, handle all primary care properly and carry out the scope of the public health services as follows:

-Provide a full range of health promotion and preventivecare, including a system of monitoring the continuity of service.

-Provide the diagnosis, treatment and health promotion in a holistic model to all patients in groups of those with acute and chronic conditions. The rehabilitativetreatment may include Thai traditional medicine and alternative medicine in accordance with the Medical Arts(certified medical procedures).There should be a linked network of primary care service units to ensure comprehensive care, and be able to respond in cases of an accident or emergency,within and outside regular working hours.

- Provide standard dental services including promotion, prevention, treatment and rehabilitation.These services may be provided within the service unit and/or local area network or have a referral system to referpatients.

-Provide home visits and follow-up regularly to enhance understanding of the health care provided to individuals and families in the care of people with dental health problems. This includes providing rehabilitation and outreachservices in the community for evaluating the health conditions and factors that may affect the dental health of the family.The planning and implementation of health promotion and prevention is designed to servethe patients within the PCU catchment area, including a home visit service and outreachfor at least 12 hours per week.

(5) Provide a basic laboratory and/or set a system to refer to another qualified laboratory on short notice.

(6)Provide medical services, including a system of procurement, storage and distribution, basedon pharmaceutical and medical standards and/or another network service system.

Guidelines for public dental nurses in THPH

Dental public health in the THPH setting includes the following:

1) Promote dental health and the prevention of oral disease

2) Provide dental treatment

3)Conduct outreachand integrated dental care strategies by age group

4) Perform administrative duties and knowledge management.

The details are as follows:

1) Oral health promotion and prevention of oral diseases focuses on changing oral hygiene behavior, especially oral cleansing, the consumption of healthy foods and the accessibility to dental treatment in a timely way.Care is implemented in parallel with health promotion aimed at the key target population at the service unit and in the community.

1.1 Pregnant women:provide oral health promotion and disease prevention as follows:

1.1.1 Conduct oral examination and provideinstructions on oral health care and brushing technique forpregnant women at the service unit and in the community.

1.1.2Make appointments for oral treatment for pregnant women in asymptomatic periods of pregnancy (4-6 months),since women inthe first trimester often have morning sickness and are experiencing hormonal changes. Women without adverse symptoms of pregnancy should receive routine dental treatmentsuch as fillings,scaling,etc.

In THPHdental clinics which are operated by dental nurses,the THPH should set up a special channel for pregnant women toobtain convenient oral treatment.Where there is an absence of dental nurses, community health centers must arrangefor staffwho are responsible formaternal and child health (MCH)to get training in dental public health care. These staffcan thentake charge oforal check-ups, teaching tooth-brushing methods and coordinating patient referral to another dental unit,hospital or THPH as necessary.

1.2 To manage care for children age 0-2 years in the well-child clinic (WCC), the local facility sets up an oral health promotion and oral disease prevention program with the following activities:

1.2.1 Check-ups with data entered into the database. Provide oral topical fluoride varnish for children age 9 months - 2 years, and advise parents about oral health care of children receiving vaccines at the WCC.

1.2.2 Distribute toothbrushes and demonstrate proper child tooth-brushing techniquesfor parents of children aged 9 months– 2 years??to encourage parents and children to brush their teeth regularly and properly.If there are dental nurses in the THPH,the dental nurses shouldimplement oral health care activities in conjunction with the WCC. If, however, thereis no dental nurse in the THPH, the staff of the MCH clinic should take responsibility for oral health care activities; these staff must be well-trained in oral health promotion.

1.3Children age 3-5 years in daycare centers/pre-schools.

1.3.1Screen the oral health of children in pre-school/day care centers, including recordkeeping and a database,in order to help

coordinate with the teachers and care providers to arrange the right treatment for children, and also give appropriate oral health promotion to parents.

1.3.2 Coordinate with the hospital network in training teachers and child care providersto havegood attitudes and skills in providing effective oral health promotion.

1.3.3Encourage teachers and child care providers to arrange a continuous set of activities for oral health promotion, with a focus on consumption of healthy food and snacks that are suitable for children, including drinking milk and refraining from using bottle feeding. In addition, the environment of the child development center needs to be conducive to good dental health.

1.3.4 Set up the fluoride varnish campaign to prevent tooth decay.

1.3.5Evaluate the environment of the child development/day care center.

1.3.6 Summarize the analysis of1.3.1 and 1.3.5, and lobby the local government agencyto develop a dental health plan for the day care/child development center, including procurement of equipment, manpower, and on-going funding to enhance dental health care for children.

1.4 Primary school students(6-12 years).

1.4.1 This focuses on youth in primary school grades P1 – P6 in the catchment area of the THPH. The program should support the schools to set up their own database of student's oral health and to create a schoolenvironment that is conducive to dental health such as availability of brushing bins??, and control of sources ofdrinking water and other beverages, snack outlets, etc. The school should have the ability to monitor the student's oral health over time.

1.4.2 Conduct an analysis of data of 1.4.1 and present summaries of findings to the school administrators, parents and hospital network in order to jointly set up a plan to promote oral health in the school setting.

1.4.3 Encourage the school to maintainan environment which is conducive togood oral health, e.g.,having a policy not to sell snacks which negatively affect oral health, and promote healthy consumption of Thai fruit and sweets.

1.4.4 Support the student leaders and teachers to conduct dental health coaching, and arrange various school-based activities, such as set times for group teeth brushing,and checking student's mouths after brushing teeth, etc.

1.4.5 Dental treatment

1) Sealants. The main target groups for this are all students inP1 (first permanent molars) and P6 (second permanent molars) who have a deeppit and fissure. If there is sufficient capability, material and budget,treatment can be extended to other students who have a deeppit and fissure.

2) The permanent tooth fillings, scaling and tooth extraction should beprovided according to each child's oral health needs.

1.4.6 Monitoring adherence of sealants and performing corrective action.

1.4.7 Monitoring and evaluation of oral health promotion activities in schools.

1.5 The population age13-59 years, the elderly and the chronically ill.

1.5.1Set dates for oral check-ups andinstructions on oral health carefor the population age 13-59 years, the elderly and the chronically ill at clinicsfor cases with diabetes, hypertension, reproductive health,and geriatric clinic, as well as occupational support groups and women's club in the community, along with home visits.

1.5.2Provide oral health knowledge training to the health opinion leaders.

2) Dental treatment in the THPH

2.1)THPH with no dental nurse.

Staff who have completed an oral health training course,can provide primary oral health care such as check-ups,or emergency treatment (e.g.,pain relief). The service outlet should post details where patients can get more advanced dental treatment, including address, days and hours of service.

2.2)THPH with dental nurses

The dental nurses can do all approved tasks as per the regulations of the MOPH,the Bangkok Metropolitan Administration (BMA), the localgovernment, the Red Cross, and theGeneral Dentistry Act of 1996. The dental nurse at the THPH can provide preventive treatment,emergency dental treatment, dental treatment and treatment of gingivitis by scaling. The details are as follows:

2.2.1Preventive Dentistry

(1) Use of fluoride to prevent tooth decay

(2) Use of sealant to prevent tooth decay

(3) Scaling and cleaning teeth to prevent gingivitis

2.2.2Emergency dental treatment

(1) Preliminary emergency dental treatment to reduce pain,ordrillfor drainage

(2) Basic first aid foremergency patients during and after dental treatment such as bleeding control

(3) Screening and referral of patients such as patients with systemic dental disease

2.2.3Dental treatment

(1) Diagnosis and screening of oral diseases

(2) Managing uncomplicated dental health casesby applyingtooth filling material

(3) Extractingteeth which are untreatable and without complications

2.2.4Periodontitis treatment by scaling.

Inproviding this dental treatment, the dental nurse must completely screen fororal healthand set up a continuous treatment plan up to their capacity to deliver. In case of referral, the dental nurses must explain the reasons for transfer or denying treatment to patients, provide advice on an appropriate service, and refer the patient to the appropriate site in the hospital network.

3) Outreachand integrated strategies fordental health care

In addition to routine oral health promotion and prevention services at the hospital,theoutreach strategy has the purpose of adding a community-based dimension to oral health care of the population. The outreachstrategy should be integrated with other applications.

4) Administration and knowledge management

4.1 Oral health care planning

Oral health care planning is an important activity, and the staff must set up the systematic working procedures in advance as a guideline for achieving the goals. The staff must review all relevant information, especially their own resources, indesigning the plan forsettingup primary and alternativeservices for of each target population group. The plan must comply with the key performance indicators (KPI)of the province and be tailored to the local dental disease context.

4.2 **The management of the oral health database: This** consists ofthe data collection, analysis, summarizingand reporting or distribution of thedata.The data must inform the evaluation of the results of all tasks. The database management also supports data collection and evaluation of all dental health activity results at the Tambon level.

4.3 **Control and evaluation of operations**

Control is the process of following, examining and correcting all matters to ensure that all operations aim toward the target point.The evaluation is the process to examine how successful the operations are,in order tomake corrections to implementation and improve operations going forward.

4.4 Material management and maintenance

Material management and the maintenance arenecessary for those staff who areresponsible forthe dental instrumentsand equipment since they must arrange the dental instrumentsand equipmentfor all patients, and in acondition that is suitable for use.Key tasks include the following:

1) Prepare the estimation of the quantity of dental material, instruments and equipment which will be necessary for all dental jobs, and submit this to the director of the THPH;

2) Set up an accounting system to control the dental material, instrumentsand equipment;

3) Maintain the dental instrumentsand equipment;

4) Set upa record keeping system with the data on the maintenance of dental instrumentsand equipment;

5) Prepare the data for replacement of dental instrumentsand equipment in case of expiration,and submit this to the director of the THPH for budget support.

4.5 Coordination with the other organizations.

It is important to coordinate with the staff of the THPH and link with outside organizationsto help achieve the dental health care targets.The activitiesof the dental staff in the THPH consist oforal health promotion and prevention of oral disease,dental treatment, outreachand integrated strategies of oral health care classified by age group,administration and knowledge management.These operations will form a comprehensive response to all fundamental oral health problems of the client population. (38)

The following are the seven KPIin dental work atthe PCU level:

1. Dental health promotion and prevention forpregnant woman
2. Dental health promotion and prevention in the WCC
3. Dental health promotion and prevention for theelderly population
4. Dental health promotion and prevention in day carecenters and kindergartens
5. Dental health promotion and prevention in primary school
6. Community participation and support
7.Preparation and provision of basic treatment

2.5 Dentalnursepreparation

- Sixbluidingblocks
- Preparation,oronboardingprocess,andorientation
- HealthBeliefModel(HBM)
- TheapplicationoftheHBMforthisstudy

2.5.1 Health system and six building blocks(39)

Health system basics(the following is adapted from a WHO document)

Any strategy for strengthening health systems needs a basic shared perception of what a health system is, what it is striving to achieve, and how to tell if it is moving in the desired direction.

- **What is a health system?**A health system consists of all organizations, people and actions whose *primary intent* is to promote, restore or maintain health.[2] This includes efforts to influence determinants of health as well as more direct health-improving activities. A health system is therefore more than the pyramid of publicly-owned facilities that deliver personal health services. It includes, for example, a mother caring for a sick child at home, private providers, behavior change programs, vector-control campaigns, health insurance organizations,and occupational health and safety legislation. It includes inter-sectoral action by health staff, for example, encouraging the Ministry of Education to promote female education, a well-known determinant of better health.

- **WHO guiding values and principles** The directions set out for WHO are determined by the values and goals enshrined in the **Alma Ata Declaration**, WHO's commitments on gender and human rightsand the World Health Report 2000.

- **Health system goals** Health systems have multiple goals. The World Health Report of 2000 defined overall health system outcomes or goals, such as improving health and health equity, in ways that are responsive, financially fair, and make the best, or most efficient, use of available resources. There are also important intermediate goals which are based on the principle that the route from inputs to health outcomes is through achieving greater access to and coverage for effective health interventions, without compromising efforts to ensure provider quality and safety.

A key purpose of the Framework is to promote common understanding of what a health system is and what constitutes health systems strengthening. Clear definitions and communication are essential. If it is argued that health systems need to be strengthened, it is essential to be clear about the problems, where and why investment is needed, what will happen as a result, and by what means change can be monitored. The approach of this Framework is to define a discrete number of "building blocks" that make up the system. These are based on the functions defined in World Health Report (2000). The building blocks areservice delivery; health workforce; information; medical products, vaccines and technologies; financing; and leadership and governance (stewardship).

The building blocks serve three purposes. First, they allow a definition of desirable attributes – what a health system should have the capacity to do in terms of, for example, health financing. Second, they provide one way of defining WHO's priorities. Third, by setting out the entirety of the health systems agenda, they provide a means for identifying gaps in WHO support.

While the building blocks provide a useful way of clarifying essential functions, the challenges facing countries rarely manifest themselves in this way. Rather, they require a more integrated response that recognizes the inter-dependence of each part of the health system.

The six building blocks of a model health system include the following:

- Good **health services** are those which deliver effective, safe, quality, personal and non-personal health interventions to those that need them, when and where needed, with minimum waste of resources.
- A well-performing **health workforce** is one that works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances (i.e., there are sufficient staff, fairly distributed who are competent, responsive and productive).
- A well-functioning **health information** system is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance and health status.
- A well-functioning health system ensures equitable access to essential **medical products, vaccines and technologies** of assured quality, safety, efficacy and

cost-effectiveness, and which are scientifically sound and cost-effectively used.

• A good **health financing** system raises adequate funds for health, in ways that ensure people can use needed services, and are protected from financial catastrophe or impoverishment associated with having to pay for them. It provides incentives for providers and users to be efficient.

• **Leadership and governance** involves ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system-design and accountability.

Since most health services imply interpersonal contact, human resources are crucial to the ideal health system. The term “human resources” is defined as to include all actors that are involved in health, including lay people, community actors and expert patients.. The “health workforce” is defined more narrowly as all people engaged in actions whose primary intent is to enhance health. This means primarily (para) professionals.The health workforce can only meaningfully contribute to the performance of the health system if health workers are available, competent and performing up to standards. (40)

2.5.2 Preparation or onboarding

The greatest challenge for integrated primary health care is the workforce. Requirements include training at all levels with strong managerial components alongside technical proficiency, appropriate supervision, development of teamwork, and implementation of incentives forgood performance.(41)

Preparation (or onboarding) is the process of assimilating new employees into the workplace and providing the knowledge and tools for them to achieve success early on in their new jobs. It is the bridge between selection and productivity, encompassing activities from pre-arrival through the end of the first year.(42)

A comprehensive preparation process fosters positive working relationships that help new employees to gain confidence and become productive quickly. It improves overall engagement, performance and retention through understanding of and connection to the job, department, hospital and health ministry. Preparation is an opportunityfor a supervisor to set goals and expectations, train and develop, and introduce new employees to the people and resources that will play a role

in performing their jobs effectively and advancing their careers. (43)

Effective preparation:

- Communicates the missions and visions of the health ministry, hospital and dental department
- Facilitates understanding of job expectations and performance management
- Helps new dental nurses see how they fit into the organization and contribute to its success
- Encourages teamwork and instills pride
- Improves services
- Ensures consistency in meeting legal requirements and compliance standards
- Promotes awareness of tools and resources for career management and work-life effectiveness
- Reduces dental nurse turnover

The**preparation process**shouldhelp reduce nurse turnover and increase new-hire effectiveness. An effective onboarding process isn't just a routine checklist; it should be a comprehensive process that makes the new employee feel comfortable and acquainted. When a new-hire anxiously walks in the door, they need an extra boost of confidence – and a structured, friendly introduction will help. Successful preparation leads to a successful organization.

2.5.3 HealthBelief Model (HBM)

In this study, theHBMwas applied.It was first developed by social psychologists HochbaumRosenstock and Kegel from the USA. (44)

The HBM is a psychological and theoretical model to explain and predict health behavior based on the concept that health behavior is determined by personal beliefs or perceptions about disease. (44,45)

At the time that the HBM was developed in the 1950sthere were two major theories: the Stimulus Response Theory (Thorndike, 1989; Watson, 1925, Hull, 1943) and the Cognitive Theory (Tolman 1932; Lewis 1935, 1951; Lewin, Dembo, Festinger and Sears, 1944). Stimulus Response theoristsbelieved that "learning results from

events or, in other words, reinforcement."Skinner (1938) said that "the frequency of a behavior is determined by its consequences or reinforcements."Cognitive theorists believed that behavior is a function of values or expectations. (44, 45)

In 1974,Becker described the HBM's history and its wide-ranging applications.In 1977, Maimen, et al, reviewed the HBM for measuring its several dimensions.The evolution of the model was continued by Marshall Becker, and the HBM is closelyrelated to the cognitive predisposing factors.The HBM has three major components: Individual perceptions, modifying behaviors, and likelihood of action (see Figure 1).

Individualperceptionsinclude perceived susceptibility and perceived severity that affect the individual perception of a disease.Modifyingfactors include demographic variables, perceived threats, and cues to action. The likelihood of action is the likelihood of taking the recommended preventive health action.

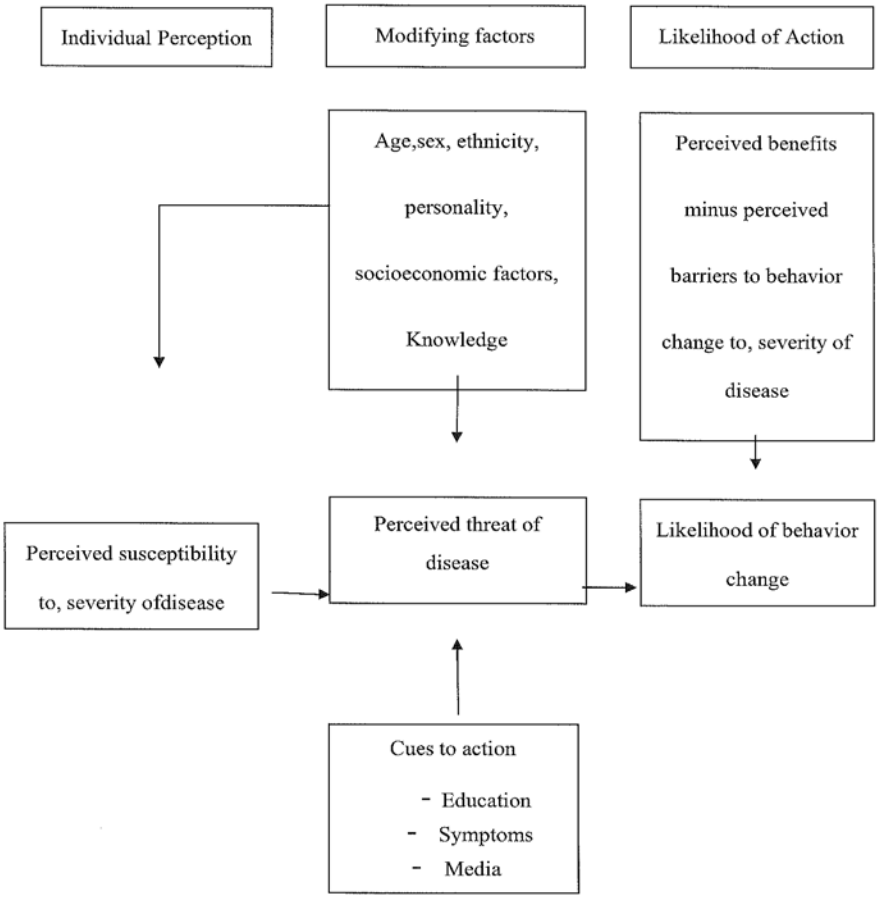


Figure 2.1 Health Belief Model Components and Linkages

Perceived Susceptibility – Those individuals at the high extreme of susceptibility feel there is real danger that they will experience an adverse condition or contract a given disease.

Perceived Seriousness –This refers to the beliefs that the effects created by a disease would present difficulties to the individual. Emotional and financial burdens should also be taken into account when considering the seriousness of a disease.

PerceivedBenefits of Taking Action – A person believes that the recommended action is beneficial and better than his or her current practice.

Barriers to Taking Action – Barriers are related to the characteristics of a treatment or preventive measures.For example,the recommended measures are inconvenient, expensive, unpleasant, painful or upsetting.

Cues to Action – A cue is a suggestion that an action is necessary for the desired behavior to occur.These cues may be internal or external.

Overall, the HBM is still the most frequently applied model.It is useful for programs and studies of health education and health behavior. It is still a valuable guide to practitioners is planning health education programs.

Perceived susceptibility: In this study, perceived susceptibility is the assessment by a chief of the dental department of community hospital of their ability to properly prepare the dental nurses under their management.

Perceivedseriousness:In this study, this is the judgment of the chief of the dental department of the community hospital regarding dental nurse preparation.

Perceivedbenefit: In this study, thisis the belief of the chief of the dental department of a community hospital that a particular action is beneficial.

Perceivedbarrier: In this study, thisis the belief of the chief of the dental department of a community hospital that a particular action is bad for them.

In this research, some modifying factors are considered such as gender, age, education, experience, and position among others. Similarly, knowledge is included under the psychological factors category as a modifying factor which is also made up ofindividual perceptions toward dental nurse preparation.For cues to action, only mass media, such as TV, brochures and advice from such sources as NHSO,

BoDH, the PHO, other chiefs of dental departments of community hospitals (senior, junior, friend) and others are considered in this research.

2.6 Previous related studies

2.6.1 Dental nurse preparation by thechief of the dental department of the community hospital

In Thailand, there have been no studies about factors related to preparation of the dental nursing workforce for working in or outside of the country. After a comprehensive review of the literature, there were nodirect references, documents or research found to support this study. However, there are some indirect research and documents relatedto this study.

Few early childhood care staff are well prepared to enter the field or to function optimally in their positions (Council of Chief State School Officer, 1988). To understand the complexity of this situation, it is necessary to examine the value of qualified staff, reasons for lack of staff preparation, what preparation staff need, and what could be done to provide appropriate preparation.(46)

Someprevious,indirectly-related researchincludes the study of Juntana Aungchusak, et al(47)on dental management of dental nurses in health centers from 1997 to 1998. The researchers found that dental nurses had to take responsibility fordental tasks and other non-dental health tasks such as administrative work, guarding the facilities, and curing non-dental patients. Similarly, Somyod Navikarn(48)found that a person had more stress when they had conflicting roles from several jobs, and this stress decreased their performance. In contrast, the study of Wanreudee Putong(49)showed that perception of executives towards expectation of beneficiaries and communication to beneficiaries were negatively related to role ambiguity.

In order to address human factors in workplace safety settings, peoples' capabilities and limitations must first be understood. The modern working environment is very different to the setting that humans evolved to deal with. There are a range of human characteristics that can lead to difficulty in interacting with the work environment. The typical examples of immediate causes and contributing factors

for human failures are given below:

Individual factors

1. low skill and competence level
2. fatigue
3. bored or disheartened staff
4. individual medical problems

Job factors

1. illogical design of equipment and instruments
2. constant disturbances and interruptions
3. missing or unclear instructions
4. poorly maintained equipment
5. heavyworkload
6. noisy and unpleasant working conditions

Organization and management factors

1. poor work planning, leading to high work pressure
2. poor standard operating procedures
3. lack of safety systems and barriers
4. inadequate responses to previous incidents
5. management based on one-way communication
6. deficient co-ordination and responsibilities
7. poor management of health and safety
8. poor health and safety culture.

It is concluded that human performance is strongly influenced by organizational, regulatory, cultural and environmental factors related to the workplace.

Factors related to dental nurse preparation mentioned above were compiled and combined into four criteria to measure dental nurse preparation by the chief of the dental department of the community hospital as the dependent variable in this study for managing their newly-arriving dental nurses that will work at the THPH

level. These factors include the following:

1. Action to promote dental nurse knowledge and skill, such as meetings, supervision or training courses which include all basic dental services in the THPH for dental nurses, dental project management and any management issues for work at the THPH.

2. Budget support, preparing budget for dental nurses to work at the THPH.

3. Dental material and equipment, to set appropriate dental material, equipment and dental chairs to enable proper use for dental nurses to work at the THPH.

4. Information system, including dental information and dental handbook support for working at the THPH

2.6.2 Socio-demographic factors

The socio-demographic factors of the chief of the dental department of the community hospital in this study covered seven aspects, namely gender, age, educational level, position, experience, other position and dental nurse preparation experience.

Gender

A study by Stone(2009) found a correlation between gender and performance. Various researchshows how males and femalesvary in terms of their job performance.Men andwomen did not differ on any of the leadership ratings but did differ for the interpersonal dimension.

Age

Age is one of the factors that affects the performance ofschool headmasters. The findings of research revealed that growing old giveswisdom, profound knowledge and deeper understanding of people, events andother happenings around them (Balawag as mentioned by Bulusan 2002 ascited by Montero 2010).Age also matters in management, and older managers tend to performbetter than younger managers. (Whitesitt as cited by Piguerra 2005 and mentioned by Montero

2012).Hence, Piguerra (2005) recommended that age must beconsidered in recruiting people for administrative positions in publicelementary schools. His study showed that age was related to themanagement capabilities of public elementary school administrators. In teaching, performance increases with age. As teachers grow olderthey tend to be more satisfied with their profession since they have lowerexpectations and better adjustment to their work situation (Rodes as cited byButuan, 1997).The age of the teacher-respondent influences his teaching performance(Gagabi 1999). Barrientos (2008) concluded that there exists a significantrelationship between the school administrator'sage and teacher'sjob.

Education level

There is a double challenge of increasing both the number and the quality of teachers. Recent studiesin Tennessee, Boston, and Texas in the US confirm that students taught by the mostqualified and effective teachers achieve at higher levels (Hirsch, 2000).Hammond (2000) claimed that analyses indicate thatmeasures of teacher preparation and certification are by far the strongestcorrelates of student achievement in reading and mathematics. However, Rice(2003), as cited by Goe (2007), found that there was no indicationof a difference in student outcomes for teachers who gained certificationthrough an alternate route. The correlationamong teacher'squalifications and student achievementvaried substantially across subjects. Teachers with master's degreescontributed marginally more to increase student mathematics scores than teacherswith only bachelor's degrees.

Position

When the teacher first joins the Department ofEducation, her/his government service starts and the level of Teacher I. After five consecutive years in service, he/she can file for promotion and bepromoted to theTeacher II position. The employee is given another promotion opportunity depending on his/her achievement during his/her service.

Experience

This refers to the number of years in the service as principal/school headmaster. In 2009, a study was conducted onthe “The Widget Effect of Our National Failure toAcknowledge and Act on Differences in Teacher Effectiveness” by DanielWeisberg, (2009). He reported that administrators recognized ineffectiveteaching in their schools. In fact, 81 percent of administrators and 58 percentof teachers saidthat some tenured teachersperformedpoorly, and 43 percent of teachers said there were tenured teachers whoshould be dismissed for poor performance. Teacher motivation naturally has to do with teacher's attitude toward work. It has to do with teachers'desire to participate in the pedagogical processes within the schoolenvironment and his/her interest in student discipline and control, particularly in theclassroom. Therefore, this factorcould underlie their involvement or non-involvement inacademic and non-academic activities, which operates in schools (Ofoegbu,2004). (50)

2.6.3 Knowledge and perception the chief of the dental department of the community hospitalconcerning dental nurse preparation

According to documents aboutmaternal dental health knowledge, perception of their children’s dental needs, and attitudes to oral disease prevention were important determinants of ECC prevalence and the oral health status of preschool children. On the other hand, a study by Mani S.A. et al.(2010) revealed that, despite having good levels of knowledge about causes of dental caries, the caregivers studied appeared to be unable to apply their knowledge in everyday practice. The poor practices may be due to cultural norms, which were also noted by the study of Matilla et al.(51)

Perception is closely related to attitudes. Perception is the process by which organisms interpret and organize sensation to produce a meaningful experience of the world (Lindsay & Norman, 1977). In other words, when a person is confronted with a situation or stimuli, the person interprets the stimuli into something meaningful to him or her based on prior experience. However, what an individual interprets or perceives may be substantially different from reality. (52)

Therefore, good knowledge and perception might relateto the good level of dental nurse preparation bythe chief of the dental department of a community hospital.

2.6.4 Sources of information regarding dental nurse preparation

Health communication is an approach to convey information with the goal of improving health outcomes by encouraging behavior modification and social change through the continuum of knowledge, beliefs, attitudes, and behaviors. Health communication strategies utilizing mass media (e.g., TV, print, and the Internet) have been associated with health beliefs and behaviors. More recently, the influence of social networks (i.e., the web of social relationships that surround an individual tied by a type of interdependency, such as friendship, kinship, or vocation/interests) on various aspects of health has been studied. These interpersonal relationshipsmay also besources of health information and have been associated with health beliefs and possibly behaviors.(53)Use of print media and interpersonal sources of health information are most consistently associated with self-reported health behaviors. Social network interventions to promote adoption of health behaviors should be further developed.

One previous study examined the relationship of self-reported adoption of disease prevention behaviors with types of health information sources. Use of friends and family, print, and Internet media were associated with increased self-reported preventive behaviors as reflected in a summary score including fruit and vegetable intake, daily exercise, and smoking abstinence.

Two kinds of sources of information measured inthecurrent study were mass media and information from other people in the respondents' surroundingsocial environment.

According to social cognitive theory of mass communication by Albert Bandura, humans have the ability to expand their knowledge by social learning such as learning from the symbolic environment of mass media, i.e., from television, and learning by observing people's actions and its consequences. Social learning occurs eitherdesignedly or unintentionally from models in one's immediate environment. A vast store of information about human values, styles of thinking, and behavior patterns is gained from the extensive modeling in the symbolic environment of the mass media.

There are two pathways forhow the communication system and media promote behavioral changes, directly and indirectly. In the direct way, communication media promote changes by informing, enabling, motivating, and guiding people. In the indirect way, media influences are used to link people to social networks and the community setting, which provide continued personalized guidance, natural incentives, and social support for desired behavioral changes.(54)

One is more apt to learn about new ideas and practices from brief contacts with casual acquaintances than from intensive contact in the same circle of close associates. People share information, give meaning by mutual feedback to the information they exchange, gain understanding of each other's views, and influence each other(55). Because of the numerous brief contacts people have with some role models, such as health center personnel and school teachers, these role models can be key persons in the process of behavior change.

More than one-half of the mothers with preschool children (studied in Thailand by Sithan H2003) admitted that they received dental health information from oral health professionals, and the rest obtained it from television and other mass media. Although no significant association with dental health behavior was found, this finding is important in evaluating the effectiveness of the dissemination of oral health information in promoting oral health (55)

2.6.5 Enabling factors and dental nurse preparation

There are many kind of enabling factors such as policy, assignment/directives, budget support, and management system among others. "Policy" is a law, regulation, procedure, administrative action, incentive or voluntary practice of governments and other institutions. Policy decisions are frequently reflected in resource allocation. Health can be influenced by policies in many different sectors. (56)

Therefore,good policy, assignment/directives, budget support and manpower management system of the organization will support the head of the dental department, and how individuals and groups perform together within an organization. Enabling factors refer to the best ways to manage individuals, groups, organizations, and processes to achieve organization goals.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Study design

This **cross-sectional descriptive study** included a six-month period of data collection. The survey aimed to identify the factors related to dental nurse preparation for working at THPH in Thailand. Data were collected using self-administered questionnaires filled out by the chief of the Dental Department of community hospitals. The questionnaire asked about dental nurse preparation for working at THPH.

3.2Study site

This study was carried out at the community (district) hospital level from provinces all over Thailand. The community hospitals in this study are classified as follows:

- F3 (First level3): A small community hospital which has less than 30 beds for in-patient service;
- F2 (First level2): A medium community hospital with 30-90 beds for in-patient service;
- F1 (First level1):A large community hospital with 90-120 beds for in-patient service;
- M2 (middle level): An extra-large community hospital with more than 120 beds for in-patient service.

3.3 Study population

The target population in this study comprised the chiefs of the Dental Departments of F1, F2, and M2 community hospitals under the Office of the Permanent Secretary of the MOPH. The sample universe was the 661 chiefs of Dental Departments in community hospitals.

3.4 Sample size

The desired sample size (n) was calculated using the proportion formula:

$$n = \frac{Z^2 NP(1-P)}{Z^2 P(1-P)+(N-1)E^2}$$

$$n = \frac{(1.96)2\ (661)(0.5)(1-0.5)}{(1.96)2\ (0.5)(1-0.5)+(661-1)(0.05)2}$$

$$n = \frac{634.8}{2.6}$$

n = 244

E = **5%** (acceptance error)

Z = 1.96(standard normal score at 95% of confidence interval)

N = **661** (total population of chiefs of Dental Departments working at F1, F2 community hospitals)

P = 0.5

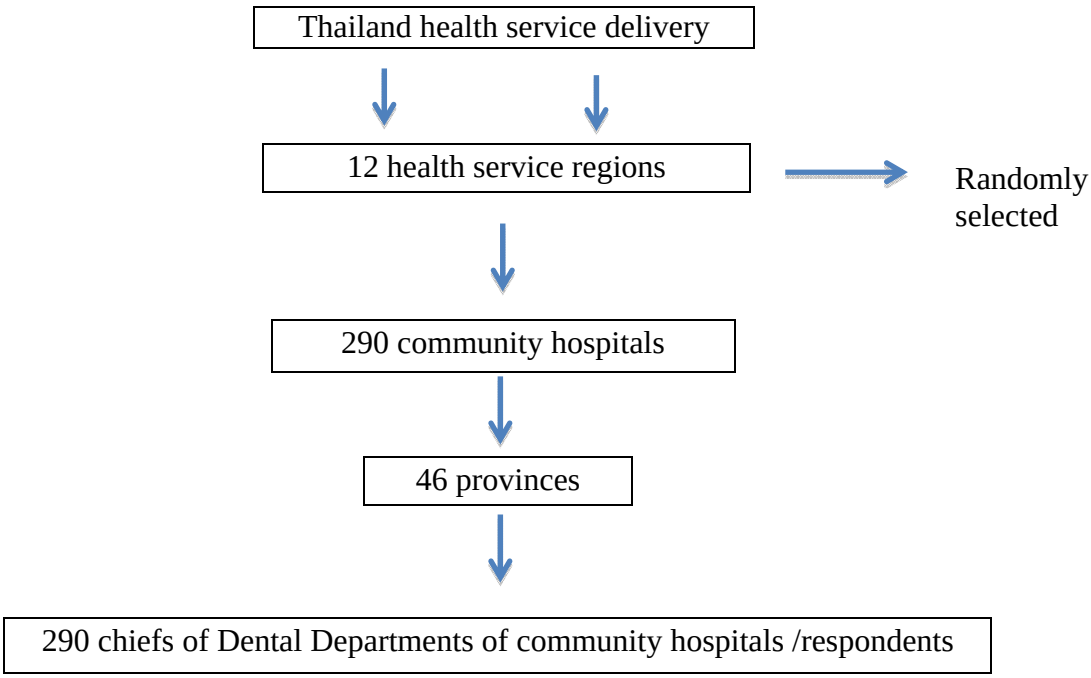
Applying the calculation from the formula above, the optimal net sample size shoud be 244. In this study, the sample size was increased by an adjustment factorto account for sample rejection due to incomplete data or withdrawal of participants from the study. The resulting, adjusted sample size was 290 chiefs of Dental Departments of community hospitals.

3.5 Sample selection

There were four kinds of community hospital: F1, F2, F3 and M2. The F3 sites comprised newly-opened or small (less than 30 beds) community hospitals, and these were not covered in this study due to the fact that often there were no dentists on staff at these smaller facilities. The other three types of outlets (F1, F2, M2) included the medium (30-90 beds), large (90-120 beds), and very-large size (more than120 beds) community hospitals, which always had a dentist on staff. The sample included acting chiefs of the Dental Department.

The sampling technique used was stratified sampling to randomly select 290 chiefs of Dental Departments who work at community hospitals from 76 provinces in 12 health service regions of the country. Each region was included as a sampling stratum. From those 12 regions, 46 provinces were sampled, and every community hospital in that province was included as a sample site. Thus, the total potential number of respondents was 290.

Table 3.1 Number of chiefs of Dental Departments of community hospitals by health service region



3.6 Research instrument

The instrument used in collecting the data wasa structured questionnaire which comprises 78 statements andquestions and is divided into six parts as follows:

1. Socio-demographic factors (9questions)
2. Psycho-social factors (10questions, 29 statments)
3. Enabling factors (4questions)
4. Cues to action (7questions)
5. Prepation of dental nurses for work at the THPH (10 questions)
6. Open-ended questions (9 questions)

Part 1: This part consisted ofninequestions about **socio-demographic characteristics**of the respondent. This includedgender, age, educational level, position, experience, other positions performed, and dental nurse preparation experience of respondents.

Part 2: This part consisted of 39statements andquestions related to **Knowledge** about preparation and management (ten multiple choices questions) and **Psycho-social factors** about perception (29statements).

There wereten questions on knowledge of the chief of the Dental Department regarding dental nurse preparation and management

Scoring method : Correct answer = 1

Incorrect answer = 0

Knowledge of each respondent classified into:

Good : total score > 60% of correct answers

Poor : total score <_ 60%.

A Likert scale was used to classifythe perception of the respondent toward denal nurse preparation according to the following 5-item scale:

“Most agree” = 5

“Agree” = 4

“Not sure” = 3

“Disagree” = 2

“Most disagree” = 1

There were 29 statements which covered perceived susceptibility, seriousness, benefits and barriers. The perceptionswerethen categorized into two levels:

High perception : total score > mean

Low perception : total score <_ mean

Part 3: Enabling factors (four questions)

These questions asked about enabling factors from the community hospital such as policy, assignment, budget support and manpower management system. The response options were 'Yes,' 'No' or 'Don't know.'

Scoring method: "Yes" = 1

"No" = 0

"Don't know" = 0

Part 4:Cues to action (sevenquestions)

These asked about the social support from media and persons surrounding the respondent. The response options were 'Get' or 'Don't Get'.

Scoring method: 'Get' = 1

'Don't Get' = 0

Part 5: Preparation of dental nurses for work at the THPH (ten questions)

These items asked about dental nurse preparation, includinghuman resource development, financing, dental material and information system preparation for dental nurses.

Scoring method: Answer "Do" = 1

Answer " Don't do" = 0

Dental nurse preparation of each respondent was classified into:

High level : total score > mean

Low level : total score <_ mean

Part 6 : Open-ended questions (nine questions)

These qualitative questions asked about the quality of the behavior, opportunity of development, and barriers to dental nurse preparation for working at the THPH, and the responses were used to give more explanation to the quantitative question answers.

In total, 78 questions were asked of the respondent.

Validity and reliability

The validity of the questionnaire was evaluated by three experts, and then pretested for reliabilitywith a group of 30 chiefs of Dental Departments of community hospitals, which have similar characteristics with the study population. The pretest was done in three provinces of southern part of Thailand.

The scores from the pretest were 0.68 (Kuder-Richadson formula/KR-20) for the knowledge part and 0.95 (Cronbach alpha) for the perception part.

3.7 Data collection

The researcher managed the data collection for study. Questionnaires were sent out to sample respondents and returnedduring the period from January 2014 to June2014. The process included the following steps:

1. Obtained the ethics approval from the Mahidol University Institutional Review Board, especially regarding the involvement of human subjects as the respondents for this study.

2. Obtained permission to conduct the study at the study sites from the Permanent Secretary of the MOPH.

3. Applied stratified sampling to select chiefs of Dental Departments of community hospitals, and mailed the questionnaires to the Dental Department of the sampled community hospitals.

4. Before filling out the questionnaire, the respondent read and signed a consent form which explained the purpose and the process of the study.

5. The respondents took approximately 20-30 minutes to complete the questionnaire. If the participants did not understand the meaning of a question, they

could call the researcher. If a participant felt confusedabout any question, the response was left blank.

6. After completion, the respondents sent the questionnaire back to the researcher by mail. The respondent was thanked for their cooperation and was given a small gift as a token of appreciation.

7. After receiving the questionnaires, the researcher and an assistant checked the data for completeness.

3.8 Data management and analysis

The data were entered into Epidata to be screened, cleaned, coded, and analyzed by Minitab. The analysis included the following methods:

- Descriptive statistics, using frequency tabulations and proportions to describe distribution of dental nurse preparation and its related factors;
- Chi-square test, correlation analysis and multiple logistic regression analysis were used to analyze and describe relationships between dental nurse preparation and related factors.

CHAPTER IV
RESEARCH RESULTS

This research was a cross-sectional study. The aim of this research was to identify the factors related to dental nurse preparation for working at THPH in Thailand. This study explored the relationships between dental nurse preparation with their socio-demographic characteristics, psychosocial factors(knowledge of preparation, perception of preparation), enabling factors and cues to action of chiefs of the Dental Department of community hospitals throughout Thailand.In addition, this study considered guidelines for improving the dental health system in THPH. Pre-testing of the questionnaire, the principal data gathering tool, was undertaken from December 1, 2013 to February 1, 2014.The data were collected from 290 chiefs of the Dental Department of community hospitals in 46 provinces by using a self-administered questionnaire. Out of a total of 352 respondents, 290 met the inclusion criteria. Of the 45 omitted, ten were not a chief of the Dental Department or acting chief, and seven were from F3community hospitals.

In this chapter, the results of the study are described in five sections namely: Socio-demographic characteristics, psychosocial factors, enabling factors, cues to action and dental nurse preparation, and the relationship between dental nurse preparation with their socio-demographic characteristics, psychosocial factors, enabling factors and cues to action.The data are presented using descriptive statistics in the initialpart of this chapter. The results of the analysis of the relationship betweendental nurse preparation with their socio-demographic characteristics, psychosocial factors, enabling factors and cues to action is presented in the latter part of the chapter.

4.1 Socio-demographic Characteristics

Well over half (57.2 %) of the sample of 290 respondents was between the ages of 35 and 60 years. The average age of the chiefs of the Dental Department was 36. Nearly two-thirds of respondents (62.4%) were female. The average duration of working as chief was 8.7 years. Nearly all (95%) had held other positions such as HA or member of the hospital or provincial dental board committee. Fully 42.4 percent had no experience with dental nurse preparation. And 60.3 percent had no special or other job obligation after official hours.

Table 4.1 shows that most (47.2%) of the respondents had a bachelor's degree. One-fifth of the respondents (21.0%) had achieved some post-graduate education, while 22.6 percent had received a master's degree in clinical curative care. Only two respondents (0.7%) had dental public health board certification.

The vast majority of the respondents (85.2%) held the position of chief of the Dental Department of the community hospital, and only 14.8 percent of total respondents were acting chief.

Half of the respondents (49.7%) had less than six years' experience of working as chief. One-fifth of the respondents (20.7%) had worked as chief for seven to 12 years, and 15.9 percent of respondents had worked as chief for 13-18 years, while 11.6had worked as chief 19-24 years, and only 2.1 percent had worked as chief for more than 25 years.

About half the respondents (46.5%) had a position on a provincial-level committee and one-tenth had a position on a regional-level committee. In contrast, only 4.1 percent had a position on a national-level committee, while 3.1 percent had no other position.

Nearly half of the respondents (45.2%) had 1-6 years of experience with dental nurse preparation, while 7.6 percent had 7-13 years, 3.1 percent had 14-18 years, and 1.7 percent had 19-24 years, while 42.4 percent had no experience with dental nurse preparation.

.

Table 4.1 Frequency and percentage of respondents by socio-demographic characteristics

Socio-demographic characteristics	**Number** (N = 290)	**Percentage** (%)
Gender		
Male	109	37.6
Female	181	62.4
Age Group(years)		
25 -29	57	19.7
30 - 34	67	23.1
35 - 39	61	21.0
40 - 44	61	21.0
45 or older	44	15.2
Mean = 36.3, SD = 7.21, Min = 25, Max = 59		
Education level		
Bachelor's degree	137	47.2
Post graduate	61	21.0
Master's degree	76	22.6
Dental public health board certification	2	0.7
Specialist board certification	12	4.1
Others	2	0.7
Position		
Chief	247	85.2
Acting chief	43	14.8

Table 4.1 Frequency and percentage of respondents by socio-demographic characteristics (cont.)

Socio-demographic characteristics	Number (N = 290)	Percentage (%)
Experience (years)		
1 – 6	144	49.7
7-12	60	20.7
13-18	46	15.9
19-24	34	11.6
25 or more	6	2.1
Mean = 8.73, SD = 7.41, Min = 0, Max = 33		
Other position		
None	9	3.1
HA or hospital committee member	276	95.0
Provincial level committee member	135	46.5
Region level committee member	29	10.0
National level committee member	12	4.1
Other	4	1.3
Experience with dental nurse preparation(years)		
None	123	42.4
1 – 6	131	45.2
7- 12	22	7.6
13- 18	9	3.1
19-24	5	1.7
25 or more	0	0
Mean = 4.65, SD 4.99, Min = 0, Max = 22		

4.2 Psychosocial factors

In this research, the psychosocial factors of the respondents were of two types, namely: knowledge of preparation and perception of preparation. The number and percentage distribution of chiefs' knowledge of preparation and perception of preparation are presented in this section.

4.2.1 Knowledge of preparation

Based on the number of their correct answers, each respondent was scored to judge their level of knowledge about preparation. A correct answer was scored as 1, and an incorrect answer was 0. Therefore, a maximum total score of 10 could be obtained. Correctly answering 6 to 10 items was considered good. Correctly answering 5 items or fewer, was regarded as poor.

In this study, the respondent's total score ranged from 1 to 9. Half of the respondents (51.0%) were considered to have a poor level of knowledge and 49.0 percent had a good level of knowledge of preparation, as shown in Table 4.3.

Table 4.2 Number and percentage of respondents by the level of knowledge about preparation

Level of knowledge*	**Number** (N = 290)	**Percentage** (%)
Poor	148	51.0
High	142	49.0

*Score: Good= 6-10, Poor= 0-5

Table 4.3 shows the number and percentage distribution of respondents by each item of knowledge about preparation by the comment describing the level of knowledge of each item. There are ten items in this table.

Three-fourths of the respondents (77.6%) knew that tellingtheobjective, assigning a trainer for the trainee and determining the proper time are the suitable topics for on-the-job training of dental nurses. Fully 74.8 percent knew that training, preparing (budget, material, information) and rotating dental nurses among different facilities are part of preparation. Over two-thirds(67.9 percent) knew that human preparation is the first process that should be done and this process is an important

determinant of success of the organization.

Only 30.3 percent of respondents knew that knowledge, skill and attention are the most important items in preparing the dental nurses for work in THPH, and 37.2 percent knew that human, financial, material and information systems are the components of the preparation of the best working stage. Just 39.3 percent correctly answered the question about the best method of teaching the dental nurse when she mishandles a situation.

Table 4.3 Number and percentage of respondents related to knowledge about preparation by item

Knowledgeaboutpreparation	Number (N=290)	Percentage (%)
1.In the preparation of work stage, human preparation is the first process that should be done and this process will be key to the success of the organization.	197	67.9
2.Workforce planning and recruiting process are the best preparation for the working stage.	139	47.9
3.Human, financial, material and information systems are the components of the preparation of the best working stage.	108	37.2
4. Policy determination is the responsibility of the hospital director that supports the dental nurse preparation for working in THPH.	194	66.9
5. Onboarding and orientation is a means of preparation.	129	44.5
6. Training, preparing (budget, material, information) and rotation of dental nurses for work in different work places are the activities of the preparation process.	217	74.8
7. Providing proper direction and assigning staff who have more experience for close supervision are the best methods of teaching the dental nurse when she mishandles a situation.	114	39.3
8. Tellingtheobjective, assigning the trainer for trainees and determining the proper time are the suitable matters for on-the-job training of dental nurses.	225	77.6
9. Knowledge, skill and attention are the most important items in preparing the dental nurses in THPH.	88	30.3
10.Preparation is the new management concept. It begins from the time of recruiting, setting a career path and planning for the future, including economic and social issues.	167	57.6

4.2.2 Perceptions of preparation

Regarding perception of preparation, 46.2 percent had a high level of perception of preparation. The detailed data are shown in Table 4.4.

Table 4.4 Number and percentage of respondents by level of perception of preparation

Perception	**Number** (N = 290)	**Percentage** (%)
Low	156	53.8
High	134	46.2

In addition to this, Table 4.5 shows the number and percentage distribution of the respondents regarding perception of preparation by item analysis.

In the perceived benefit part, most of the respondents agreed at an average level of 80 percent for each item, and they firmly agreed with the item "Preparation can ensure that a dental nurse will fulfill the objectives of the job" and "Preparation can decrease the errors of dental nurse's mishandling of a situation." For those items, the level of agreement was nearly 90 percent.

In the perceived barriers part, it is noteworthy that 48.3 percent of the respondents firmly agree that the "The chief of the Dental Department of the community hospital has no time for dental nurse preparation due to heavy work load" and only 25.0 percent disagreed that this issue is not the problem. Similarly, it is interesting that 32.4 of respondents agreed that "Administrators at all levels have no clear guidelines about how to prepare dental nurses for work at THPH" while 31.0 percent of respondents disagreed with this issue.

With regard to perceived ability, about 70 percent agreed with the item that they can provide training for dental nurses in anyway. By comparison, only half of respondents agreed with the item that they can provide budget to support dental nurses for working at THPH and they can sufficiently set up the project and budget to support dental nurses in THPH (even though there may be no dental funds from NHSO in the future). On the other hand, 84.5 percent of respondents agreed that they can provide dental equipment, and 67.9 percent can provide the dental equipment such as a Scaler, amalgamator, while only 60.0 percent can provide a Unit or Mobile unit for dental

nurses to work in THPH. Only 62.2 percent agreed that they can provide a handbook of the working knowledge for dental nurses in THPH, while 61.1 percent can provide a source of dental information data bank to support dental nurses in THPH.

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived benefit										
1) Preparation can ensure the dental nurse to start his/her duty properly when on job	111	38.3	119	41.0	36	12.4	18	6.2	6	2.1
2) Preparation can ensure dental nurses to fulfil the objectives of the job	121	41.7	141	48.6	23	7.9	3	1.0	2	0.7
3) Preparation can ensure dental nurses to have confidence on handling the job	136	46.9	122	42.1	25	8.6	7	2.4	0	0
4) Preparation can ensure dental nurses to manage the budget properly	61	21.0	153	52.8	65	22.4	7	2.4	4	1.4
5) Preparation can ensure dental nurses to handle treatment efficiently	107	36.9	140	48.3	40	13.8	3	1.0	0	0

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis (cont.)

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived benefit										
6) Preparation can ensure dental nurses to handle treatment effectively	98	33.8	144	49.7	45	15.5	3	1.0	0	0
7) Preparation can decrease incidents of a dental nurse's mishandling of a situation	109	37.6	150	51.7	28	9.7	3	1.0	0	0
8) Preparation promotes good relationships between the chief of the Dental Department and the dental nurse in THPH	106	36.6	144	49.7	35	12.1	2	0.7	0	0
9) Preparation promotes strong networks for dental public health in the community	95	32.8	128	44.1	64	22.1	3	1.0	0	0
10) Preparation creates the information exchange between the chief of the Dental Department and the dental nurses in THPH	94	32.4	155	53.5	34	11.7	6	2.1	1	0.3

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis (cont.)

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived barriers										
11) Chief of the Dental Department of community hospitals has no time for dental nurse preparation due to heavy work load	44	15.2	96	33.1	77	26.6	54	18.6	19	6.6
12) Chief of the Dental Department in community hospitals has no experience and knowledge to set up the preparation for dental nurses	41	14.1	66	22.8	66	22.8	85	29.3	32	11.0
13) Chief of the Dental Department in community hospitals has not realized the importance of the preparation for dental nurses	16	5.5	38	13.1	40	13.8	99	34.1	97	33.5
14) Chief of the Dental Department in community hospitals has no team work to set up the preparation for dental nurses	25	8.6	59	20.3	68	23.5	97	33.5	41	14.1

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis (cont.)

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived barriers										
15) The community hospitals have no policy to support the preparation for dental nurses	18	6.2	49	16.9	53	18.3	95	32.8	75	25.9
16) The community hospitals have no budget to support the preparation for dental nurses	33	11.4	60	20.7	77	26.6	81	27.9	39	13.5
17) Administrators at all levels have no clear guidelines about how to prepare dental nurses for work at THPH	20	6.9	74	25.5	106	36.6	71	24.5	19	6.6

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis (cont.)

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived ability										
18) You can handle on the preparation for dental nurses in THPH	35	12.1	152	52.4	79	27.2	17	5.9	7	2.4
19) You can set up a continuous training of the working procedure for dental nurses in THPH	26	9.0	162	55.9	82	28.3	14	4.8	6	2.1
20) You can set up on-the-job training for dental nurses before they start working in THPH	57	19.7	168	57.9	48	16.6	15	5.2	2	0.7
21) You can rotate dental nurses to study in the other departments to get knowledge on all working areas in THPH	50	17.2	178	61.4	43	14.8	15	5.2	4	1.4
22) You can support dental nurses to attend academic conferences	53	18.3	159	54.8	61	21.0	12	4.1	5	1.7
23) You can properly manage the budget for dental nurses working in THPH	24	8.3	141	48.6	92	31.7	28	9.7	5	1.7

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis (cont.)

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived ability										
24) You can sufficiently set up the project and budget to support dental nurses in THPH (even though there might not be any dental funds from NHSO in the future)	31	10.7	112	38.6	102	35.2	33	11.4	12	4.1
25) You can provide a Unit or Mobile unit for dental nurses in THPH within your area.	56	19.3	118	40.7	80	27.6	22	7.6	14	4.8
26) You can provide the dental equipment, e.g., Scaler…… to support dental nurses to work in THPH within your area.	67	23.1	130	44.8	71	24.5	16	5.5	6	2.1
27) You can provide the dental materials to support dental nurses to work in THPH within your area.	87	30.0	158	54.5	35	12.1	7	2.4	3	1.0

Table 4.5 Frequency and percentage of respondents related to perceptions of preparation by Item analysis (cont.)

Perception of preparation	Level of agreement									
	Strongly Agree		**Agree**		**Not sure**		**Disagree**		**Strongly Disagree**	
	(5)	%	(4)	%	(3)	%	(2)	%	(1)	%
Perceived ability										
28) You can provide a handbook of the working knowledge for dental nurses in THPH	47	16.2	145	50.0	77	26.6	18	6.2	3	1.0
29) You can provide a source of dental information data bank to support dental nurses in THPH	37	12.8	140	48.3	91	31.4	20	6.9	2	0.7

4.3 Cues to Action

Cues to action in this study include two variables: Mass media and advice from persons. Table 4.6 shows that the least number of respondents (29.7%) were exposed to Mass media (86 respondents) such as newspapers, television, and the Internet. The main human source of information was PHO personnel (92.1%), followed by senior chief of the Dental Department from other community hospitals(66.6 percent), friends (65.5 percent) and junior chief (48.6 percent). Similarly, 47.2 percent and 45.2 percent of the respondents accepted the advice from NHSO personnel and BoDH personnel, respectively, as their cues to action.

Table 4.6 Frequency and percentage of respondents related to source of information about dental nurse preparation

Sources of information	**Number** (N =290)	**Percent** (%)
1) Advice from NHSO personnel	131	45.2
2) Advice from BoDH personnel	137	47.2
3) Advice from PHO personnel	267	92.1
4) Advice from friend	190	65.5
5) Advice from juniorchief	141	48.6
6) Advice from seniorchief	193	66.6
7) Mass mediaexposure	86	29.7

4.4 Enabling factors

Enabling factors in this study include four variables: Hospital policy, hospital assignment, hospital budget support and hospital manpower management system. Table 4.7 shows that the proportion of community hospitals of respondents with a hospital manpower management system was73.4 percent, while 55.9 percent of community hospitals had hospital budget support for dental nurse preparation in THPH. In 55.2 percent of community hospitals, the director set the dental nurse

preparation as a hospital policy. In addition, about half of the respondents (53.8%) answered that hospital assignment was their enabling factor.

Table 4.7 Number and percentage of respondents related to enabling factors

Variables	Number (N = 290)	Percent (%)
1) Hospital policy	160	55.2
2) Hospital assignment	156	53.8
3) Hospital budgetsupporting	162	55.9
4) Hospitalmanpowermanagementsystem	213	73.4

4.5 Dental nurse preparation

The level of dental nurse preparation was measured by the total score of dental nurse preparation of each respondent and based on ten direct questions (i.e., four questions in the human preparation part, first question in the budget preparation part, all three questions in the dental material preparation part, and two questions in the information system part). Each ‘Do’ answer was scored 1, producing a total maximum score of 10. Respondents who answered ‘Do’ more than six times were considered to have a high level of dental nurse preparation, while those who answered ‘Do” 6 or fewer times were considered to have a low level of dental nurse preparation.

The distribution of the level of dental nurse preparation of chiefs of the Dental Department of community hospitals is shown in Table 4.8. Of the total respondents (290), 173 (59.7%) were classified as at a good level of dental nurse preparation. Similarly 117 respondents (40.3%) were classified as at a poor level of dental nurse preparation.

Table 4.8 Number and percentage distribution of dental nurse preparation of chiefs of the Dental Department of community hospitals in Thailand.

Dental nurse preparation	**Number** (N= 290)	**Percent** (%)
low preparation	117	40.3
high preparation	173	59.7

Table 4.9 shows the distribution of dental nurse preparation of chiefs of the Dental Department of community hospitals in Thailand in terms of the type of dental nurse preparation. There are ten items in this table and each item was answered by all 290 respondents. In each item, there are two classifications: 'Do' or 'Don't do'. The least preparation was in the areas of access to a data bank about dental health for supporting dental nurses at THPH (41.7 percent)and providing guidelines/handbook for those nurses (60.0 percent).Approximately three-fourths of respondents prepared training courses in planning, budgeting and management to support dental nurses at THPH in the district.

There was a higher level of preparation for providing dental material and equipment to support nurses at THPH (95.2 percent),while92.8 percent of the respondents set up the dental machines (Amalgamator, scaler) for dental nurses at THPH in the district, and 92.4 percent set up the dental curative care course to support dental nurses. Also, 91.4 percent of the respondents set up the dental unit or mobile unit to support dental nurses at THPH, and 86.2 percent set up the dental nurse preparation meeting with staff to prepare them for newly arriving dental nurses.

Table 4.9 Number and percentage of respondents related to dental nurse preparation by Item analysis

Preparationitems	Number (N = 290)	Percentage (%)
Human preparation		
1)You set up the dental nurse preparation meeting with your staff to prepare them to receive newly arriving dental nurses	250	86.2
2) You set up the dental curative care course to support dental nurses at THPH in your district	268	92.4
3) You prepare the training course about project management to support dental nurses at THPH in your district	228	78.6
4) You prepare the training course about project planning and setting up for budget defense to support dental nurses at THPH in your district	207	71.4
Financial preparation		
5)You prepare the budget to support dental nurses at THPH in your district	214	73.8
Dental material preparation		
6) You set up the dental unit or mobile unit to supporting dental nurses at THPH in your district	265	91.4
7) You set up the dental machines(Amalgamator, scaler) to support dental nurses at THPH in your district	268	92.8
8) You set up the dental material to support dental nurses at THPH in your district	276	95.2
Information system		
9)You provide guidelines or a handbook for dental nurses to support dental nurses at THPH	174	60.0
10) You provide access to a data bank about dental health to support dental nurses at THPH	121	41.7

4.6 Relationship between dental nurse preparation and socio-demographic characteristics, psychosocial factors, cues to action, enabling factors

In this section there are five sub-sections:

- 4.6.1: Relationship between socio-demographic characteristics and dental nurse preparation,
- 4.6.2 Relationship between the level of knowledge of preparation and preparation,
- 4.6.3: Relationship between the level of perception of preparation and the level of preparation,
- 4.6.4: Relationship between advice from persons and Mass media exposure and the level of dental nurse preparation of chiefs of the Dental Department of community hospitals,
- 4.6.5 Relationship between enabling factors and level of dental nurse preparation.

4.6.1 Relationship between socio-demographic characteristics and dental nurse preparation

Frequency distributions, Chi square and P-value of relationship between socio-demographic characteristics and dental nurse preparation are shown in Table 4.10. There are five age groups in this study. These groups are 25 – 29 years, 30 – 34years, 35 – 39 years, 40-44 years and 45 years or older. Among the younger (25 to 29 years) there was a moderate percentage (61.4%) with good levels of dental nurse preparation; 52.2 percent in next age group (30 to 34) and42.6 percent of 35 to 39 years age group had good levels of dental nurse preparation. Fully 73.8 percent in the 40 to 44 years age group and 72.7 percent of the group age 45 years or older had a good level of dental nurse preparation. It is concluded that there is a significant relationship between age group and dental nurse preparation at P – value of 0.002.

Moreover, it is also concluded that there is a significant relationship between sex and dental nurse preparation at a P – value of 0.049: 67.0 percent of males and 55.2 of females had a good level of dental nurse preparation.

The analysis found no statistically significant relationship between education, position, years of working as chief and dental nurse preparation (P – values of 0.313,0.650 and 0.109, respectively) at alpha = 0.05

A total of 137 (59.9%) with a bachelor's degree practiced a good level of preparation. In contrast, 36 (59.0%) with post-graduate education and 48 (63.2%) with a master's degree practiced a good level dental nurse preparation. According to Table 4.10, one-third of those with dental public health board certification and all of those with specialist board certification practiced good preparation.

With regard to position, it is statistically defensible to conclude that there is no relationship between chief or acting chief position and dental nurse preparation with a P – value = 0.65, where alpha error is equal to 0.05.The relationship between years of working as chief (1 -6, 7-12, 13-18, 19-24, 25 years or more)and dental nurse preparation is not significant, with a P – value = 0.109, where alpha error is equal to 0.05.

The p – values of the relationship between having other positions and dental nurse preparation were generated. The P - value for membership on a regional committee and/or national committee suggests that there is a relationship between having certain other positions and dental nurse preparation, but there is no relationship for having no other position or membership on the hospital or provincial committee with dental nurse preparation. The detailed numbers and percentage of good and poor dental nurse preparation are summarized in Table 4.10.

Table 4.10 Relationship between socio-demographic characteristics and dental nurse preparation

Socio-demographic characteristics		Dental nurse preparation					
		Low		High			
		N=177	%	N=113	%	Chi square	P-value
Gender	Male	36	33.03	73	66.97	3.885	0.149
	Female	81	44.75	100	55.25		
Age group	25 -29 years old	22	38.60	35	61.4	17.13	0.002*
	30 - 34 years old	32	47.76	35	52.24		
	35 - 39 years old	35	57.38	26	42.62		
	40 - 44 years old	16	26.23	45	73.77		
	45 years or older	12	27.27	32	72.73		
Education	Bachelor's degree	55	40.15	82	59.85	5.925	0.313
	Post graduate	25	40.98	36	59.02		
	Master degree	28	36.84	48	63.16		
	Dental public health board cert.	8	66.67	4	33.33		
	Specialist board cert.	0	0.00	2	100		
	Others	0	0.00	2	100		
Position	Chief	101	40.89	146	59.11	0.206	0.65
	Acting chief	16	37.21	27	62.79		

Table 4.10 Relationship between socio-demographic characteristics and dental nurse preparation (cont.)

Socio-demographic characteristics		Dental nurse preparation				Chi square	P-value
		Low		High			
		N=177	%	N=113	%		
Experience (years) of working as chief	1 -6	66	45.83	78	54.17	7.357	0.109
	7 -12	23	38.33	37	61.67		
	13 - 18	19	41.30	27	58.7		
	19 – 24	7	20.59	27	79.41		
	25 or over	2	33.33	4	66.67		
Other position							
None		5	55.56	4	44.44	0.36	0.549
HA or hospital committee member		110	39.86	166	60.14	0.57	0.313
Provincial level committee member		40	29.63	95	70.37	11.231	0.001*
Regional level committee member		6	20.69	23	79.31	4.805	0.033
National level committee member		3	25.00	9	75	0.65	0.42
Other		0	0.00	4	100		

4.6.2 Relationship between the level of knowledge of preparation and preparation

In Table 4.11, the number and percentage of respondents are divided into two groups according to the level of knowledge of preparation. The results of the Chi square test suggest that there is no relationship between the level of knowledge of preparation and dental nurse preparation with P = value 0.108 where alpha error is 0.05.

Table 4.11 Relationship between the level of knowledge of preparation and dental nurse preparation

Item	Dental nurse preparation				Chi square	P-value
	Low		High			
	N=177	%	N=113	%		
Knowledge						
Poor	53	35.81	95	64.19		
High	64	45.07	78	54.93	2.582	0.108

4.6.3: Relationship between the level of perception of preparation and the level of preparation

The number and percentage of respondents are summarized in two groups: high-level and low-level of perception. With reference to the P – value of 0.004 from the Table 4.12, there is a significant relationship between the level of perception of the respondents and their dental nurse preparation, where alpha error is 0.05.

Table 4.12 Relationship between the level of perception of preparation and dental nurse preparation

Perception of preparation	Dental nurse preparation				Chi square	P-value
	Low		High			
	N=117	%	N=173	%		
Low	75	47.17	81	50.94		
High	42	31.343	92	68.66	8.386	0.004*

4.6.4: Relationship between cues to action and the level of dental nurse preparation

Within the group of respondents who received advice from NHSO personnel, 66.4 percent of this group practiced good dental nurse preparation while 65.0 percent of respondents who received the advice from Bo DH personnel also practiced good dental nurse preparation. It is also interesting that 59.6 percent of respondents who received advice from PHO personnel, 64.7 percent of respondents who received advice from friend, 67.4 percent who received advice from the junior chief and 60.1 percent who received advice from the senior chief had good dental nurse preparation, whereas70.9 percent of respondents who received information from Mass media practiced good dental nurse preparation

The P – values are as follows: 0.035 for advice from NHSO personnel, 0.015 for advice from friend, 0.009 for advice from the junior chief, and 0.011 for advice from Mass media. These findings suggest that there is a significant relationship between advice from NHSO personnel, friends, junior chief, and Mass media with dental nurse preparation. On the other hand, the results suggest that there is no relationship between advice from BoDH personnel, PHO personnel, or senior chief and dental nurse preparation, where alpha error is 0.05.

Table 4.13 Relationship between of advice from persons and Mass media and dental nurse preparation

Sources of information		Dental nurse preparation				Total	Chi square	P-value
		Low		High				
		N=117	%	N=173	%			
Advice from	NHSO personnel	44	33.6	87	66.4	131	4.53	0.035*
	BoDH personnel	48	35.0	89	65.0	137	3.04	0.081
	PHO personnel	108	40.5	159	59.6	267	0.015	0.902
	Friend	67	35.3	123	64.7	190	5.912	0.015*
	Junior chief	46	32.6	95	67.4	141	6.79	0.009*
	Senior chief	77	39.9	116	60.1	193	0.048	0.826
Mass media		25	29.1	61	70.9	86	6.458	0.011*

4.6.5 Relationship between enabling factors and level of dental nurse preparation

Within the group of respondents who received the policy from the hospital director,68.8 percent practiced good dental nurse preparation while 77.2 percent of respondents who received a directive from the hospital director also practiced good dental nurse preparation. It is also interesting that 67.3 percent of respondents who received budget support and 65.7 percent who had a manpower management system in their community hospital had good dental nurse preparation.

Table 4.14 below shows the association of enabling factors with dental nurse preparation. The results show a significant association between all the enabling factors and dental nurse preparation. The P – values are as follows: 0.01 for policy from hospital director, 0.00 for receiving assignment from hospital director, 0.002 for budget support, and 0.002 for having a manpower management system in the community hospital. These findings suggest that there is a significant relationship between policy, assignment, budget support and manpower management system in community hospitals and dental nurse preparation.

Table 4.14 Relationship between enabling factors and dental nurse preparation

Enabling factors	dental nurse preparation				Total	chi square	P-value
	Low		High				
	N=117	%	N=173	%			
Hospital policy	50	31.3	110	68.8	160	15.13	0.01*
Hospital assignment	45	28.8	111	71.2	156	26.46	0.00*
Hospital budget support	53	32.7	109	67.3	162	12.45	0.002*
Hospital manpower management system	73	34.3	140	65.7	213	12.4	0.002*

4.7 Predictive factors for dental nurse preparation

The Chi-square test was applied to test the relationship between the dental nurse preparation and each of the independent variables. For additional analysis, multiple logistic regression was used to determine the predictive factors of dental nurse preparation of chiefs of community hospitals.

There were ten independent variables associated with dental nurse preparation of chiefs of community hospitals, and all those variables are included in the full model. Table 4.15 presents the results of the full model. Age group and advice from NHSO personnel were not found to be significant predictors of dental nurse preparation. The significant factors in the full model are retained in the final model to identify the significant predictors of dental nurse preparation by the chief of Dental Department of community hospitals.

Table 4.15 Full model multiple logistic regression of dental nurse preparation by associated factors

Predictors	Adjusted OR	95 % CI		P –value
		lower	Upper	
Age group				
>=35	1.522	0.950	2.440	**0.081**
<35	1			
Group of perception				
Low	1			
High	2.028	1.253	3.283	**0.004***
Hospital policy				
No	1			
Yes	2.340	1.448	3.780	**0.001***
Hospital assignment				
No	1			
Yes	2.865	1.764	4.653	**0.000***
Hospital budget support				
No	1			
Yes	2.057	1.276	3.315	**0.003***
Hospital manpower Management system	1			
No	2.557	1.501	4.356	**0.001***
Yes				
Advice from NHSO				
No	1			
Yes	1.678	1.040	2.708	0.034
Advice from friend				
No	1			
Yes	1.836	1.122	3.003	**0.016***
Advice from junior chief				
No	1			
Yes	1.880	1.167	3.028	**0.009***
Mass media				
No	1			
Yes	2.004	1.167	03.443	**0.012***

After adjusting among factors, significant predictors of dental nurse preparation for chiefs of the Dental Department of community hospitals are age group, perception, hospital assignment and advice from junior chief. The chiefs of the Dental Department who are 35 years or older were 1.68 times more likely to have a high level of preparation for dental nurses than those under 35 years (95% CI, 1.015 – 2.799, $p < 0.05$). Chiefs of the Dental Department of community hospitals who had high perception of nurse preparation are 2.18 times more likely to have a high level of preparation than those who had low perception (95% CI, 1.307 – 3.635, $p < 0.01$). Chiefs who had a hospital assignment were 2.86 times more likely to be highly prepared than those who had no hospital assignment (95% CI, 1.730 –4.735, $p < 0.001$). Chiefs who were advised by a junior chief were 2.16 times more likely to have a high level of preparation than those who had no advice from a junior chief (95% CI, 1.292 – 3.594, $p < 0.01$).

Table 4.16 Final model of predictors of dental nurse preparation

Predictors	Adjusted OR	95 % CI		P-value
		lower	Upper	
Age Group				
<35	1			
>=35	1.686	1.015	2.799**	0.003
Group of perception				
Low	1			
High	2.179	1.307	3.635*	0.044
Hospital assignment				
No	1			
Yes	2.862	1.730	4.735***	0.000
Advice from junior chief				
No	1			
Yes	2.155	1.292	3.594**	0.003

* P value <0.05, ** P value <0.01,*** P value <0.001

CHAPTER V
DISCUSSION

In this chapter, the results of the study are discussed. This cross-sectional descriptive study was designed with the aim to identify the factors related to dental nurse preparation for working at THPH in Thailand. Its special objectives were to describe characteristics of factors and dental nurse preparation for THPH, and identify the relationship between the independent variables and dental nurse preparation for THPH. A total of 290 chiefs of Dental Departments of community hospitals in 46 provinces of all regions of Thailand were involved in this study. In this chapter the following issues are discussed:

1. Dental nurse preparation of chiefs of the Dental Department of community hospitals in Thailand.
2. Relationships between socio-demographic characteristics and dental nurse preparation of respondents.
3. Relationships between psycho-social factors and dental nurse preparation.
4. Relationships between cues to action and dental nurse preparation.
5. Relationships between enabling factors and dental nurse preparation.
6. Factors predicting preparation.
7. Methodological concerns regarding the study.

5.1 Dental nurse preparation of chiefs of the Dental Department of community hospitals in Thailand

Preparation, or on boarding, also known as organizational socialization, refers to the mechanism through which new employees acquire the necessary knowledge, skills, and behaviors to become effective organizational members and insiders.(57) Tactics used in this process include formal meetings, lectures, videos,

print materials, or computer-based orientations to introduce newcomers to their new jobs and organizations. Research has demonstrated that these socialization techniques lead to positive outcomes for new employees such as higher job satisfaction, better job performance, greater organizational commitment, and reduction in occupational stress and intent to quit. These outcomes are particularly important to an organization looking to retain a competitive advantage in an increasingly mobile and globalized workforce. In the United States, for example, up to 25% of workers are organizational newcomers engaged in an on boarding process.(58)

In Thailand, there has been no study about factors related to preparing the dental nursing workforce for work in and outside of the country. The re fore there is no reference or other related document so research to support this discussion of findings. However, indirect research and documentation or experience are used to expand on the results of this study.

Thisresearchshowedthat59.7 percent of respondents were classified as having a good level of dental nurse preparation whilst 40.3 percent had a poor level of dental nurse preparation.

Wijaranaphiti studied factors related to performance effectiveness and found that when the dental nurses had more stress caused by role conflict with internal standards, and having to perform several roles, their performance effectiveness was reduced.(59)

This research showed that only 41.7 percent of the study respondents provided access to a data bank about dental health for supporting dental nurses to work at THPH, and 60.0 percent of the study respondents provided guidelines/handbooks for dental nurses. Therefore, it is suggested that much more effort should be applied in promoting “What/Why/How” to use information. The Dental Departments of community hospitals should be setting up data banks and providing guidelines for preparing their dental nurses.

Heavy workload and having to perform multiple roles is part of the dental nurse’s job description. It is important and necessary to describe all of this clearly during orientation. As part of proper preparation for dental nurses assigned to THPH, the data bank and guidelines should be provided and applied.

This research found that 71.4 percent of the study respondents prepared the training course about project planning and budget support for dental nurses to work at THPH, and 78.6 prepared the training course about project management to support dental nurses to work at THPH. Therefore, more encouragement should be provided for chiefs of the Dental Department of community hospitals to set up the training course about project planning, project management and budget support for dental nurses who will work at THPH.

WHO has recommend six building blocks as important pillars in a model health system, comprised of human resources, finance, material, information system, health service delivery, governance and leadership.(39)

In this research, it was found out that 73.8 percent of the study respondents prepared the budget to support dental nurses to work at THPH in their district. Setting the financial foundation for dental healthcare is critical, whether from community hospitals, NHSO or the Ministry of Finance. If dental health systems are to be strengthened, where is more spending most needed? How and by whom should it be financed and how can that financing be sustained? How can financiers monitor the progress of change? What indeed are the characteristics of a “strengthened system” and how can they be measured?(40)

Therefore all chiefs of the Dental Departments of community hospitals should be firmly encouraged to prepare a budget for sustaining dental nurses at THPH. In this research, 95.2 percent of the study respondents usually provided dental material and equipment to support dental nurses to work at THPH. Fully 92.8 percent set up the dental machines (Amalgamator, scaler) and 91.4 percent deployed the dental unit or mobile unit to support dental nurses at THPH.

Material and drugs is one of four of resource categories in the six building blocks of the health system promoted by WHO. Most chiefs of the Dental Department of community hospitals prepared dental material and equipment. This confirms that the chiefs had good management skills and good program direction. All chiefs of the Dental Departments of community hospitals should be encouraged to prepare appropriate material and equipment to support dental nurses to work at THPH continuously over time.

In this research, 92.4 percent of the study respondents set up a dental curative care course to support dental nurses to work at THPH in their district.

A dental care program which includes a service plan is one of the most important keys in the six building blocks of the WHO health system. All chiefs of the Dental Departments should be encouraged to prepare a dental service course to support dental nurses for work at THPH.

In this sample, 86.2 percent of the study respondents usually set up the meeting with their staff to prepare for newly arriving dental nurses. The data suggest that chiefs of the Dental Departments were generally well-prepared for his variable.

5.2 The relation ships between socio-demographic characteristics and dental nurse preparation of respondents

There have been no Thai studies about any factors influencing dental nurse preparation. Therefore, this study is the first to examine the relationship between socio-demographic characteristics and dental nurse preparation in Thailand.

Well over half (57.2 %) of the sample were between the ages of 35 to 60 years. The mean age of the chiefs of the Dental Departments was 36. Fully 62.4 percent of respondents were female (181 chiefs). The majority (47.2%) had abachelor's degree. Of the total, 14.8 percent were in an acting-chief position. The mean years of working as chief was 8.7. Most (more than 95 percent) held other positions such as HA or member of a hospital or provincial dental board committee. Fully 42.4 percent had no experience about dental nurse preparation, and 60.3 percent had no special job or other work obligation after official work hours.

The data in Table 4.10 show that there is no relationship between gender, education level, position, years of working as chief, other positions held, experience of dental preparation, special/other job after official work hours and dental nurse preparation. Therefore, it seems that most of socio-demographic characteristics were not associated with dental nurse preparation.

The results of Chi square tests of the relationship between socio-demographic characteristics and dental nurse preparation are shown in Table 4.10.

Age group initially had a significant bivariate relationship with level of dental nurse preparation at P – value 0.002. However, in the final analysis model (Table 4.15),age group was not found to be a significant predictor of dental nurse preparation for chiefs of community hospitals.

In sum, nearly all of socio-demographic characteristics were not significantly associated with dental nurse preparation. A possible explanation is that the persons assigned the role of chief of the Dental Department of community hospitals are not always trained administrators. Training for dentists is centered on treatment and care, rather than administration. Thus, the management part of the chief's job description may be neglected and, therefore, their socio-demographic characteristics are irrelevant to their management performance.

5.3 Relationship between psycho-social factors and dental nurse preparation of respondents

5.3.1 Knowledge of preparation

Data from Table 4.2 show that the knowledge of half of the chiefs (51.0%) was poor while49.0 percent had a good level of knowledge of preparation. Table 4.11 presents the results of the Chi square test which suggest that there is no relationship between the level of knowledge of preparation and dental nurse preparation(P – value 0.108 where alpha error is 0.05).Overall, it would seem that the level of knowledge of preparation wasnot associated with dental nurse preparation.

5.3.2 Perception of preparation

Based on the analysis, it is possible to conclude that there is a significant relationship between the level of perception of the respondents and their dental nurse preparation(P – value = 0.004, alpha error is 0.05)(Table 4.12). Further more, multiple logistic regression analysis to determine the significant factors which can be predictors of dental nurse preparation found that chiefs of the Dental Department who had high perception were 2.18 times more likely to properly prepare dental nurses than those

who had low perception (95% CI, 1.307 – 3.635, p < 0.01).This finding is logical in that a high perception of the value of preparation actually practiced more preparation than the low perception group. In addition, high perception is probably associated with better under standing about the effects and benefits of the preparation. Higher perception can generate higher sense of responsibility and more preparation.

Juntana Aungchusak, et al,conducted a study of management of dental nurses in health centers from 1997 to 1998. They found that dental nurses had to take responsibility for dental tasks as well as other demanding tasks such as administrative work, guarding the premises, and providing curative are for non-dental patients. Thus, there was a mismatch of some tasks with the dental nurse training.(60)

The high perception group might have good attitudes and knowledge about dental work at the THPH. Therefore, they will be more inclined to create at raining course for dental nurses about dental tasks, non-dental administrative work, and providing curative care for non-dental patients when working at a THPH. These are the important parts of dental nurse preparation at the sub-district level.

5.4Relationships between cues to action and dental nurse preparation

Mass media

Table 4.13 shows that 70.9 percent of respondents who received information from Mass media practiced good dental nurse preparation. This suggests that Mass media channels are an efficient way to communicate with the chiefs of the Dental Departments of community hospitals. The P – value of 0.011 for the association of Mass media suggests that there is a significant relationship between Mass media and dental nurse preparation. Therefore, Mass media is one means of effectively communicating information about health-related issues to the chief of the Dental Department of community hospitals.

Moreover, social media may be an influential way to communicate among dentists and can also be used in distributing information about dental nurse preparation, especially through LINE applications, Face book and any popular dental website. Therefore, the information about dental nurse preparation via social media

might be an effective way to motivate the chiefs of the Dental Department of community hospitals to conduct more and better dental nurse preparation.

Advice from persons

The study showed that92.1 percent of chiefs received advice from PHO personnel,66.6 percent from the senior chief of the Dental Department of *other* community hospitals, 65.5 percent from friends, and 48.6 percent from the junior chief. Similarly 47.2 percent of the respondents cited the advice from NHSO personnel, and 45.2 percent cited advice from the BoDH personnel as their cues to action.

Within the group of respondents who received advice from NHSO personnel, 66.4 percent of this group practiced good dental nurse preparation, while 65.0 percent of respondents who received the advice from BoDH personnel also practiced good dental nurse preparation. It is also interesting that 59.6 percent of respondents who received advice from PHO personnel, 64.7 percent of respondents who received advice from friend, 67.4 percent who received advice from a junior chief, and 60.1 percent who received advice from a senior chief had good dental nurse preparation, whereas 70.9 percent of respondents who received information from media practiced good dental nurse preparation. The P – value of 0.035 for the association of advice from NHSO personnel, suggests that there is a significant relationship between advice from NHSO personnel and dental nurse preparation.

Advice from NHSO is influential for Dental Department chiefs because of the long-term relationship and trust between the two groups. The chiefs realize that the NHSO is public organization dedicated to good management, is knowledge-based, and provides consistent and meaningful support to the district and sub-district levels. The NHSO mandate is to create health security for every Thai citizen. The universal health coverage system is responsible for developing a service system which is easily accessible, with an effective information system for communications. The NHSO implements an evidence-based system of health care delivery, and enables the public to have freedom of choice in registering with a health care provider that is convenient and essential(www.NHSO.go.th.). Thus, Dental Department chiefs have confidence in the NHSO.

At the same time however, advice from PHO personnel should not be neglected, even though there is no statistical relationship between receiving advice from PHO personnel and dental nurse preparation of the respondents. Fully 92.1 percent of chiefs of the Dental Departments of community hospitals have regular and close contact with the PHO, and the PHO is still the main channel for sending/receiving relevant information to/from national, regional or other offices for chiefs of the Dental Department of community hospitals. On the other hand, an overflow of information on policy, strategies and work-related issues from the PHO to Dental Department chiefs could result in a burden of information and result in some information being ignored or neglected. This could represent a lost opportunity to influence the chiefs of community hospital Dental Departments to strengthen nurse preparation.

In this study, advice received by chiefs of the Dental Department of other community hospitals (friend, junior chief) was firmly associated with dental nurse preparation. The P – value of 0.015 for advice from a friend, and the P – value of 0.009 for advice from a junior chief suggest that this association is statistically significant. Many department chiefs are friends, classmates, or junior-seniors from the same dental education faculty or institution. These close and long-term relationships result in trust and belief in advice from their peers. In particular, the junior chief may be the most proximal source of new knowledge and information. Therefore, advice from a junior chief was an influential factor for chiefs of the Dental Department of community hospitals to prepare dental nurses.

5.5 Relationship between enabling factors and dental nurse preparation Hospital policy

In this study, 55.2 percent of community hospital directors set dental nurse preparation as a policy. Within the group of respondents who received this hospital policy, 68.8 percent practiced good dental nurse preparation. The results of Chi square test shown in Table 4.14 also confirm that there is a significant relationship between hospital policy and level of dental nurse preparation of chiefs of the Dental Department of community hospitals(P – value = 0.01 where alpha error is 0.05).

Hospital assignment

In this study, 53.8 percent of respondents were assigned to conduct dental nurse preparation by their community hospital director. Within this group, 77.2 percent practiced good dental nurse preparation. The results of the Chi square test shown in Table 4.14 also confirm that there is a significant relationship between hospital assignment and level of dental nurse preparation of chief of the Dental Department of community hospitals (P – value = 0.00 where alpha error is 0.05).

The hospital director is the most proximal commander and manager of staff in community hospitals. In the Thai officer culture, staff are trained to trust and follow the hospital director's policy, assignment or directives for good and smooth work. Thus, hospital policy and assignments from the direct line of command are an efficient way to ensure that the chief of the Dental Department of community hospital practices good dental nurse preparation.

Hospital budget support

In this study, 55.9 percent of respondents received budget support for dental nurse preparation for work in THPH. Within this group, 67.3 percent practiced good dental nurse preparation. The results of the Chi square test shown in Table 4.14 also confirm that there is significant relationship between budget support and level of dental nurse preparation(P – value = 0.002 where alpha error is 0.05).

Hospital manpower management system

In this study, 73.4 percent of community hospitals of respondents had a hospital manpower management system. Within this group, 65.7 percent practiced good dental nurse preparation. The results of the Chi square test shown in Table 4.14 also confirm that there is significant relationship between respondents who had a hospital manpower management system and level of dental nurse preparation(P – value = 0.002 where alpha error is 0.05).

5.6 Factors predicting dental nurse preparation

Multiple logistic regression was used to analyze all the associated independent variables to determine the significant predictors of dental nurse preparation. These factors include age group, perception, assignment and advice from a junior chief. The final model shows that the chiefs of the Dental Department of community hospitals who were age 35 years or over were 1.68 times more likely to conduct preparation of dental nurses to work at THPH than chiefs who were under 35 years (95% CI, 1.015 – 2.799, $p < 0.05$). Chiefs who had a high perception were 2.18 times more likely to conduct preparation of dental nurses than those who had a low perception (95% CI, 1.307 – 3.635, $p < 0.01$). Chiefs who had assignments from their superior were 2.86 times more likely to conduct preparation of dental nurses than those who had no such assignment (95% CI, 1.730 – 4.735, $p < 0.001$). Furthermore, chiefs who were advised by a junior chief were 2.16 times more likely to conduct preparation of dental nurses than who had no advice from a junior chief(95% CI, 1.292 – 3.594, $p < 0.01$).

In this study, hospital assignment and advice from another chief were the most significant predictors of dental nurse preparation by chiefs of the Dental Department of community hospitals. These two factors are more significant after adjusting the final model

5.7 Methodological concerns regarding the study

This cross-sectional descriptive study was designed to identify the factors related to dental nurse preparation for working at THPH in Thailand. The target population in this study comprised of the Chiefs of the Dental Departments of F1, F2 and M2 community hospitals under the MOPH. There are a total number of 661 chiefs of the Dental Departments in community hospitals throughout the country. A sample was carried out of Dental Departments in 12 regions and 46 provinces in Thailand. These provinces were chosen randomly from all76 provinces of Thailand. A sample of 290 chiefs of Dental Departments who work at community hospitals were the respondents of this study. Before conducting data collection, 30community hospitals were chosen to pretest the self-administered questionnaire. Final data collection was

conducted during February 1 to April 1, 2014.The data were entered into Epidata where it was screened, cleaned, coded, and analyzed by Minitab. Standardized procedures were used for recording and analyzing the data.

Descriptive statistics and the Chi square test was used for univariate and bi-variate analysis. Multiple logistic regression was used to analyze the relationship between dental nurse preparation of chiefs of the Dental Department of community hospitals and their socio-demographic characteristics, psycho-social factors, enabling factors and cues to action.

Simple random sampling may not match to this study. Therefore, Researcher designed a stratified random sampling for this research since the population had been studied was the Chief of dental department of community hospital around Thailand. The coverage for the samples was on every part of Thailand , it is possible to evade bias and get samples that are representative of all population.

Similarly with “Selected factors related to work morale of dentists in general hospital, ministry of public health” by Kingkeaw Kuankhao. The study was to investigate work morale and selected factors related to work morale of dentists in General Hospitals, the Ministry of Public Health. A sample of 204 dentists were selected by stratified random sampling from 409 dentists in General Hospitals around country.

CHAPTER VI
CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the conclusions of the research will be described, and further dental nurse preparation measures will be recommended.

6.1 Conclusions

This research was across-sectional descriptive study. The study was conducted in community hospitals from 46 provinces from all regions of Thailand. The target population was the chief of the Dental Department of F1, F2, and M2 community hospitals under the MOPH. The sampling universe was all 661 chiefs of the Dental Department in community hospitals. The aim of the study was to identify the factors related to dental nurse preparation for working at THPH in Thailand. The sample size was 290 chiefs, obtained using stratified random sampling.

The research instrument was a self-administered, structured questionnaire. The questionnaire was translated into Thai from English. The translated questionnaire was pretested for reliability. The result of KR 20 for the knowledge part of the questionnaire was 0.68, and Cronbach's Alpha for the perception part of the questionnaire was0.95.

The data collection was done during the January to June2014. The collected data were analyzed by using Minitab software. The Chi square test or Fisher's exact test was used for the analysis of association between dental nurse preparation of chiefs of the Dental Department of community hospitals and their socio-demographic characteristics, psycho-social factors, cues to action and enabling factors.

From the results of this study, it can be concluded that:

1. More than one-half of the respondents (57.2 %) were 35 to 60 years old. The mean age was 36. Nearly two-thirds (62.4%) were female. Almost half

(47.2%)had a bachelor's degree and 14.8 percent were in an acting-chief position. The mean number of years working as chief was 8.7. Most (95.0%) had other positions such as HA or member of a hospital or provincial dental board committee, and nearly half (42.4%) had no experience about dental nurse preparation.

2. For psycho-social factors, half of the respondents (51.0%)had a poor level of knowledge of preparation and 53.8 percent had a low level of perception of dental nurse preparation.

3. For cues to action, 29.7 percent of respondents were exposed to related media, most (92.1%) received advice from the PHO whilst66.6 percent, 65.5 percent and 48.6 percent received advice from a senior chief of another hospital, the junior chief, or a friend, respectively. Almost half (47.2 percent) of the respondents accepted advice from the NHSO and 45.2 percent accepted advice from personnel of the BoDH.

4. For enabling factors, about three-fourths (73.4%) of respondents had a hospital manpower management system in their community hospital, and more than half(55.9 percent)had support budget for dental nurse preparation for working in THPH. Over half (55.2 percent) of the respondent's community hospital director set dental nurse preparation as a hospital policy, and 53.8 percent of respondent's community hospital director had assigned dental nurse preparation to the chief of the Dental Department.

5. The dental nurse preparation included training in knowledge and skills, providing support budget, preparing appropriate dental material and equipment, providing suitable guidelines and information systems. More than half of the respondents (59.7 percent)had a good level of dental nurse preparation whilst the rest (40.3 percent) were classified as having a poor level of dental nurse preparation.

6. The Chi-square test results show that the significant socio-demographic characteristic is age group. The significant psycho-social factor is high perception. The significant cues to action are media, advice from NHSO personnel, advice from other chiefs of the Dental Department of community hospitals, friends and junior chiefs. The significant enabling factors are hospital policy, hospital assignment, hospital budget support, and hospital manpower management system. All other variables did not have a statistically significant association with dental nurse preparation (at p-value < 0.05).

7. After multiple logistic regression using backward selection, this study

found that **the High Perception** group(OR 2.028, 95% CI = 1.253-3.283),**Hospital Policy**(OR 2.340, 95% CI = 1.448-3.780), **Hospital Assignment** (OR 2.865, 95% CI = 1.764-4.653), **Hospital Budget Support** (OR 2.057, 95% CI = 1.276-3.315), **Hospital Manpower Management System**(OR 2.557, 95% CI = 1.501-4.356), **Advice from a Friend**(OR 1.836, 95% CI = 1.122-3.003), **Advice from a Junior Chief**(OR 1.880, 95% CI = 1.167-3.028), **and Mass media**(OR 2.004, 95% CI = 1.167-03.443) were significant predictors of dental nurse preparation of chiefs of the Dental Department of community hospitals. **The most significant predictors were Advice from a Junior Chief and Hospital Assignment.**

6.2 Recommendations

6.2.1 Recommendations for implementation

- **Forthe national level**

1) Policy was the influenctial factor for chiefs of the Dental Department of community hospitals to provide dental nurse preparation for work at THPH. Therefore, policy makers in the Office of the Permanent Secretary of the MOPH should develop and announce a policy focusing on preparation or on boarding for dental nurses, to be administered by the community hospital director topromote new dental nurses'confidence and productivity.

2) Only nearly two-thirds of chiefs of the Dental Department of community hospitals provided guidelines/handbooks for dental nurses to support their work at THPH. The Bo DH of the Department of Health of the MOPH should develop guidelines and organize seminars for exchange of knowledge and experience to motivate chiefs of the Dental Department of community hospitals to conduct more and better dental nurse preparation.

- **For the provincial level**

This study found that most of the chiefs of the Dental Departments of community hospitals received information from PHO, while chiefs of the Dental

Department of other community hospitals(including friends, or the junior chief) influenced their dental nurse preparation. Therefore the chief of the Dental Department of the PHO needs to take full advantage of these opportunities to improve knowledge, and to influence the Dental Department of the community hospital to adopt and maintain dental nurse preparation and supervision for those nurses working at THPH. This could be done by arranging meetings and lessons learned forums about general management and dental nurse preparation for work at THPH.

- **For the community hospital**

1) The community hospital director is the most important influence for the chief of the Dental Department of the community hospital in conducting dental nurse preparation in this study. The hospital director provides policy, directives and budget to support dental work in THPH. However, only half of the chiefs of the Dental Department of community hospitals received support from their community hospital director. Based on these findings, the PHO and community hospital director should work together to set policy, assignments and support budget in order to empower the chief of the Dental Department of community hospitals to prepare dental nurses for work at THPH.

2) This study found that the hospital manpower management system influenced the chief of the Dental Department to conduct nurse preparation. However, only half of community hospitals in this study had a manpower management system even though it is a very important mechanism for improved care by all staff at the community hospital. Therefore, the PHO and hospital director should set up a manpower management system to support their community hospital management and dental nurse preparation activities.

6.2.2 Recommendations for future research

1) The constraints of a cross-sectional data set and limitations of this study are acknowledged. Also, the findings from this research suggest the need for future research, such as longitudinal, cohort, or case-control studies to test the strength of the relationship between effectiveness of dental nurses after high or low levels of preparation.

2) Qualitative research is needed to explore reasons for greater or lesser dental nurse preparation by chiefs of the Dental Department of community hospitals, especially in key areas such as training programs, and the THPH director's role.

3) This research was a cross-sectional study to examine factors affecting dental nurse preparation. Further research should be carried out to inform the development of appropriate workforce preparation models for dental care in THPH for use by the chief of the Dental Department of community hospital**s.**

4) There should be a follow-up study about effectiveness of dental nurses after preparation and working at THPH, comparing high level and low level dental nurse preparation groups.

5) This study was conducted in all regions of Thailand. Future research should be undertaken in specific parts of the country, including comparative studies of those areas with different characteristics, such as the North and South, to get an overall view of what is important in planning dental nurse preparation intervention programs.

REFERENCES

1. Tooth Decay (Cavities). [cited2013 Jan15]. Available from :http://www.medicinenet.com/script/main/art.asp?articlekey=10086

2.Fejerskov O. Changing paradigms in concepts on dental caries: consequences for oral health care.Caries Res. 2004;38(3):182-91.

3. Petersen PE.Priorities for research for oral health in the 21 st century- the approach of the WHO Global Oral Health Programme.Community Dental Health.2005;22:71-4

4. WHO, WHO Oral Health Country/Area Profile Programme (CAPP)2010 [Internet] . [cited 2010 Sep 10] Available from: http://www.whocollab.od.mah.se/searo/Indonesia/data/indonesiacar.html

5.Chu S. Review-Early Childhood Caries; Risk and prevention in underserved populations. The Journal of Young Investigators. 2006;20(2):1-9.

(6) Disparities in Children's Oral Health and Access to Dental Care Wendy E. Mouradian, MD, MS; Elizabeth Wehr, JD; James J. Crall, DDS, ScD JAMA. 2000;284(20):2625-2631. doi:10.1001/jama.284.20.2625.

7.National Health Security Office. National Health Security Act B.E.2545 (A.D.2002) [Internet]. [cited 2015Jan19] Available from :http://www.nhso.go.th/eng/Files/Userfiles/file/Thailand_NHS_Act.pdf

8. Wilawan Weraarchakul, Wiboon Weraarchakul. Factors Associated with Dental Caries in 6-30 Month-old Children at well Baby Clinic, Srinagarind Hospital, Khon Kaen University.Srinakarind medical journal [internet]. [cited 2013 Jan 15]. Available from : http://www.smj.ejnal.com/e-journal/showdetail/?show_detail=T&art_id=1372

9. Sirikarn Sutthavong, Suthisa Taebanpakul, Chidchai Kuruchitkosol, Thananan Isarangul Na Ayudhya, Teerapol Chantveerawong et al. Oral Health Status, Dental Caries Risk Factors of the Children of Public Kindergarten and Schools in Phranakornsriayudhya, Thailand. J Med Assoc Thai [Internet]. 2010;93Suppl 6:S71-8. [cited2013 Jan4]. Available from:http://www.ncbi.nlm.nih.gov/pubmed/21284137
10. Komet Wichawut, Sunee Pholdeeyiam, Jaruwat Busarakumruha, and Varee Sudkornrayuth. Dental health manpower projection in next 10 years (2008-2017).Thailand Journal of Dental Public Health.2009;14(2):9-24.
11. U.S. Public Health Service, Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General [Internet].[cited 2013 Jan4]. Available from: http://silk.nih.gov/public/hck1ocv.@www.surgeon.fullrpt.pdf
12. Office of the Surgeon General(US). National Call To Action To Promote Oral Health. Rockville (MD): National Institute of Dental and Craniofacial Research (US); 2003[Internet]. [cited2013 Jan20]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK47472/
13. Haden NK, Catalanotto FA, Alexander CJ, Bailit H, Battrell A, Broussard J Jr, et al.Improving the oral health status of all Americans: roles and responsibilities of academic dental institutions: the report of the ADEA President's Commission. J Dent Educ. 2003;67(5):563-83.
14. Haden NK, Catalanotto FA, Alexander CJ, Bailit H, Battrell A, Broussard J Jr, et al. Improving the oral health status of all Americans: roles and responsibilities of academic dental institutions: the report of the ADEA President's Commission. J Dent Educ. 2003; 67(5):563-83.
15. United States General Accounting Office. Report to Congressional Requesters. ORAL HEALTH: Factors Contributing to Low Use of Dental Services by Low-Income Populations. GAO/HEHS-00-149. September 2000 [Internet]. [cited 2013 Jan20]. Available at http://www.gao.gov/new.items/he00149.pdf.Accessed October 8, 2009.

16. Nash DA. Adding dental therapists to the health care team to improve access to oral health care for children. AcadPediatr. 2009;9(6):446-51. doi: 10.1016/j.acap.2009.08.005. Epub 2009 Oct 22.

17. Pisak Onksririmongkol, Sunee Wongkongkabheb, Salika Methanawin, Alisa Sirivejsuntorn. Distribution and Workload of Thai Dental Nurses in a Primary Care Unit in 2006.Journal of Health systems research[Internet]. 2008;2(1):91-8. [cited2013 Jan 11]. Available from: http://thailand.digitaljournals.org/index.php/HSRI/article/view/3179

18. Nimmanaradee Nancha. Expectation of Public Health Personel to Work the Roles of Dental Nurse Case Study :Trang Province[Thesis]. Chiang Mai: Chiang Mai University; 2005.

19 Suwit Udompanich. System Dynamics Model in Estimating Manpower Needs in Dental Public Health[Internet]. [cited2013 Jan 20]. Available from: http://www.who.int/hrh/en/HRDJ_1_1_06.pdf

20. Harvard University, Faculty of Arts and Sciences, Human Resources Department. Onboarding[Internet]. [cited2013 Jan 6]. Available from: http://hr.fas.harvard.edu/pages/onboarding

21. IBM. Search :Onboarding[Internet]. [cited2013 Jan 10]. Available from :http://www.ibm.com/Search/?q=onboarding&v=17&en=utf&lang=en&cc=us

22. General Motors. Onboarding[Internet]. 2015 [cited 2015 Jan10] Available from: http://www.gm.com/content/gmcom/home/toolbar/search.html?q=onboarding

23. Office of the civil service commission. Guideline for Thai official orientation and development during job mishandling.[cited 2013 feb 17]. Available from :http://www.ocsc.go.th/ocsc/th/uploads/File/23%209%202551.pdf

24. Wijaranaphiti S[1], Krugkrunjit P, Intaraprasong B.Factors related to performance effectiveness of dental nurse in primary care unit in the northeastern part of Thailand. J Med Assoc Thai. 2009; 92 Suppl 7:S36-45.

25. Pediatrics, Oral health risk assessment timing and establishment of the dental home, Pediatrics. 2003;111:1113-6.

26. Holm AK. Caries in the preschool child: international trends. J Dent.1990;18(6):291-5.

27. Hausen H, Karkkainen S, Seppa L.Application of the high-risk strategy to control dental caries. Community Dentistry and Oral Epidemiology. 2000;28:26-34.

28. Tewari A, Goyal A, Mehta K, Gauba K. Distribution of dental caries in India and South East Asia. In: Johnson NW, editor. Dental caries: Markers of high and low risk groups and individuals. Cambridge: Cambridge University Press; 1991.

29. Ministry of Public Health, Dental Health Division. The 4th Thailand national oral health survey. Bangkok: Dental Health Division, Department of Health, Ministry of Public Health; 1994.

30. Manji F, Fejerskov O, Baelum V, Luan W-M, Chen X. The epidemiological features of dental caries in African and Chinese populations: implications for risk assessment. In: Johnson NW, editor. Dental caries :Markers of high and low risk groups and individuals. Cambridge: Cambridge University Press; 1991.

31. Thitasomakul S. Dental caries, oral hygiene and dietary habits: a study of 2 to 6 years old Buddist and Muslim Thai children [thesis]. Aarhus: Faculty of Health Sciences, University of Aarhus; 2001.

32. NHScareer. Dental nurse[Internet]. [cited2013 Jan 25]. Available from : http://www.nhscareers.nhs.uk/explore-by-career/dental-team/careers-in-the-dental-team/dental-nurse/

33. GNWT, Northwest territories. Dental therapist [Internet]. [cited 2013 Jan 26]. Available from : http://www.practicenorth.ca/index.php?page=dental-therapist

34. Pisak Onksririmongkol, Sunee Wongkongkabhep, Silika Methanawin, Alisa Sirivejsuntorn. Distribution and Workload of Thai Dental Nurses in a Primary Care Unit in 2006[Internet]. [cited 2013 Jan 23]. Available from : http://thailand.digitaljournals.org/index.php/HSRI/article/viewFile/3179/2675

35.Annalee Y., Leon J.W.HEALTH CARE: ITS NATURE AND ITS OCCUPATIONAL HEALTH PROBLEMS. [cited 2013 Fab 21]. Available from : http://ilocis.org/documents/chpt97e.htm

36. Sunee Wongkongkathep. Boonaur Yongvanichakorn. Oral Health Care in Contracting Units of Primary Care under Universal Health Care Coverage Project in 2002. Journal of Health Science2003; 12:645-58.

37. Hunter PB. Risk factors in dental caries. International Dental Journal [Internet].1988; 38(4):211-7.[cited 2013 Jan 23]. Available from :http://www.ncbi.nlm.nih.gov/pubmed/3063664

38.SumranPitakuldilog, Chawthip Boromtanarat and Warangkana Chankong. Factors Related to the Performance of Dental Nurses in Sub-district Health Promoting Hospital in Service Network Region 11, Bureau of Inspection of Ministry of Public Health[Thesis].Nonthaburi: SukhothaiThammathirat Open University; 2013.

39. World Health Organization.Everybody's business : strengthening health systems to improve health outcomes : WHO's framework for action.Geneva : World Health Organization, 2007.

40.Olmen J, Criel B, Devadasan N, Pariyo G, Vos PD, Damme WV et al. Primary Health Care in the 21st century: primary care providers and people's empowerment. Tropical Medicine and International Health. 2010; 15(4): 386-90.

41. Julio F. Reinventing primary health care: the need for systems integration. The lancet[Internet].2009;374(9684):170–3. [cited 2013 Jan 24]. Available from : http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60693-0/fulltext

42. Salt Lake Community Collage. Supervisor's Onboarding Guide[Internet]. [cited2013 Jan09]. Available from :http://www.slcc.edu/innovation/.../Supervisor%20Onboarding%20Guide.docx

43. David MacLeod, Nita Clarke. Enhancing performance through employee engagement[Internet]. [cite 2013 Jan 28]. Available from : http//www.engageforsuccess.org/wp-content/uploads/2012/09/file52215.pdf

44. Jones and Barlett Publishers. Health Believe Model[internet]. [cited 2013 Feb 02]. Available from :http://www.jbpub.com/samples/0763743836/Chapter% 204.pdf.

45. University of Twente. Health Believe Model[internet]. [cited 2013 Feb 04]. Available from :https://www.google.com/url?q=http://www.utwente.nl/cw/theorieenoverzicht/Theory%2520Clusters/Health%2520Communication/Health_Belief_Model/&sa=U&ei=Tb5xVYqbAsidNs2xgtAH&ved=0CAUQFjAA&client=internal-uds-cse&usg=AFQjCNFErq3YD10zNVsYUhhQz3P7VJA73g

46. Belgian Development Cooperation, Lao-Belgian Cooperation for Health. Profect Dupport to Health Sector Reform in the Provinces of Vientiane and Savannakhet. [cited 2013 Feb15]. Available from : http://api.ning.com/files/GaZk*EFh1HkR0n3qeENA54I9It2hwl7a1glZr5ZxlNfra95xWidkmMBXOfF*dT9UpsycNif1SMXsV3Crg2gekb7tL7vCwA3h/Laosdistrictsystemreformexperience.pdf.

47. Ann G. Dorsey, University of Cincinnati. Preparation of Staff for Early Childhood Settings.Child and Youth Care Forum (Impact Factor: 1.25). 1992; 21(6):415-25. DOI: 10.1007/BF00757372

48. Ungchusak C, Kaewhuntee D, Yongvanichakorn B, Leangkobkit S. Oral care delivery by dental nurse at sub-district health centers during 1997- 1998. Thai J Dent Pub Health 2001; 6: 75-89.

49. Navikarn S. Management and organizational behavior 2nd ed. Bangkok: Bunnagid Publishing; 2000.

50. Putong W. Relationships between nursing service quality management for insured persons and nursing service quality as perceived by insured persons, government hospitals, Bangkok Metropolis. Bangkok: Chulalongkorn University; 1996.

51.Sabodo, Norberta Pahamutang. The Influence of Leadership Behavior of School Heads to the Performance of Public and Private High School Teachers in Kidapawan City Division. Dissertation. Graduate School, University of Southern Mindanao. [cited 2013 Fab 16]. Available from :http://www.academia.edu/8219636/The_Influence_of_Leadership_Behavior_to_the_Teachers_Performance

52. Mattila ML, Rautava P, Sillanpn M, Paunio P, Caries in five-year-old children and associations with family-related factors J Dent Res. 2000;79:875-81.

53. Jeffrey Pickens. Attitudes and Perceptions. [cited 2013 Fab18]. Available from :http://healthadmin.jbpub.com/borkowski/chapter3.pdf

54.Nicole Redmond, Heather J. BaerCheryl R. Clark, Stuart Lipsitz, and LeRoi S. Hicks.Sources of Health Information Related to Preventive Health Behaviors in a National Study.Am J Prev Med. 2010; 38(6): 620–7.e2.doi: 10.1016/j.amepre.2010.03.001

55. Bandura A. Social Cognitive Theory of Mass communication. Mediapsychology. 2001;3:265-99.

56. Centers for disease control and prevention. Definite of policy. [cited 2013 Fab 21]. Available from :http://www.cdc.gov/policy/analysis/process/docs/policyDefinition.pdf

57. Onboarding: High-impact Strategies - What You Need to Know: Definitions, Adoptions, Impact, Benefits, Maturity, Vendors[internet]. [cited 2013 Feb 13]. Available from : http://www.bestcode.com/html/product_desc_Onboarding-High-impact-Strategies-What-You-Need-to-Know-Definitions-Adoptions-Impact-Benefits-Maturity-Vendors-300519462

58. International Labour Conference, United Nation. Training for employment: Social inclusion, productivity and youth employment. [cited 2013 Feb 12]. Available for : http://www.ilo.org/public/english/standards/relm/ilc/ilc88/rep-v.htmhttp://www.ilo.org/public/english/standards/relm/ilc/ilc88/rep-v.htm

59. Carl-Ardy Dubois, Debbie Singh.From staff-mix to skill-mix and beyond: towards a systemic approach to health workforce management. [cited 2013 feb 12]. Available from :http://www.human-resources-health.com/content/7/1/87

60. Saowaluk Wijaranaphiti, Peera Krugkrunjit, Bhusita Intaraprasong. Factors related to performance effectiveness of dental nurse in primary care unit in the northeastern part of Thailand. Journal of the Medical Association of Thailand. 2009; 92 (Suppl 7):S36-45.

APPENDIX

แบบสอบถามเรื่อง ปัจจัยที่มีผลต่อการเตรียมทันตาภิบาลลงปฏิบัตงานทันตสาธารณสุขรพ.สต. ของหัวหน้าฝ่ายทันตสาธารณสุขโรงพยาบาลชุมชน ในประเทศไทย

สถานที่ปฏิบัติงานของผู้ตอบแบบสอบถาม อำเภอ.....จังหวัด.....

<u>คำชี้แจง</u>

แบบสอบถามที่จัดทำขึ้นนี้ เป็นข้อมูลประกอบการทำวิทยานิพนธ์ โดยมีวัตถุประสงค์ เพื่อศึกษาปัจจัยที่สัมพันธ์ ต่อการเตรียมทันตาภิบาลลงปฏิบัตงานทันตสาธารณสุขรพ.สต. ของหัวหน้าฝ่ายทันตสาธารณสุขโรงพยาบาลชุมชน ในประเทศไทย ขอความกรุณาให้ท่านได้ตอบคำถามให้ครบทุกข้อและตรงกับความเป็นจริง โดยความคิดเห็น และคำตอบที่ได้จากท่านมีคุณค่าอย่างยิ่ง ในการนำไปพัฒนางานทันตสาธารณสุขในโรงพยาบาลส่งเสริมสุขภาพตำบล อนึ่ง ข้อมูลที่ได้จากท่าน ผู้วิจัยจะเก็บไว้เป็นความลับที่สุด โดยคำตอบทุกข้อจะทำการวิเคราะห์เป็นภาพรวม โดยที่ไม่มีผลกระทบต่อการปฏิบัติงานของท่านแต่อย่างใด

1. ผู้ตอบแบบสอบถาม คือ หัวหน้าฝ่ายทันตสาธารณสุขในโรงพยาบาลชุมชน
2. แบบสอบถาม มี 5 ตอน ดังนี้

ตอนที่ 1 ปัจจัยคุณลักษณะส่วนบุคคล (Socio-demographic)

ตอนที่ 2 ความรู้และการรับรู้เกี่ยวกับการเตรียมการฯ (Psyco-social factor)

ตอนที่ 3 ปัจจัยเอื้อขององค์กรต่อการเตรียมการฯ(enabling factor)

ตอนที่ 4 สิ่งชักนำที่ทำให้เกิดการเตรียมการฯ(Cues to action)

ตอนที่ 5 การเตรียมการทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขในรพ.สต.

ตอนที่ 6 ปัญหาอุปสรรค และข้อเสนอแนะ ในการเตรียมทันตภิบาลเพื่อลงปฏิบัติงานในโรงพยาบาลส่งเสริมสุขภาพตำบล

ขอขอบคุณเป็นอย่างสูงที่ได้ให้ความร่วมมือ และเสียสละเวลาในการตอบแบบสอบถามนี้

นายสมฤทธิ์ จิโรจน์วณิชชากร
นักศึกษาระดับบัณฑิตศึกษา หลักสูตร ผู้นำสาธารณสุขมูลฐานมหาบัณฑิต
วิชาเอกบริหารสาธารณสุข สถาบันพัฒนาสุขภาพอาเซี่ยน มหาวิทยาลัยมหิดล

ตอนที่ 1 ปัจจัยคุณลักษณะส่วนบุคคล (Socio-demographic)

<u>คำชี้แจง</u> โปรดตอบคำถามตามความเป็นจริงในช่องว่าง หรือทำเครื่องหมาย ✓ ลงใน ☐ หน้าข้อความที่ตรงกับความเป็นจริง

1. เพศ ☐ 1. ชาย
   ☐ 2. หญิง

2. ปัจจุบันท่านมีอายุ.....ปี (นับปีเต็ม)

3. ท่านจบการศึกษาสูงสุดในระดับใด
   ☐ 1. ปริญญาตรี
   ☐ 2. ประกาศนียบัตรชั้นสูงหลังปริญญา
   ☐ 3. ปริญญาโท หรือสูงกว่า
   ☐ 4. บอร์ดทันตสาธารณสุข
   ☐ 5. บอร์ดเฉพาะทางด้านทันตกรรม นอกเหนือจากบอร์ดทันตสาธารณสุข
   ☐ 6. อื่นๆ. ระบุ.....

4. ขณะนี้ท่านดำรงตำแหน่งใด
   ☐ 1. หัวหน้ากลุ่มงานทันตสาธารณสุขโรงพยาบาลชุมชน
   ☐ 2. รักษาการหัวหน้ากลุ่มงานทันตสาธารณสุขโรงพยาบาลชุมชน

5. ท่านมีประสบการณ์การทำงานเป็นหัวหน้ากลุ่มงานทันตสาธารณสุข ตั้งแต่จบการศึกษาทันตแพทยศาสตร์บัณฑิต.....ปี (นับปีเต็ม)

6.นอกจากงานในตำแหน่งหัวหน้างานทันตสาธารณสุขในโรงพยาบาลชุมชนแล้ว ท่านมีบทบาทหน้าที่อื่นๆอีกหรือไม่(ตอบได้มากกว่า1 ข้อ)
   ☐ 1.ไม่มี
   ☐ 2. อยู่ในคณะทำงาน/กรรมการ HA หรืออยู่ในคณะทำงานต่างๆในโรงพยาบาล
   ☐ 3. อยู่ในคณะทำงานระดับจังหวัด
   ☐ 4.อยู่ในคณะทำงานระดับเขต

☐ 5.อยู่ในคณะทำงาน/คณะกรรมการในระดับประเทศของสำนักทันตฯหรือชมรมทันตฯต่างๆ

☐ 6.งานอื่นๆ ระบุ.....

7. ท่านมีประสบการณ์ในการเตรียมทันตาภิบาลลงปฏิบัติงานใน รพ.สต.มาก่อนหรือไม่

☐ 1. มีประสบการณ์ ..... ปี

☐ 2. ไม่มีประสบการณ์

8. ท่านมีงานพิเศษนอกเหนือจากการรับราชการหรือไม่

☐ 1. ไม่มี (ข้ามไปตอบตอนที่2)

☐ 2. มี

9. ถ้ามี งานพิเศษคืออะไร

☐ 1. คลินิกส่วนตัว

☐ 2. (มือปืน)ประจำคลินิกต่างๆ

☐ 3. อื่นๆ เช่น เปิดร้านกาแฟ ร้านอาหาร ขายตรง ระบุ.....

ตอนที่ 2 ความรู้และการรับรู้เกี่ยวกับการเตรียมการฯ (Psyco-social factor)

ความรู้เรื่องการเตรียมการ

คำชี้แจง กรุณาทำแบบทดสอบความรู้ เรื่องการเตรียมการทันตาภิบาล เพื่อปฏิบัติงานทันตสาธารณสุขของท่าน โดยอ่านข้อความโดยละเอียด แล้วทำเครื่องหมาย **วงกลม** ลงตรงหน้าคำตอบที่จริงมากที่สุด ตามการพิจารณาของท่านเพียงช่องเดียว

1. การเตรียมการสำหรับการปฏิบัติงาน ควรเริ่มในเรื่องใดก่อน จึงจะทำให้องค์การประสบความสำเร็จ

ก. เตรียมคน

ข. เตรียมงบประมาณ

ค. เตรียมวัสดุอุปกรณ์และสภาพแวดล้อม

ง. เตรียมข้อมูล วิชาการและเทคโนโลยี

2. ข้อใดต่อไปนี้คือการเตรียมการสำหรับปฏิบัติงาน ที่ถูกต้องที่สุด

ก. การกำหนดภารกิจตั้งแต่เข้าทำงานจนถึงออกจากงาน

ข. การกำหนดความต้องการ การตอบสนองความต้องการ การธำรงรักษาและพัฒนาบุคลากร

ค. กระบวนการและกิจกรรมที่สอดคล้องต่อกลยุทธ์องค์การ

ง. การวางแผนกำลังคน การสรรหาคัดเลือกบุคลากร

3. องค์ประกอบของการเตรียมการสำหรับการปฏิบัติงานที่ถูกต้อง ได้แก่ข้อใด

ก. คน เงิน วัสดุอุปกรณ์ หน่วยงาน

ข. คน เงิน วัสดุอุปกรณ์ การจัดการข้อมูล

ค. คน เงิน วัสดุอุปกรณ์ สถานที่ปฏิบัติงาน

ง. คน เงิน วัสดุอุปกรณ์ ชุมชน

4.หน้าที่ข้อใดของผู้บังคับบัญชา(ผู้อำนวยการโรงพยาบาล)
คือการสนับสนุนการเตรียมการให้ทันตาภิบาลลงปฏิบัติการในรพ.สต.

ก. กำหนดนโยบาย

ข. จัดให้มีการพัฒนา ความรู้ ความสามารถ

ค. พัฒนาการบริหารจัดการ

ง. พัฒนาบุคลิกภาพ

5. ความหมายของการเตรียมการข้อใด ถูกต้องที่สุด

ก. เป็นการฝึกอบรม มีเป้าหมายที่งาน

ข. เป็นการฝึกอบรม มีเป้าหมายที่ตัวทันตาภิบาล

ค. เป็นการฝึกอบรม มีเป้าหมายที่หน่วยงาน

ง. เป็นการฝึกอบรม มีเป้าหมายที่ทีมงาน

6. ต่อไปนี้ เป็นกิจกรรมเพื่อการเตรียมทันตาภิบาล ลงปฏิบัติงานในรพ.สต. ยกเว้นข้อใด

ก. การสอนงานให้ทันตาภิบาล

ข. การสับเปลี่ยนหมุนเวียนทันตาภิบาลปฏิบัติงานในที่ต่างๆ

ค. การให้ทันตาภิบาลทดลองงาน

ง. การตั้งทันตาภิบาลเป็นคณะทำงานชุดต่างๆ

7. การสอนงานให้กับทันตาภิบาลที่ดีที่สุด เมื่อปฏิบัติงานผิดพลาด ได้แก่ข้อใด

ก. ส่งเข้าอบรม ในหลักสูตรที่เกี่ยวข้อง

ข. ไม่มอบงานประเภทนั้นให้ทำอีก

ค. ชี้แจงให้ทราบว่าควรจะต้องทำอย่างไร และมอบหมายให้มีผู้ดูแลใกล้ชิด

ง. ลองให้ทำงานนั้นดูอีกครั้ง พร้อมกับตรวจสอบผลงานเป็นระยะ ๆ
และร่วมกันคิดแก้ไขปรับปรุงงาน

8. ข้อใดต่อไปนี้ เป็นการทดลองงานที่ไม่เหมาะสม

ก. มีการกำหนดระยะเวลาของการทดลองงานที่ชัดเจน

ข. มีการมอบหมายงานตามความสนใจของผู้ทดลองงานอย่างชัดเจน

ค. มีการกำหนดวัตถุประสงค์ของการทดลองงานที่ชัดเจน

ง. มีการมอบหมายพี่เลี้ยงเป็นที่ปรึกษาชัดเจน

9. ข้อใดต่อไปนี้ เป็นองค์ประกอบที่สำคัญที่สุดของการเตรียมทันตาภิบาล ลงปฏิบัติงานที่รพ.สต.

ก. ความรู้ ความสามารถ ความซื่อสัตย์สุจริต

ข. ความรู้ ความสามารถ ความขยันหมั่นเพียร

ค. ความรู้ ความสามารถ ความประพฤติ

ง. ความรู้ ความสามารถ ความตั้งใจจริง

10. แนวคิดเชิงการบริหารจัดการของการเตรียมทันตาภิบาลลงปฏิบัติงานที่รพ.สต. ได้แก่ข้อใด

ก. มีการเตรียมอนาคตของทันตาภิบาล ตั้งแต่เริ่มวางแผนรับคนในพื้นที่เข้าศึกษา
จนกระทั่งจบการศึกษาและขณะปฏิบัติงาน

ข. มีการเตรียมอนาคตของทันตาภิบาล ตั้งแต่เมื่อได้รับการจัดสรร

ค. มีการเตรียมอนาคตของทันตาภิบาล ตั้งแต่เริ่มการคัดเลือกจากพื้นที่
จนกระทั่งทันตาภิบาลออกจากงาน

ง. มีการเตรียมอนาคตของทันตาภิบาล ตั้งแต่เริ่มวางแผนรับคนในพื้นที่เข้าศึกษา
รวมถึงความก้าวหน้าในการปฏิบัติงาน และความเป็นอยู่ทั้งทางเศรษฐกิจและสังคม

<u>การรับรู้เกี่ยวกับการเตรียมการ</u>

<u>คำชี้แจง</u> โปรดอ่านข้อความโดยละเอียด แล้วพิจารณาว่าท่านมีความคิดเห็น เรื่องการรับรู้บทบาทในการเตรียมการทันตาภิบาลปฏิบัติงานทันตสาธารณสุขที่รพ.สต. อย่างไร กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุด เพียงช่องเดียว ดังนี้

5 หมายถึง เห็นด้วยอย่างยิ่ง

4 หมายถึง เห็นด้วย

3 หมายถึง ไม่แน่ใจ

2 หมายถึง ไม่เห็นด้วย

1 หมายถึง ไม่เห็นด้วยอย่างยิ่ง

ข้อความการรับรู้	ระดับความคิดเห็น				
	5	4	3	2	1
<u>การรับรู้ประโยชน์ของการเตรียมการ</u> 1) การเตรียมการ ทำให้ทันตาภิบาลสามารถปฏิบัติงานได้ทันทีเมื่อลงไปในพื้นที่					
2) การเตรียมการ ทำให้ทันตาภิบาลสามารถปฏิบัติงานตามวัตถุประสงค์					
3) การเตรียมการ ทำให้ทันตาภิบาลมีความมั่นใจในการปฏิบัติงาน					
4) การเตรียมการทำให้ทันตาภิบาลสามารถใช้จ่ายงบประมาณได้อย่างเหมาะสม					
5) การเตรียมการ ทำให้ทันตาภิบาลสามารถบริการประชาชนได้อย่างมีประสิทธิผล					
6) การเตรียมการ ทำให้ทันตาภิบาลสามารถบริการประชาชนได้อย่างมีคุณภาพ					
7) การเตรียมการ สามารถลดข้อผิดพลาดจากการทำงานของทันตาภิบาลเมื่อลงปฏิบัติงานในพื้นที่					
8) การเตรียมการ ทำให้เกิดความสัมพันธ์ที่ดี ระหว่างหัวหน้าฝ่ายทันตสาธารณสุข รพช. กับทันตาภิบาลที่ลงปฏิบัติงานในรพ.สต.					
9) การเตรียมการ ทำให้เกิดเครือข่ายการปฏิบัติงานด้านทันตสาธารณสุขในชุมชนที่เข้มแข็ง					
10) การเตรียมการ ทำให้เกิดการแลกเปลี่ยนข้อมูลข่าวสารการปฏิบัติงานทันตสาธารณสุขระหว่างหัวหน้าฝ่ายทันตสาธารณสุขกับทันตาภิบาลที่ลงปฏิบัติงานในรพ.สต.					

ข้อความการรับรู้	ระดับความคิดเห็น				
	5	4	3	2	1
<u>การรับรู้อุปสรรคการเตรียมการ</u> 11) หัวหน้าฝ่ายทันตสาธาณสุขรพช. มีภาระงานที่รับผิดชอบมาก ทำให้ไม่มีเวลาสำหรับเตรียม การปฏิบัติงานของทันตาภิบาลในรพ.สต.					
12) หัวหน้าฝ่ายทันตสาธาณสุขรพช.ไม่มีความรู้และประสบการณ์ ในการเตรียมการ การปฏิบัติงานของทันตาภิบาลในรพ.สต.					
13) หัวหน้าฝ่ายทันตสาธาณสุขรพช.ไม่เห็นความสำคัญของการเตรียมการ การปฏิบัติงานของทันตาภิบาลในรพ.สต.					
14) หัวหน้าฝ่ายทันตสาธาณสุขรพช.ไม่มีทีมงานสนับสนุนการเตรียมการ การปฏิบัติงานของทันตาภิบาลในรพ.สต.					
15) หน่วยงานไม่มีนโยบายสนับสนุนการเตรียมทันตาภิบาล ลงปฏิบัติงานในรพ.สต.					
16) หน่วยงานไม่มีงบประมาณสนับสนุนการเตรียมทันตาภิบาล ลงปฏิบัติงานในพร.สต.					
17) ผู้บริหารระดับต่างๆ ให้คำแนะนำที่ไม่ชัดเจน เกี่ยวกับการเตรียมการ ทันตาภิบาลลงปฏิบัติงานในรพ.สต.					
<u>การรับรู้ความสามารถในการเตรียมการด้านบุคลากร</u> 18) ท่านสามารถจัดการเตรียมการ เกี่ยวกับการปฏิบัติงานทันตสาธารณสุข ของทันตาภิบาลในรพ.สต.ได้					
19) ท่านสามารถจัดการอบรมอย่างต่อเนื่องให้กับทันตาภิบาล เกี่ยวกับเรื่อง การปฏิบัติงานของทันตาภิบาลในรพ.สต.ได้					
20) ท่านสามารถจัดการทดลองงานให้กับทันตาภิบาล ที่จะลงปฏิบัติงานใน รพสต.ได้					
21) ท่านสามารถจัดให้ทันตาภิบาลหมุนเวียน ปฏิบัติงานตามหน่วยงานต่างๆ เพื่อเพิ่มพูนทักษะประสบการณ์การทำงานได้					
22) ท่านสามารถสนับสนุนให้ทันตาภิบาล เข้าร่วมประชุมวิชาการ ในระดับต่างๆได้					

ข้อความการรับรู้	ระดับความคิดเห็น				
	5	4	3	2	1
<u>ด้านงบประมาณ</u> 23) ท่านสามารถจัดสรรงบประมาณ สนับสนุนการปฏิบัติงานของทันตาภิบาล ในรพ.สต.อย่างเหมาะสมได้					
24) ท่านสามารถจัดทำโครงการ เพื่อของบประมาณสนับสนุนเพื่อการปฏิบัติงาน ของทันตาภิบาลในรพ.สต.อย่างเหมาะสมได้(แม้ต่อไปจะไม่มีกองทุนทันตกรรมสนับสนุน)					
<u>ด้านครุภัณฑ์ อุปกรณ์ วัสดุทันตกรรม</u> 25) ท่านสามารถจัดให้มียูนิตทำฟัน หรือโมบายยูนิต เพื่อสนับสนุนการปฏิบัติ งานทันตสาธารณสุข ของทันตาภิบาลในรพ.สต.ในเขตอำเภอของท่านได้					
26) ท่านสามารถจัดให้มีอุปกรณ์ทันตกรรม (เช่น เครื่องปั่นอะมัลกัม เครื่องขูดหินปูน) เพื่อสนับสนุนการปฏิบัติงานทันตสาธารณสุขของทันตาภิบาล ในรพ.สต.ในเขตอำเภอของท่านได้					
27) ท่านสามารถจัดวัสดุทันตกรรม เพื่อสนับสนุนการปฏิบัติงาน ทันตสาธารณสุขได้ ของทันตาภิบาลในรพ.สต.ในเขตอำเภอของท่าน					
<u>ด้านข้อมูลข่าวสาร</u> 28) ท่านสามารถจัดทำคู่มือ สนับสนุนการปฏิบัติงานของทันตาภิบาล ในรพ.สต.ได้					
29) ท่านสามารถจัดตั้ง คลังข้อมูลข่าวสารเกี่ยวกับทันตสุขภาพ เพื่อสนับสนุน การปฏิบัติงานของทันตาภิบาลในรพ.สต.ได้					

ตอนที่ 3 ปัจจัยเอื้อขององค์กรต่อการเตรียมการ(enabling factor)

<u>คำชี้แจง</u> โปรดอ่านข้อความโดยละเอียด แล้วพิจารณาว่าท่านได้รับ ปัจจัยเอื้อ จากองค์กรของท่านต่อการเตรียมทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขเพียงใด แล้วทำเครื่องหมาย / ลงในช่องที่ตรงกับความจริงมากที่สุด ตามการพิจารณาของท่านเพียงช่องเดียว

ประเด็น	ใช่	ไม่ใช่	ไม่ทราบ
1) ผู้อำนวยการโรงพยาบาลของท่าน กำหนดนโยบายให้มีการเตรียมทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขในรพ.สต.หรือไม่			
2) ผู้อำนวยการโรงพยาบาลของท่าน ได้มอบหมายให้ท่าน เตรียมการทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขที่รพ.สต. ด้วยวาจาหรือเป็นลายลักษณ์อักษรหรือไม่			
3) ผู้อำนวยการโรงพยาบาลของท่าน ได้สนับสนุนงบประมาณในการเตรียมทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขในรพ.สต.หรือไม่			
4) โรงพยาบาลที่ท่านทำงาน มีระบบการเตรียมบุคลากรสำหรับการทำงานในส่วนงานต่างๆของโรงพยาบาลหรือไม่			

<u>ตอนที่4</u> สิ่งชักนำให้เกิดการเตรียมการในการปฏิบัติงานทันตสาธารณสุข (Cues to action)

<u>คำชี้แจง</u> โปรดอ่านข้อความโดยละเอียด แล้วพิจารณาว่า**สิ่งชักนำใด ทำให้เกิดการเตรียมทันตาภิบาลลง**ปฏิบัติงานทันตสาธารณสุขในรพ.สต. แล้วทำเครื่องหมาย / ลงในช่องที่ตรงกับความจริงมากที่สุดดังนี้

ประเด็นชักนำสู่การเตรียมการ	ได้	ไม่ได้
การได้รับคำแนะนำ คำปรึกษา เรื่องการเตรียมการ 1) จากสำนักงานหลักประกันสุขภาพแห่งชาติ(สป.สช.)		
2) จากสำนักทันตสาธารณสุข กรมอนามัย		
3) จากสำนักงานสาธารณสุขจังหวัด		
4) จากเพื่อน(ที่เป็นหัวหน้าฝ่ายทันตฯจากพื้นที่อื่น)		
5) จากรุ่นน้อง (ที่เป็นหัวหน้าฝ่ายทันตฯจากพื้นที่อื่น)		
6) จากรุ่นพี่ (ที่เป็นหัวหน้าฝ่ายทันตฯจากพื้นที่อื่น)		
7) จากสื่อต่างๆเช่น หนังสือพิมพ์ โทรทัศน์ นำเสนอเรื่องราวการกระจายทันตาภิบาลลงปฏิบัติงานในรพ.สต. และการเตรียมการ		

ตอนที่ 5 การเตรียมการทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขในรพ.สต.

<u>คำชี้แจง</u> โปรดอ่านข้อความโดยละเอียดแล้วพิจารณาว่า ท่านได้ปฏิบัติเกี่ยวกับการเตรียมการทันตาภิบาลลงปฏิบัติในรพ.สต.หรือไม่ แล้วทำเครื่องหมาย / ลงในช่องที่ตรงกับความจริง ดังนี้

ข้อความ	ทำ	ไม่ทำ
1. ด้านบุคลากร 1) ท่านจัดการประชุมวางแผนเพื่อเตรียมความพร้อมของทันตาภิบาลในการปฏิบัติงานทันตสาธารณสุขที่ รพ.สต. หรือไม่		
2) ท่านได้ฝึกอบรมเพิ่มเติมความรู้ แก่ทันตาภิบาล ในด้านการจัดบริการทันตสาธารณสุขในรพ.สต หรือไม่		
3) ท่านได้ฝึกอบรมเพิ่มเติมความรู้ แก่ทันตาภิบาล ในด้านบริหารจัดการทันตสาธารณสุขในรพ.สต หรือไม่		
4) ท่านได้ฝึกอบรมเพิ่มเติมความรู้ แก่ทันตาภิบาล ในด้านการจัดทำแผนงานโครงการทันตสาธารณสุขในรพ.สต เพื่อของบประมาณสนับสนุนการปฏิบัติงานได้อย่างเหมาะสม หรือไม่ (แม้ต่อไปจะไม่มีกองทุนทันตกรรมสนับสนุน)		
2. ด้านงบประมาณ 5) ท่านได้เสนอของบประมาณสนับสนุนทันตาภิบาล ลงปฏิบัตงานด้านทันตสาธารณสุขในรพ.สต.หรือไม่		
3. ด้านวัสดุอุปกรณ์		
6) ท่านได้เตรียมยูนิตทำฟันหรือโมบายยูนิต เพื่อสนับสนุนการปฏิบัติงานทันตสาธารณสุข ของทันตาภิบาลในรพ.สต.ในเขตอำเภอของท่าน หรือไม่		
7) ท่านได้เตรียมอุปกรณ์ทันตกรรม(เช่น เครื่องปั่นอะมัลกัม เครื่องขูดหินปูน) เพื่อสนับสนุนการปฏิบัติงานทันตสาธารณสุข ของทันตาภิบาลในรพ.สต.ในเขตอำเภอของท่าน หรือไม่		
8) ท่านได้เตรียมวัสดุอุปกรณ์ เพื่อสนับสนุนการปฏิบัติงานทันตสาธารณสุขของทันตาภิบาลในรพ.สต.ในเขตอำเภอของท่าน หรือไม่		

ข้อความ	ทำ	ไม่ทำ
4. ด้านข้อมูลข่าวสาร 9) ท่านได้เตรียม คู่มือ/เอกสารแนะนำการปฏิบัติงาน เพื่อให้ทันตาภิบาลมีแนวทางปฏิบัติงานทันตสาธารณสุขในรพ.สต. หรือไม่		
10) ท่านได้จัดตั้ง คลังข้อมูลข่าวสารเกี่ยวกับทันตสุขภาพ เพื่อสนับสนุนการปฏิบัติงานของทันตาภิบาลในรพ.สต. หรือไม่		

<u>ตอนที่6</u> ข้อมูลอื่นๆ

<u>คำชี้แจง</u> โปรดระบุ ปัญหาและข้อเสนอแนะ ในการเตรียมทันตาภิบาลเพื่อลงปฏิบัติงานทันตสาธารสุข ในรพ.สต.

1. ท่านมีปัญหาในการจัดการฝึกอบรมเพื่อเตรียมทันตาภิบาลก่อนลงปฏิบัติงานในรพ.สต.หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

.....

2. ท่านมีปัญหาการเตรียมงบประมาณให้ทันตาภิบาลลงปฏิบัติงาน หรือเขียนโครงการเพื่อแก้ไขปัญหาทันตสาธารณสุขในพื้นที่ หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

.....

3. ท่านมีปัญหาในการเตรียมยูนิตทำฟัน ให้ทันตาภิบาลสามารถลงให้บริการทันตกรรมในรพ.สต. หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

.....

4. ท่านมีปัญหาในการเตรียมวัสดุทันตกรรมทั่วไป (ที่ไม่รวมยูนิตทำฟัน) ให้ทันตาภิบาลลงให้บริการทันตกรรมใน รพ.สต. หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

.....

5. ท่านมีปัญหาในการเตรียมข้อมูล เพื่อสนับสนุนให้ทันตาภิบาลลงปฏิบัติงานทันตสาธารณสุขในรพ.สต.หรือไม่ เช่น คู่มือ

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

.....

6. ท่านมีปัญหาในการเตรียมระบบสนับสนุนช่วยเพิ่มพูนทักษะ เช่น พี่เลี้ยง ภายหลังที่ทันตาภิบาลลงปฏิบัติงานในรพ.สต.หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

7. ท่านมีปัญหาในการเตรียมบุคลากรช่วยข้างเก้าอี้ ให้ทันตาภิบาลจัดบริการอย่างมีประสิทธิภาพ ในรพ.สต.หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

8. ท่านมีปัญหางานด้านบริหารจัดการและวิชาการ ติดตามประเมินผล หรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

9. ท่านมีปัญหาอื่นๆ นอกเหนือจากนี้อีกหรือไม่

☐ ไม่มีปัญหา ☐ มีปัญหา(โปรดระบุปัญหา).....

.....

ข้อเสนอแนะ

.....

ขอขอบพระคุณทุกท่านที่ให้ความร่วมมือในการตอบ

แบบสอบถามเป็นอย่างดี

นายสมฤทธิ์ จิโรจน์วณิชชากร

BIOGRAPHY

NAME	Mr.Somrit Jirojvanichakorn
DATE OF BIRTH	March 23, 1968
PLACE OF BIRTH	Songkhla city, Thailand
INSTITUTION ATTENDED	Prince of Songkhla University Faculty of Dentistry 1985 – 1991 Dentist
	Mahidol University, Thailand 2011 – 2015 ASEAN, Institute for Health development, Salaya Master of Primary Health Care Management
FELLOWSHIP	National Health Security Office of Thailand (NHSO)
POSITION & OFFICE	Chief of dental department, Pattani Provincial Health Office, Ministry of Health, Thailand