CHAPTER 2

Literature Review

The literature review of this study includes five main topics, which describe the studies and concepts associated with head nurse competencies in community hospitals. The five main topics consist of: 1) head nurses' roles and accountability, 2) competency of head nurses in community hospitals, 3) situation of competency for head nurses in community hospitals, 4) competency assessment for head nurses, and 5) development of a competency assessment scale for head nurses in community hospitals.

Head Nurses' Roles and Accountability

This part describes the roles and accountability of a head nurse working in a community hospital that consists of three parts being: health service system in Thailand, roles and accountability of head nurses, roles and accountability of a head nurse in Thailand, and the qualification of a head nurse position.

Health Service System in Thailand

Thailand, lower-middle-income country, started providing universal health care coverage when it introduced reforms in 2001. The 30 baht scheme, which treats all diseases, was largely the innovation of a group of reformers in the Ministry of Public Health (MoPH), who long held ambitions for universal coverage. All members register with a contracting unit and receive a gold card entitling them to care in their home area. This project required a transformation of the resource allocation system that the reformers knew would take years to complete. This included the creation of a purchaser-provider split and a new system of capitation-based funding intended to strengthen primary care (Hughes & Leethongdee, 2007).

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The categories of health services depend on the capacity of the healthcare institute and the 30 baht scheme. In Thailand, health services have been classified into three levels, including the primary care level, the secondary care level, and the tertiary care level – similar to the health service in the United States of America, England, Australia, and New Zealand (Boyle, 2011; Faramnuayphol et al., 2011; French, Old, & Healy, 2001; Hilless & Healy, 2001). The primary care level provides integrated care of health promotion, prevention, rehabilitation and simple remedies covering people from all sub districts (Faramnuayphol et al., 2011). In addition, the services include health education, self-care support and community healthcare (Boyle, 2011; French, Old, & Healy, 2001; Hilless & Healy, 2001). The secondary care level provides care with higher technological equipment, and more complicated conditions than those in the primary care level (Faramnuayphol et al., 2011). It provides in-patient and out-patient care, as also practiced in other countries. However, expertise in healthcare, the context and innovative technologies make the capability of healthcare services different in each country (Boyle, 2011; French, Old, & Healy, 2001; Hilless & Healy, 2001). The tertiary care level and the excellence centers provide high technology and complex services (Faramnuayphol et al., 2011).

In Thailand, previous health services have been divided into three levels. Firstly, the primary care level or tambon health promoting hospitals has provided curing, Thai traditional medicine, physical therapy, rehabilitation, home visiting, health promotion and risk factors screening. In addition, the healthy campaign collaborates with the community, village health volunteers, the sub district administration organization for a good environment and consumer protection. This level covers all sub districts, several of which have more than one health center and take care of people, at least 5,000 in their own area. Secondly, the secondary care level consists of general hospitals and community hospitals. General hospital community hospitals provide in-patient and out-patient care with less complicated and complex conditions than general hospitals, emergency service, collaboration with primary care level, and screening and transference. Community hospitals cover all districts, municipal health centers, each with 10 to 150 beds, located in all district towns across the country. For, 10, 30 and 60 beds hospitals can take care of more than 50,000 people, from 90 to120 beds hospitals can take care of more than 100,000

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people and 150 to 300 beds hospitals can take care of more than 250,000 people. However, the provision of complicated care requires high technology depending on the level of hospitals. Finally, the tertiary care level and excellent center provide the highest technology and complexity and complication of conditions of all levels. This level covers all provincial areas, and takes care of a population of more than 1,000,000 (Bureau of Policy and Strategy [BPS], 2011; Kamoltham, 2011).

Presently, the Ministry of Public Health in Thailand policy is to provide health services covering promotion, prevention, cure, and rehabilitation, and carry out its service plan; which refers to a seamless health service network integrated with primary care, secondary care, and tertiary care depending on the geographical information and transportation within existing resources. Laboratory examination and report, and tele-medical consultation system are developed online. The excellence center and the crucial diseases were organized on cardiology, cancer, trauma, newborn, psychology, eyes and nephron, dentistry, primary and secondary services, and non-communicable diseases. Healthcare providers must be facilitated to add up their competencies that can service for the patients with medication, obstetrics and gynaecology, surgery, orthopedic, and pediatric in order to quality of services and referral reduction. There are twelve health service networks. Each health service network covers health services in four to eight provinces, for five million people. There is at least one provincial health service network for self-containment in referral provincial network consisting of the community hospitals which can manage the network in secondary care and primary care level. In addition, the Ministry of Public Health controls the level of referral hospital cascade depending on the capability for each hospital level and the existing resources shared with other hospital levels. As a result, health services can provide quality, standard, accessibility, and integrity service, and the unity of management system. Moreover, they can reduce the number of clients in high healthcare service level, use the limited resources effectively, solve complex healthcare issues in each area, and avoid repeated investment. The service plan is classified into three levels including: primary care, secondary care, and tertiary care, which practice differently in roles and responsibility. The boundary of each health service is described as follows (Bureau of Health Administration, 2012).

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The primary care level. The primary care level consists of public health service, and district health, promoting hospitals which are described as follows: 1) district health promoting hospitals must have registered nurses, and at least a physician taking care of people more than 8,000, 2) public health service is located within a community of a city which has no more than 30,000 people in each health service. There are general practitioners and experts in their own areas providing inpatient, chronic, elderly, and risk groups by continuing, integrated, diversity and holistic care, and participating with local and private part.

The secondary care level. The secondary care level is categorized to five levels namely: new community hospitals, small community hospitals, medium community hospitals, large community hospitals, and master community hospitals. They are described as follows: 1) New community hospitals refer to any community hospital which has a family physician or general physician rotating, or occupying a permanent position, in the hospital. These hospitals provide outpatient and support primary health service network in districts. 2) Small community hospitals refer to 10-bed community hospitals which have 1 to 2 family physicians or general physicians, care in: labor room: uncomplicated inpatient care; low risk department; inpatient and outpatient observing and reference, and supporting primary health service network in districts. 3) Medium community hospitals refer to 30-to-90-bed community hospitals which have 3 to 5 family physicians, providing: inpatient care; outpatient care; emergency service; operating room; labor room, and supporting primary health service network in districts. 4) Large community hospitals refer to 60-to-120-bed community hospitals which have 3 to 10 family physicians and main specialized physicians, providing: operating room; inpatient care; labor room; outpatient care; emergency service, and supporting primary health service network in districts. 5) Master community hospitals refer to hospitals consisting of more than 120 beds, which have 3 to 10 family physicians and main specialized physicians - at least 2 physicians in each department, care in: operating room; labor room; intensive care unit; nursery intensive care unit; surgical operating room; orthopedic operating room; laboratory; x-ray; referral case holding, and supporting primary health service network in districts.

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The tertiary care level. The tertiary care level is categorized to four levels namely: small general hospitals, general hospitals, central hospitals, and highly specialized centers. They are described as follows: 1) the small general hospitals consist of specialist physicians in all main departments and the essential sub departments, and able to hold patients transferring from the secondary care level and treat seriously ill patients by experts. 2) The general hospitals consist of specialist physicians in all main and subdepartments, and able to hold patients transferring from the province health services and treating seriously ill patients by specialist experts. 3) The central hospitals consist of specialist physicians in all main and subdepartments, and are able to hold patients transferring from the tertiary care level and treat seriously ill patients by specialist experts, with advanced and sophisticated technology. 4) The highly specialized centers are located in the tertiary care level including four departments as heart, cancer, trauma, neonatal care. They have three competency levels consisting of first as a high competency level, second level, and third level.

In conclusion, the previous classification of health services in Thailand is different from the present which depends on the policy of the universal healthcare for quality, standard, accessibility, and integrity services. The healthcare services are classified by Bureau of Health Administration (2012) in Thailand which has been used in this study. The role and accountability of healthcare persons and head nurses in each health service level are different depending on their context.

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The Roles and Accountability of Head Nurses

Head nurses are the crucial person in healthcare services, who make the equilibrium between the directors of nursing and their members, and drive the organization to goal achievement. A head nurse has a variety of names including; nurse manager, first line nurse manager, first line nurse manager, and ward sister (Surakka, 2008), or even chief nurse officer, chief nurse and department head (Yoder-Wise & Kowalski, 2006). In North America, a head nurse is usually called a first line nurse manager or nurse manager whereas in the UK, as the term head nurse is used, and in Australia unit manager is used (Duffield, 1991). However, the most official name is head nurse (Healthcare Providers and Services [HCPro], 2008; Keefe, 2011)

which is at a first-line level of administration. In Thailand, the term “head nurse” is also used in all government hospitals and some private hospitals.

Paetznick (1966) defined a head nurse as a supervisor who assigns the jobs and visits the patients for planning in caring. Leddy and Pepper (1993) defined head nurse as a person who has the duties of staffing, planning, organizing, coordination, direction and decision-making. Some experts defined head nurses as a registered nurse who are accountable and control the members in the unit (Bumpres, 2011; HCPro, 2008; Merritt, 2003). Russell and Scoble (2003) defined as a nurse who can plan, organize, deliver, and evaluate nursing and interdisciplinary care to a targeted group of patients and manage the human and material resources needed to serve that care. Tornabeni and Miller (2008) defined head nurse as a prepared nurse to the administrator position who is accountable for nursing services and research application in nursing practices in a unit. Moreover, head nurse is a leader in nursing (Chase, 2010; Jeans & Rowat, 2004; Ten Haaf et al., 2007), a facilitator and an innovator (Cipriano, 2011), and a person in charge of nursing in a medical institution (Business Dictionary, 2011) for continuous and quality services all 24 hours (HCPro, 2008; Ten Haaf et al., 2007).

In conclusion, a head nurse is defined as a first line nurse manager who is accountable in management and is the leader of the nursing unit for continuous and quality services within 24 hours each day.

The role is the duties or behaviors that are expected in the position, and acted appropriately in the work (Oroviogoicoechea, 1996). The roles of head nurses will be considered for the competency frame demonstrating the concrete practices and evaluation exactly in the expected role of head nurses (Cathcart, Greenspan, & Quin, 2010). The roles and accountability of head nurses can be described as follows:

The American Organization of Nurse Executives, [AONE], (2005) collaborated with health care leadership agenda including The American College of Healthcare Executives [ACHE], American College of Physician Executives [ACPE], Healthcare Financial Management Association [HFMA], Healthcare Information and Management Systems Society [HIMSS], Medical Group Management Association [MGMA], and The American College of Medical Practice Executives [ACMPE] to describe and integrate the nurse executive competency, and divided the role of head

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nurse into three groups consisting of: business management, leadership, and leader development. In addition, the American Nurses Association [ANA] (2010) indicated the standards for nurse administration, including assessment for the impact to nursing issues and strategy planning, participation in human resource recruitment, selection, and retention, nursing care coordination with other healthcare disciplines and healthcare crossing for continuous integrated services, the quality of healthcare evaluation, respecting individual rights, the organizational accountable acceptance for nursing providing, participation in nursing organizational policy construction and decision-making of staff. Moreover, the roles of head nurses should be to facilitate cooperation and communication (Surakka, 2008). In Ireland, not only are head nurses defined as a managerial role, but they also formulated nursing care team and team leader (MaCarthy & Fitzpatrick, 2009). However in the past, the head nurse position was not significant for organizational executives in Australia or New Zealand (Surakka, 2008). Therefore, in 1986 the head nurse role was analyzed in the context and healthcare management for differentiation in the roles of head nurses and nurse practitioners (Duffield & Lumby, 1994).

Head nurses in community hospitals are no less significant than in other types of hospitals. Head nurses in community hospitals must work with multi skills, various needs, complex and multifaceted responsibility, and possess a broad knowledge (Paliadelis, 2005). The rural hospital has many unique characteristics such as the characteristics of community population, several different diagnoses and patients of all ages are cared for together in the inpatient unit (Meretoja, Eriksson, and Leino-Kilpi, 2002), with limited resources (Bushy, 2006). Head nurses in community hospitals require the ability to manage clinical units including managing human, physical, and financial resources such as policy interpretation, standards retaining, and nursing leadership similarly to the head nurses in other hospital levels. In addition, head nurses must provide quality care and management in both the clinical unit and the community (Eldridge & Judkins, 2003). So, they have broader roles than others. Head nurses in community hospitals must play an independent role with autonomy, decision-making, and self-sufficiency, and work in more activities on a daily basis. They need to be creative in thinking and flexible in practice, so that the success plan and quality healthcare should be provided appropriately with preference

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of local health recipients, and in the realities of the communities (Bushy, 2006), collaborate with people in communities and resource utilization (Dent, 2006), and practice with evidence based on practice in unit and communities (Ernst, 1995). Moreover, they need to perform in a competent manner with safety, consistent with the study of Purnell (1999) which illustrated that the responsibilities of healthcare administrators differ by state, size of facility, and practice location. Therefore, the roles of head nurses in community hospitals differ from that in other hospitals.

In addition, Yoder-Wise and Kowalski (2006) stated that the vision, mission, goal, supplies and culture of an organization making the roles of head nurse are different. In agreement with the study of Surakka (2008) that found the roles of head nurses are different in the environment or context such as the difference between the university hospitals and community hospitals, and the size of clinical units. The role description is based for the competency development. Competency can be measured and observed from the achievement or superior performance.

In conclusion, the roles and accountability of head nurse are different in context, policy and culture of organization depending on size of hospital and facilities. Especially, head nurses in community hospitals work with the limited resources, as a result their roles differ from the others. They should have broad knowledge and multi skills for effective management.

The Roles and Accountability of Head Nurses in Thailand

Nowadays, health facilities in public sectors, in Thailand, are classified into many levels, especially, health services that have been classified by the geographic information system or health service network including three main levels. In each level, the health services depend on the health factors and preference of people, resource support, human resource facility, and environment of their own area (Kamoltham, 2011). The medium hospital in the secondary care level is closer to the people who live in their own area than other hospital levels. Registered nurses working in such a hospital provide health care for patients with different diagnoses and ages in one unit, uncomplicated conditions, and general diagnoses. There are no high medical technologies used in the hospital. On the other hand, large and tertiary hospitals provide specialized nursing and health care with complicated conditions,

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with patients with varying diagnoses and ages separated in several nursing units (Kamoltham, 2011). However, the role and accountability of head nurses in Ministry of Public Health are regulated by Bureau of Nursing (2005) associated with the evaluation of The Office of the Civil Service Commission (OCSC). The roles of head nurses include five domains practiced widely for head nurses in a hospital, but these are not specific in the context and policy of each hospital level. From a pilot study in 2012 by the researcher, it was found that head nurses in community hospitals still practice the same role and accountability as in other hospital levels that include management domain, nursing service domain, and knowledge management domain. In addition, national organizations regulate the healthcare standards and policies. Therefore, the roles and accountability of head nurses are different in each health service level.

The roles and accountability of head nurses in tertiary care level. From the literature review, standardized role regulations of head nurses in this level have never been found. However, the roles and accountability of head nurses in the tertiary care level include: 1) The management domain composed of transformational leadership, management, nursing outcome management, risk management, nursing quality improvement (Songka & Ungsuroj, 2007), participation with stakeholders for planning, controlling, performance monitoring and job delegation (Chairat, 1994). Moreover, the study found that the expected roles for head nurses in central hospitals in 2008-2017 were being the leader, human resource manager, administrator, manager of healthcare quality improvement, and manager of technology and information (Domglang, 2007). 2) Nursing practice domain in the position include clinical nursing expert, communication, coordination, counseling, ethics and legal advocating (Domglang, 2007; Songka & Ungsuroj, 2007), the standards and quality of care, informational management and role model (Chairat, 1994). 3) The research and education domains consist of teaching, counseling, demonstration for nursing students, evidence based on practice, supporting the research study and nursing knowledge dissemination (Domglang, 2007; Chairat, 1994).

The roles and accountability of head nurses in the secondary care level. At present, the health services in this level are from community hospitals. From the literature review, there are few studies specifically on the head nurse roles in

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community hospitals where the roles and accountability were mostly divided into three domains similar to that in the tertiary hospitals. The healthcare national policies in Thailand are focused on person centered care, strong community, and health promotion (Bureau of Nursing, 2011). Nurse leaders should cooperate with healthcare disciplines to provide care in the communities and community hospitals. So, the roles and accountability of head nurses in community hospitals are different from other hospital levels which are summarized as follows: 1) the management domain including job management, human management, fiscal management, coordinator, information management, 2) the nursing practice domain including innovator, role model, transformational leadership (Oncheunjit & Sriwirat, 2007), counseling, patients advocating (Pankaeo, 2003), and 3) the knowledge management domain including being a researcher and educator (Oncheunjit & Sriwirat, 2007). Previously, Bureau of Nursing (2005) summarized the roles and accountability of a head nurse for all health services (primary, secondary, and tertiary care levels) including deliver and performance controlling, human resource management, project management, supervisory, counselor to the members, policy implementation, and a leader in nursing quality improvement. At present, Bureau of Nursing (2011) determines the community nursing manager roles and accountability associated with strong community policy by job description as follows: 1) systematic management 2) analysis, reviewing, planning, solution and reflecting performance achievement, 3) survey, diagnosis, planning, and evaluation coordinated with multidisciplinary and community, 4) capacity to develop a team for practice in the needs of community, 5) family and community advisory, 6) leading in procedure making, and teaching and competency development the person in organization, 7) collaborating with other organizations, and 8) participation in the community research and innovation finding applied to services. Regarding the service plan system, these roles have to occur in head nurses in community hospitals.

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The roles and accountability of director of nursing service in primary care level

Community managers should manage community health services such as nursing services; policies; and projects, develop the health promotion model including healthy public building; supportive environment creation; strengthening community

action; personal skill development; and health services reorientation, coordinating with others, and to be a change agent, developer, and integrator (Satiraungkul, 2014).

In conclusion, the essential roles and accountability of head nurses are similar in both Thailand and other countries in terms of management, nursing care, and educational role. The roles of head nurses were specified appropriately with organizational context and policy. In Thailand, there is little research about the roles and accountability of head nurses in community hospitals, as a result, head nurse roles in community hospitals have not been specified clearly. The role and accountability description of head nurse are imperative to develop competencies for head nurses. Therefore, they should be more determined in the context of community hospitals.

The Qualifications of a Head Nurse Position

Bureau of Nursing (2005) specified the qualifications of a head nurse position that the person must be a registered nurse, demonstrate the ability to administer human and project management, system organization in a unit, teaching the staff, a commitment to staff development, communication in a broad range of people, planning, and performance evaluation. However, nurse administrators weren't prepared for the position. Most of the head nurses were appointed by higher executive election that did not stipulate the qualification (The Policy and Planning of the Secretariat of Thailand nursing and midwifery council, 2011). A study of Krungkaw (2004) found that most of the nurses in community hospitals were new nurses and had experienced less than six months in a head nurse position and managed through direct experience and previous head nurse. Besides, a study about the head nurse in community hospitals, in the sixth region found that there were problems with human resource management at 71.43 percent. The needs of management skill development are 76.54 percent, planning 44.57 percent and system management 28.57 percent (Rupraman, 2002).

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Competency of Head Nurses in Community Hospitals

This section is described in five parts as: 1) competencies in nursing and competencies of head nurse, 2) competencies of head nurses in community hospitals, 3) the outcomes of competencies of head nurses, 4) types of competencies of head nurses, 5) factors affecting competencies of head nurses.

The concept of competency has been studied for long time. It was used the first time in 1824. It came from the French word which was derived from Latin implying competing (Valloze, 2009). In the United States, McClelland (1973), an expert of psychology from Harvard University, founded McBer as a part of The Hay Group. He studied the measurement of intelligence or ability to succeed in their work. The research found that there were no studies demonstrating the performance of individuals which could be predicted by the test scores of intellectual ability. This was the reason for the original competency testing in the United States. Each country has a different purpose to use it, such as in the United Kingdom as well as countries in Europe, competency was used to define performance standards determining the ability of workers. In the United States, competency testing was used for human resources development (Akkarabowon, 2006).

Competency in Nursing and Competency of Head Nurses

The term of competency has been used worldwide in the workplace. The meaning of competency is different in various situations and perspectives. However, it has been used for similar objectives. From the literature review, Business Dictionary (2011) defines competency as the ability, commitment, knowledge and skills that a person can use to deal effectively with a situation. Spencer and Spencer (1993) defined competency as the characteristics of an individual within a reasonable relationship to the reference criteria that a person has a high performance in a job or situation. They defined competency as five types in the iceberg model as skills, knowledge, self concept, personal characteristic, and motives. Boyatzis (2008) noted that competency consists of behaviors of emotional, social and intellectual, or personal characteristics which can be observed and measured. These characteristics are underlying in persons leading to effective action or superior performance in a job

(Boyatzis, 1982). Vazirani (2010) reviewed the literature and found that competencies are skills, knowledge, and the underlying characteristics of person that demonstrate behavioral or thinking methods in variety of situations, and endure for long time periods (King, 1996; Marrelli, Tondora, & Hoge, 2005; Organizational Readiness Office, 2007; University of Guelph, 2010). Besides Zingheim, Ledford and Schuster (1996) noted that competency is the behavioral expression, individual output, and productivity to achieve the organizational strategy which is defined as the skills, knowledge and ability to provide individuals with the actual situation or context (Charles Darwin University, 2006; JCAHO, 2007; Kak et al., 2001; Wright, 1998). In Thailand, the Office of the Public Sector Development Commission [OPDC] (2005) defined competency as the behaviors of a person in an organization acting for superior performance, and these behaviors include motives, traits, self-image and social roles in a variety of situations. Moreover, the meaning of competency is defined differently by researchers or experts in both the United States and the United Kingdom. In the United States, competency is defined as the skills, knowledge and underlying or personal characteristics (McClelland, 1973), while in England, competency is defined as a description of an action, behavior or outcome which a person should be able to demonstrate (Hachey, 2006) for achievement.

Spencer and Spencer (1993) emphasize the point that competencies have to associate with performance in the workplace and something would be desired. They identified five components of competency characteristics including knowledge, skills, motives, traits, and self-concept. First, knowledge is the information and learning resting in a person that an individual has in specific content areas. Second, skill refers to a person's ability to perform a certain physical or mental task. Third, motives refer to emotions, desires, physiological needs that an individual consistently thinks about or wants that stimulate action. Fourth, traits refer to physical characteristics and consistent responses to situations or information. Finally, self-concept refers to a person's attitudes, values or self-image. Knowledge and skill competencies are visible as relatively surface characteristics and easy to develop compared to traits, motives, and self-concept competencies which are more hidden, deeper and central to personality. It is more cost-effective to select for core motive and trait competencies,

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and train the knowledge and skills required to do the specific jobs (Spencer & Spencer, 1993).

In summary, from the literature review, the term competency is defined as behaviors of a person resulting from skills, knowledge, and the underlying characteristics practiced in the various context of workplace for achievement or superior performance.

There are a variety of ways in which the term competency of varying viewpoints is defined in nursing literature. Scott-Tilley (2008) defined nursing competency by concept analysis as the integration of knowledge, personalization features, decision making, and psychosocial skills needed for practice and performance evaluation. The American Nurses Association (2010) defined competency in nursing practice as an expected level of performance that integrates of knowledge, skills, abilities, and judgment which reflects variability depending upon context and the selected competence framework or model. The International Council of Nurses (ICN) (2009 as cited in Reid & Weller, 2010) defined nursing competency as an expression of care that reflects their knowledge, understanding and decision-making, level of skills, knowledge, personal characteristics and attitudes for achievement. JCAHO (2007) defined competency as the individual ability demonstrated by practice with the set of knowledge, skills and ability associated with effective superior performance. Bureau of Nursing (2005) defines competency as a feature of behavior resulting from knowledge, skill, traits and other features of organization needed to provide for the care of the mission, and vision. However, from a literature review by Potter (2004), the attributes of nursing competency are self-knowing, judgment/problem solving, self-reflection, knowledge, and successful skill performance. In addition, the attributes of nursing competency were identified as professional role model, critical thinker, expertise in practice, building knowledge and skills, demonstrating appropriate action, ability to apply norms to a situation (Valloze, 2009), knowledge, actions, professional standards, internal regulation, and dynamic state (Axley, 2008).

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In conclusion, the definition of nursing competency lacks clarity because nursing careers are widely divergent with various levels of practice. From the literature review, nursing competency is defined as the integration of skills, knowledge, judgment or decision-making, and professional role for goal achievement.

Competency of Head Nurse has not been identified clearly. From the literature review, competencies of head nurses were described as the developed practice skills, knowledge, attitudes, or human abilities that enable one to carry out the work of a hospital-based nurse manager effectively (Chase, 2010), or the knowledge, skills and personal attributes of an individual in a first level administrative position who manages staff providing direct care (Jeans & Rowat, 2004). It is groups of skills, behavioral attributes, and personal attitudes that make a greater contribution to the effectiveness of managers than either formal qualifications or number of years of experience (McCarthy & Fitzpatrick, 2009), and as the knowledge, judgment, abilities, and skills required for effective functioning in the position of registered nurse who has management responsibility for one nursing unit (Lewis, 1996). Moreover, it refers to skills common to nurses and nurse leaders who employ or work with them regardless of their educational level or titles in different organizations (AONE, 2005), and an area of knowledge or skills that is significant for producing achieved outputs (Harrison, 2005).

In conclusion, competencies of head nurses are defined as knowledge, skills and attitudes or ability of first-line nurse administrators that enable them to carry out the work effectively and achieve the goals.

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Competencies of head nurses in community hospitals

Competencies of head nurses are used to evaluate and reflect individual performance (Roussel & Swansburg, 2009) that relates to the quality care, and are a guide for nurse administrators to develop their practice (Biron, Richer, & Ezer, 2007). Chase (2010) conducted research using the conceptual framework of head nurse competency of Katz consisting of technical, human, and conceptual to study a sample consisting of nurse managers who were members of The American of Nurse Executive [AONE]. The findings revealed that nurse manager competencies consist of five domains including technical skills, human skills, conceptual skills, leadership

skills, and financial management. After that, the researchers used this framework to study continuously. Georgette (1997) conducted a study with a sample of nurse managers in medical, surgical, critical, psychosis and rehabilitation units. Kondrat (2000) studied a sample of nurse managers in the operation room, and found that the highest scores of competencies for nurse managers were human management and leadership. Ten Haaf (2007) studied a sample of nurse managers in the middle-west of the United States and found that these competencies were related to the satisfaction of nurses and patients for caring.

From the literature review, quantitative methods were conducted to study the framework for head nurse competency using various methods. The qualitative methods used to study the head nurse competency model were in-depth interviews, and grounded theory. The results of those studies were similar in that the head nurse competencies include leadership skills, financial skills, management or organization skills, communication skills, human resource skills, collaboration and team skills, clinical skills and knowledge, relationship building, thinking skills, integrity and awareness of regulatory requirements, informatics and technology, and conflict resolution (Balke, 2006; Harrison, 2005; Jeans & Rowat, 2004; McCarthy & Fitzpatrick, 2009; Russell & Scoble, 2003). However, there are differences in head nurse competencies including business acumen, change management (Russell & Scoble, 2003), resilience and composure, sustained personal commitment, service initiation and innovation, promoting evidence-based decision-making (McCarthy & Fitzpatrick, 2009), delegation (Balke, 2006), situation preparedness, and cultural competence and management of an intergenerational workforce (Harrison, 2005).

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In addition, there has been much research about the leadership competency of the head nurse, which is a part of all head nurse competencies. From the literature review, the results of the studies were similar. For instance, National Center for Healthcare Leadership [NCHL] (2005), Healthcare Professional [HCPro] (2008), Healthcare Leadership Alliance [HLA] (2010), and the descriptive research of Cook (1999) and Lin, Wu, and White, (2005) investigated head nurse competencies and healthcare leadership model in which they found that the competencies are similar including three components: transformation, execution, and people. Hosseni (2007) studied the specific leadership characteristics of nurse managers in 2010. The samples

in that study were nurse executives and it was found that there were two domains: leadership skills and organizational leadership skills. Dye and Garman (2006) studied the leadership competency model from the experience of senior nurses and found that there were four competencies of leadership: well-cultivated self-awareness, compelling vision, a real way with people, and masterful execution.

However, Eldridge and Judkins (2003) described aspects of the community environment relevant to nursing, and identified the essential competencies needed for nurses working as managers and directors in community settings. They describe the essential competencies for nursing administrative practice in a community hospital including financial management, leadership, workforce management, cross-disciplinary management, integration of need-based community services, and maximizing resources. Therefore, some competencies of a head nurse in the community are similar to the general head nurse; but there are some differences such as cross-disciplinary management, and integration of need-based community services which were practiced by head nurses in the community.

In Thailand, the literature review about head nurse competencies model found similar results of studies such as leadership, management and quality improvement, professionalism, human resource management, and communication and coordination (Aphinyanon, 2006; Bureau of Nursing, 2005; Promsorn, 2007; TNC, 2013). The results of these studies which are different are self-development and personality (Aphinyanon, 2006), moral principles and ethics, management, strategic management, research and innovation, and financial and marketing (Promsorn, 2007), proactiveness, analytical thinking, conceptual thinking (Bureau of Nursing, 2005), code of professional conduct, ethics and the legal, and policy and healthcare environment (TNC, 2013).

In summary, from the literature review, a competency framework for head nurse was identified in Thailand similarly to other countries which focused more on leadership. The competencies of head nurses are similar in both Thailand and other countries including leadership skills, administration or management or organization skills, professionalism or clinical skills and knowledge, human resource management, communication and coordination, moral principles and ethic, research and innovation, financial and marketing, and analytical thinking and conceptual thinking. The

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competencies of head nurses in Thailand are composed of healthcare quality improvement, policy and healthcare environment, pro-activeness that differ from other countries. The competencies of head nurses in other countries include collaboration and team skills, and conflict resolution that differ from those in Thailand. These competencies have been specified depending on the context of the hospital.

From the literature review, TNC (2013) specified the five essential competencies for a head nurses in general by nurse experts consisting of leadership, management and quality improvement, communication and relationships, code of professional conduct, ethics and the legal, and policy and healthcare environment. These competencies have been used in the competency assessment of head nurse in Thailand. However, Eldridge and Judkins (2003) reviewed the literature about competencies for nurse administrator in a rural hospital and found that the essential competencies consist of six domains: financial management, leadership, workforce management, cross-disciplinary management, integration of need-based community services, and maximizing resource. These essential competencies identified by Eldridge and Judkins (2003) are similar to TNC (2013), except for the cross-disciplinary management, which were identified by Eldridge and Judkins (2003), and healthcare quality improvement, code of professional conduct, ethics and the legal, and policy management which were identified by TNC (2013).

In conclusion, competencies for head nurses in community hospitals resulting from literature reviews and competencies for head nurses by TNC (2013) can be summarized as leadership; management and quality improvement; communication and relationships; code of professional conduct, ethics and the legal; policy and healthcare environment; and cross-disciplinary management.

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The competency structure for head nurses identified by TNC (2013) and literature reviews include five domains described below.

1) Leadership. Leadership is defined as behaviors of a head nurse influencing the team to achieve goals including the conceptual skill, analytical thinking and decision making, change management, negotiation and conflict management, and creative thinking.

Conceptual skill refers to the enterprise as a whole; visualizing the entire organization and working with ideas and the relationship between abstract concepts (Wiley-Cordone, 2013), serving the big picture, and understanding the relationships among the elements and the context (Olum, 2004), understanding how things are associated and connected, identifying the systems at play and their interrelationships, making informed predictions of the future, and planning to achieve the optimum outcomes (Jarrard, 2012).

Analytical thinking and decision making refers to defining the problems and issues that are important, accumulating information related to the problem, breaking down raw information and problems into specific, scrutinized and thought into their strengths and weaknesses, analyzing data of the best way to provide a service and make decisions that are based on available information (Buchbinder & Thompson, 2010).

Change management refers to energizing stakeholders and sustaining their commitment to changes in approaches, processes, and strategies (National Center for Healthcare Leadership [NCHL], 2005). The leaders should describe the reasons behind the change, share the leadership, inspire others to be positive in service improvement, support the capability and long-term development of others, and encourage others to embrace in change (Institute for Innovation and Improvement, 2006).

Negotiation and conflict management refers to suggesting alternatives to reach outcomes in order to gain acceptance of all parties, develop a strategy for giving alternatives to others for achievement purposes, respond to opposing views in a non-defensive manner, keep arguments issue-oriented, attempt to satisfy mutual needs, to solve problems creatively, and to develop relationships. (Cherie & Gebrekidan, 2005), and resolve a problem to be with the change of the situation (TNC, 2013).

Creative thinking refers to acting as a positive role model for innovation, developing creative solutions to transform services and care, applying complex concepts and adapting previous solutions in new ways for breakthrough thinking in the field (NCHL, 2005), supporting nursing care based on evidence-based practice, and developing and evaluating the research-based clinical information systems to be used within an organization (Flesner, Scott-Cawiezell, & Rantz, 2005).

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2) Management and quality improvement. Management and quality improvement are defined as behaviors of head nurses integrating the vision and mission to plan strategy, set goals, prioritize, and formulate an action plan associated with persons, supply and quality services in order to achieve the goals including resources management, quality management, and knowledge management.

Resources management refers to an ability to set a process of planning, leading, organizing and controlling including strategic planning, setting objectives, managing resources, developing the human and financial assets needed to achieve objectives and goals (Mahmood, Basharat, & Bashir, 2012). Human resource management is the process of acquiring and retaining the organization's human resources. Material management is the activities to achieve the maximum coordination and optimum expenditure in the area of materials, to have the right materials at the right place at the right time (Cherie & Gebrekidan, 2005).

Quality management refers to the systematic process of designing and building the structure of a quality management system, the process, and the measure of the quality of care provided in a unit or institution that involve the setting standards, determining criteria to meet those standards, data collection, making plans for improvement by evaluation, and following up on implementation for improvement of each process towards attaining its objectives (Cherie & Gebrekidan, 2005), and taking part in healthcare team in the design; and implementation of an evaluation and outcomes model (AONE, 2005)

Knowledge management and innovation refers to the use of appropriate methods to gather data, complete analysis against evidence-based criteria; of information to challenge existing practices and processes; influencing others to use knowledge and evidence to achieve best practice; leading the workforce to plan, coordinate, and deliberate the organizational knowledge management to enhance the ability of organization; supporting the increase of innovative care (Hsia, Lin, Wu & Tsai, 2006).

3) Communication and relationship. Communication and relationship refer to communicating clearly and concisely with internal and external customers; listening to others with respect for diverse views, verbal and nonverbal communicating a two-way dialogue with staff; being honest and open with staff in the

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organization (Cherie & Gebrekidan, 2005); building relationships with the workforce, fellowship and other disciplines to collaborate in healthcare service (TNC, 2013); and using the computerized information resources to effectively manage the patient care setting (Emergency Nurses Association [ENA], 2009).

. **4) Code of professional conduct, ethical and legal practice.** Code of professional conduct, ethical and legal practice is defined as applying merit, ethical theories, culture, human and patient rights, Nurses Midwifery Act, law, the National Health Act, the National Health Security Act and others for ethical decision making, and administration. It refers to behaviors of head nurses in human and patient rights advocacy, problem solving and nursing management based on ethics and law, and modeling for subordinates. Head nurses can assist patients in becoming informed of their rights and understand them, take appropriate actions to protect patients who are vulnerable in violation of rights and immoral and unethical practices, analyze ethical issues and make ethical decisions appropriate in health care practice and nursing administration, and portray a good role model (TNC, 2013), maintain professional standards of behavior in accordance with relevant legal and ethical issues (Reid & Weller, 2010).

5) Policy and healthcare environment. Policy and healthcare environment management refer to the understanding of healthcare policy environments and the determinants of health; effective performance based on nursing objectives or direction; controlling the environmental factors including biological, physical, chemical psycho-social, and spiritual factors affecting the health of a community; the climate facilitation for healthy healthcare team and a good workplace environment (TNC, 2013); supporting value and opportunity of staff in planning, problem solving and decision making; promoting a work-life balance (Reid & Weller, 2010).

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Antecedents of competency

The events that occur prior to the occurrence of the concept are called antecedents. From the literature review, the antecedents that are associated with competencies of head nurses including marketing competition (Hayton & Kelley, 2006), performance management, the development planning process, employee development plan (Bersin, 2007), the completed required educational preparation,

standards of action, accountability and responsibility for knowledge and actions (Axley, 2008). In addition, work authenticity, continuous learning at work (Valloze, 2009), the assessment of ongoing readiness for practice (Scott-Tilley, 2008) , awareness/educational knowledge, and framework of skill behaviors presented in order to achieve competency (Potter, 2004) are the events appearing prior to concept occurrence.

The Outcomes of Head Nurse Competency

Head nurses practicing with knowledge, skill, and personal characteristics bring about outcomes. From the literature review, there were few studies about the head nurse competency in community hospitals, so the studies of head nurse competency in the other hospitals were used to review the outcomes of head nurse competency described as follows:

1) Clients. The competency of head nurses affects directly the health status and safety of clients, preventing risk factors (Axley, 2008), and providing standard car (Axley, 2008; Valloze, 2009) that results in clients' satisfaction and quality healthcare (Roussel, 2009; Scott-Tilley, 2008; Valloze, 2009). In accordance with a study that found head nurses in medical and surgical departments who are competent, result in positive satisfaction of patient for pain management (Ten Haaf, 2007), head nurses who have transformational leadership results in nursing quality in clinical units (Reangpakdee, 2002; Eisler, 2009). In addition, the studies in critical units in the United States, Canada, the United Kingdom, Germany, and Scotland found that the critical unit with good organizational management, environment management, resource management, privilege of nurses, and relationship resulted in healthcare quality improvement (Aiken, Clarke, & Sloane, 2002; Aiken et al., 2011) . The mortality rate of the admitted thirty days was decreased as a result of competent nurses, and a having a good relationship with other disciplines (Estabrooks, Midodzi, Cummings, Ricker, & Giovannetti, 2005; Tourangeau et al., 2007). In contrast, head nurses lacking the capacity to manage and support the abilities of the staff resulted in inaccuracies in drug administration, adverse events of nursing practice, harmful to patients, and the failures of the goal attainment (Axley, 2008).

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2) The healthcare providers. The head nurses empowered in their own practices can be good managers (Valloze, 2009), leaders, resulting in the worker's satisfaction and success (Moore & Rudd, 2005). Consistent with this, a study in urban and community hospitals found that head nurses performing with good management and leadership resulted in positive cooperation and decision-making between doctors and nurses (Krairiksh, 2000). Besides, head nurses can support the staff to advance in their profession, be experts in their jobs (Reid & Weller, 2010), apply knowledge and innovation to patient care, and develop careers for the better (Axley, 2008; Scott-Tilley, 2008; Valloze, 2009). A positive environment is important to quality care. Therefore, head nurses need to be able to manage the clinical environment. In accordance with studies of critical units in the United States, Canada, England, Germany, and Scotland found that nurse leaders who manage appropriate care and workplace environment resulted in staff satisfaction and reduced boredom at work (Aiken et al., 2002; Aiken et al., 2011). In contrast, head nurses who cannot manage the clinical units will affect the staff performance. According to a study findings unsuitable head nurses performance resulted in overload work, stress, illness, fatigue, medication error, and high cost of healthcare in the unit that cause a turnover in the workforce (Shirey, McDaniel, Ebright, Fisher, & Doebbeling, 2010).

3) The organizations. A competent head nurse can lead the organization to succeed through transforming policy into practice, information of the workers to resolve with upper executives, and driving policies to their target. Besides, the head nurse competency framework can be used as criteria in the selection of head nurses with the appropriate position leading organizations to achievement (Moore & Rudd, 2005). In accordance with the study of Clawplodtook (2008) which found that there was a statistically significant positive correlation between strategic leadership of head nurses and the effectiveness of clinical unit at general hospitals. The competency component of head nurses defined clearly can be applied as a guide to ethical and legal practices in healthcare (Hancock, 2004). Moreover, it can determine the resource management strategy, recruitment, career path, and human competency development (Garman, 2006). Nuanchan (2009) found that the head nurses of a University Hospital who were highly capable in human management resulted in a good environment and organization. In addition, Poogpawpan (2002) found that the

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strong performance outcomes in clinical units resulted from high effectiveness of head nurses. The studies of Raup (2008), and Cummings et al. (2010) also found that transformational leaders resulted to appropriate environment in workplace, and reduced the cost of the orgnaization by recruiting as well as new staff development.

4) The knowledge management in the clinic. The head nurses who have competencies in their position can prepare the staff nurses to participate in knowledge management in clinical units. Head nurses can promote the nursing providers to use the innovation and new methods of learning for health services (Valloze, 2009). Staff nurses will be supported to collaborate with healthcare providers in knowledge sharing. In addition, the head nurses can coach nursing students to apply and share the knowledge in clinical decision making, and practice in clinical units without error (Scott-Tilley, 2008).

5) The research utilization. Head nurses with competence in academia will be able to study the research, and take research into practice. According to the literature review, leadership of the head nurses which was focused on relationships resulted in the utilization of the research outcome to practice, used empirical evidence, and acted with the best practices in clinical units (Cummings et al., 2010). Furthermore, the study found that there was a statistically significant positive correlation between the transactional leadership of head nurses and the organizational culture of the nursing department in the sixth region of community hospitals (Kinnarate, 2003).

In conclusion, the competencies of head nurses are important in the nursing profession. They have to practice in various duties and lead the organization to a successful outcome. The capability of head nurse results in essential outcomes including the standards of practice, quality and effectiveness of services, the relationship with stakeholders, satisfaction of head nurses, and organizational achievement.

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Types of Competency

Type of competency, also described by various other names, is described as the knowledge, skills and specific characteristics for practice. In Thailand, types of competency of bureaucracy are divided into two types consisting of core competency,

and functional competency (Nursing Division, 2005). Competencies which are often used, are described below.

Functional, technical, or job competency. These terms are the specific competencies or work characteristics of experts needed in the role of an individual working group. As a result, experts in the same group appropriately demonstrate the behaviors in their role, and have been observed to practice in superior performance (Nursing Division, 2005). This competency is described as knowledge, skills, and ability that are excellent behaviors and abilities in the job (Akaraboworn, 2006; Katz & Kahn cited in Naqvi, 2009; OPDC, 2005; Tongkaw, 2011; United Nations Industrial Development Organization [UNIDO], 2002). Some experts define this term as a specific technique of professionalism (Juntarawongpaisarn, 2006).

Professional, or managerial competency. This term is described as knowledge, attitude and, skills that are needed for organizational planning, management, and resource development. The competencies are grouped in each job within the organization. The goal is to optimize performance by having the technical skills to perform a task (Akaraboworn, 2006; Katz & Kahn cited in Naqvi, 2009; OPDC, 2005; Tongkaw, 2011; UNIDO, 2002).

Core competency. A person in an organization is required to possess the core competency, which is evidence of culture and value of the organization. Moreover, it is the specific behavior and the indicator of a person and the organization performance that is integrated with the complex technology and practice of the job (Juntarawongpaisarn, 2006). It is associated with individual performance and the outcome of an organization (Akaraboworn, 2006; OPDC, 2005; Tongkaw, 2011; UNIDO, 2002; Yootyingyong, 2006). However, core competency is divided into two aspects including core competency of the organization - indicated as a result of goals and strategies for competition guidelines, and core competency of a person - indicating the cause of superior performance (Rassametummachot, 2005).

Human competency. This term is evidence of behavior in which knowledge and skills are utilized. It is perceived as the responsibility of a person, and is used for human resource management for success (Katz & Kahn as cited in Naqvi, 2009; Tongkaw, 2011; Yootyingyong, 2006).

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To summarize, the terminology of the types of competency contains a variety of definitions for the purpose of the organization. Some terms of competency are similar, but are named differently such as technical, functional, or job competency. This study will be studying the functional competency of head nurses in community hospitals because of its specific competency of head nurse group in community hospitals. Therefore, the achievement of head nurses and organizations can be hypothesized.

Factors Affecting Competency of Head Nurse

The ability of head nurses will be a prerequisite to the position, and required for the organization in order to be successful depending on many factors that influence their performance development. These factors will promote the competence and performance development of the head nurses. According to the literature review, there were few studies of factors that affect head nurse competency in community hospitals. The factors affecting competency of head nurses at other levels of hospitals were studied simultaneously as follows.

1) Personal factors. Personal factors impacting the competency of head nurses include experience (Potter, 2004; Valloze, 2009), and education (Axley, 2008; Potter, 2004; Scott-Tilley, 2008).

Experience. Experience refers to the person who accumulates adequately the knowledge, skills, and abilities to become a professional (Jeans & Rowat, 2004; Kaewpat, 2008). According to a study by Payakkata (2008) which found that experience, duration in the position, and nursing management factors influenced higher performance of head nurses in a community hospital in the north east of Thailand. Agreeing with this study, Rajchasak (1997) found that there was a statistically significant negative correlation between the duration in the position of head nurses in the central hospital and the ambiguous and conflict role of head nurses. It implies that those head nurses were able to practice in the position appropriately.

Education. The organization desires head nurses who have knowledge and ability to practice, as they affect directly on performance and perspective of head nurses (Alainati, Alshawi & Al-Karaghouli, 2010; Intarakamhang, 2003; Somjai, Keyuranon & Singchangchai, 2007). Learning is caused by behavioral changes in

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three aspects including cognitive, emotion, and skills for the professional practices (Tongun, 1999). A grounded study of the Ministry of Public Health and medical education in Tehran, Iran, found that education is important to clinical decision making development of head nurses (Hagbaghery, Salsali, & Ahmadi, 2004). Moreover, a study by Somton (2011) revealed that effective management behavior and the performance achievement of the head nurses in community hospitals, Public Health Office Region 18 was as a result of the head nurses having finished their master's degree.

The competency of head nurses can be developed by training. According to numerous studies, it has been revealed that persons who received appropriate education and training resulted directly and positively to the competency (Alainati et al., 2010; Dubios & Rothwell, 2004). Also, Alainati et al. (2010) showed that training needs by the trainees resulted in performance achievement. In accordance with the findings of Rupraman (2002), it was revealed that the head nurses trained in management reflected superior ability of the management. Furthermore, the findings about the learning of nursing affecting the performance competency included the program or course of learning (Axley, 2008; Scott-Tilley, 2008; Somjai, Keyuranon & Singchangchai, 2007; Tengkew, 2009). Therefore, head nurses educated and trained dramatically resulted in effective management and clinical practices.

2) Organizational and environmental factors. Organizational and environmental factors include the policies, implementation process, standard of practices, responsibilities, and work environment (Alainati et al., 2010; Axley, 2008; Long & Ismail, 2009; Potter, 2004; Valloze, 2009). These factors influence the competencies of head nurses.

The policy. The finding of Somton (2011) showed that policy factors affect effective management behaviors and achievement following the organizational policy of head nurses in community hospitals, Public Health Office Region 18. In accordance with a grounded theory study about the competency of head nurses in the present found that the factors affecting head nurse competency consist of the rules, regulations, and the standards for healthcare quality (Balke, 2006). Thus, head nurses who perform to reach goal attainment, resulted from those factors.

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The environment of the workplace. According to a study by Balke (2006), it was found that the environmental factors affect the competency of head nurses to manage healthcare environment appropriately, and maintain the staff for quality and safe patient care (Shirey et al., 2010). In agreement with this, a study in a critical care unit by Aiken et al. (2002) which found that the factors supporting the decision making of nurses in clinical units were adequate resources, the autonomous nurse, and a good relationship with other disciplines. A study by Nuanchan (2009) found that organizations which consist of readiness and a good environment, resulted in a high potential for nurses management, and the ability of head nurses in decision making created by the structure and culture harmony of health care (Hagbaghery et al., 2004). In addition, a study by Kanchanaphuping (2008) found that a creative organizational culture influences competency of head nurse in community hospitals, the eastern of Thailand. In accordance with this study, the study revealed that organizations, which had two-way communication and creative culture, resulted in the capacity of head nurses for the effective conflict management (Panutat, Pongruengphant, & Baramee, 2004). Thus, environmental factors including good environment, adequate resources, structure, culture, and communication of organization resulted in an efficient competency of head nurse.

Competency assessment. The practice can be evaluated by a reliable competency definition. The licensing regulations and professional standards assured the qualification for practice of workforce (Schroeter, 2008). The competency of head nurses was assured by continuous education for practice development and work-based orientation programs. Licensing professionals will provide the quality of care, but do not hold them to a skill level that promotes quality care (Schroeter, 2008). Head nurse competency requires an integration of knowledge, skills, and essential characteristics. So, the competency needs to be evaluated.

In summary, the literature review showed that several significant factors affect competency and competency development of head nurses including experience, education, training needs, organizational policies, individual characteristics, environmental workplace, and evaluation competency. These factors support head nurses to apply knowledge, skills, and personal characteristics to practice with concrete behaviors, and effective management outcomes for patients, staff, and

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organization. There were many studies focusing on factors affecting head nurses competency, but few studies were found in community hospitals. Therefore, head nurses in community hospitals have not yet been developed to the professional level.

Situation of Competency for Head Nurses in Community Hospitals

Presently, head nurses are faced with reforms and changes in the health care system related to cost-effectiveness, patient centered care and empowering the nursing staff. So, the perspective of the organization is how to be the leader of professional experts (Brandi & Naito, 2006). In Europe and America, the roles of nurse managers were changed, but they had not been clearly identified or described. Nnurse managers are still focused on management rather than leadership or nursing practice (Dranch-Zahavy & Dagan, 2002). According to a study by Surukka (2008), it was found that nurse managers' work is comprised of responsible and accountability activities, traditional bedside nursing, the descriptions of work varied between universities and rural hospitals between psychiatric and somatic nursing and between different wards. Moreover, there are limited human resources, and health care facilities in a community hospital that could impact on the competencies of head nurses (Eldridge & Judkins, 2003), which made head nurse competencies different in each hospital level. The competencies identified by the Healthcare Leadership Alliance (2010) were common competencies among all healthcare managers while AONE (2005) proposed common competencies among nurse executives. Kenny and Duckett (2003) stated that policy makers do not have a good understanding of nursing practice in community hospitals, and do not think that there is a difference between healthcare delivery systems of community hospitals and the others. Therefore, there is limited research on competency of head nurse in community hospitals.

In Thailand, a head nurse is the first-line nurse manager and most of them were appointed by the selection of the top executive, so these positions have never been identified for the appropriate qualification. Head nurses practice in the common accountability and responsibility identified by Office of the Civil Service Commission in 2006. They were not supported to continue their education or having competency development. Krungkaew (2004) proposed that the policies of The Ministry of Public

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Health focus on fundamental nursing for family and community caring rather than on specifically nursing. Moreover, most head nurses have never been prepared for the position. Therefore, it was found that there were more problems of the head nurses in a community hospital in terms of age, experience in working, and various skills, more than in general and central hospitals (Krungkaew, 2004). A study by Srichantaranit (1996) found that there were fewer performance evaluations of head nurses than responsibility evaluations. Moreover, there is a limitation of research on the head nurse competency in community hospitals in either Thailand or in other countries. Thus, the researcher conducted a pilot study in community hospitals to find the real issues of competency of head nurses.

The researcher conducted the pilot study using interviews, observation, and document review in the unit of hospitals including central hospitals, general hospitals; 120-, 90-, 60-, and 30-beds community hospitals in: Kamphaeng Phet, Nakhon Sawan, Chai Nat, Sing Buri, Angthong, Uthai, Phichit, and Lamphun. The purpose was to study the working environment of head nurses in each level of hospitals for the differences in the structure, environment and accountability. Firstly, the organizational structure of central hospitals and general hospitals demonstrated the complexity and nursing specialist. The nursing department was classified into nurse administrator as the director of nursing service, nurse supervisor, and head nurse. Some hospitals do not have nurse supervisors. The organizational structure of community hospitals demonstrated no complexity or nursing specialists. Their services provided normal delivery, emergency and in minor cases operations - depending on the capacity and resources of organization. In some hospitals where no nurse supervisors were present, it was classified into nurse administrator as the director of nursing service, and head nurse. There is only the director of nursing service in 10-bed community hospitals. Some 120-bed, and over-120-bed hospitals were demonstrated in the organizational structure similarly to general hospitals.

Secondly, the environment of community hospitals, general hospitals and central hospitals varies in context. Healthcare services in the 10-bed community hospitals consist of in-patient, outpatient, emergency and labor. The patient care in the unit was provided for all age group and illnesses which were encouraged about the supplies and the materials needed for basic care. Community hospitals with 30, 60

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beds, and some with 90 beds, provide care for all illnesses in the same unit that is divided into male and female-patient sections. These patients do not have complex conditions. If they have complex conditions, they will be referred to higher level of hospital. The hospitals have limited human resources, supplies and materials. Therefore, head nurses have to manage in their units associated with their context, in order to achieve the goals.

Lastly, the accountability of head nurses in all levels of hospital is demonstrated in three common roles including administrative role, providing care, and academic and research role. While, in each level, the health of clients; human resources; context; organizational policy; and the facilities are various. Thus, three common roles are described differently in the job description. The competencies of head nurses in central, general and community hospitals are also different.

In conclusion, the competencies of head nurses have been found to be different in the context, policy and environment. In Thailand, head nurse competencies are different in central, general and community hospitals, but they still have practiced the same as the traditional senior head nurses. Therefore, competencies for head nurse should be identified clearly in each hospital level for appropriate practice in the real situation.

The Career Path of Head Nurses

Personnel competency development by creating opportunities or advances in head nurses perceived that they can grow in their jobs. Some migrate to any position or rotation numbers are agencies as an incentive to work. The clinical ladder tracts of a head nurse position classified into five levels as primary level, professional level, senior professional level, expert level, and advisory level (Bureau of Nursing, 2005) based on The Office of the Civil Service Commission specified in professional specification of each level. The personal appraisal into the position will considered about job performance, achievement, and the essential competencies (OCSC, 2006). Moreover, the ladder tracts of a head nurse in vertical classified into three levels as head nurse, nurse supervisor, and the director of nursing (TNC, 2013). Therefore, the competency of head nurses is essential which can identify them into the higher level of the career path.

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Head Nurses Training and Preparation

The development supporting individual performance head nurses is essential in order to have knowledge and ability to manage effectively in changing conditions, appropriate to responsible positions, and ability to lead the organizations to reach their goals (Furukawa & Cunha, 2011). Head nurse training can be done in a variety of ways, such as self-study, teaching job as a coaching or mentoring, real-life practice, training course, continuing education, and training in the classroom. Head nurse development in other countries has been supported by various organizations. They tried to find the quality and efficiency ways. Nurse leaders in Mississippi collaborated with the nursing association and nursing education institutions to develop and review the curriculum for head nurses (Eichelberger, 2002). Council on Graduate Education for Administration in Nursing [CGEAN], (2011) supported the development of head nurses both in the United States and other countries.

In Thailand, some nursing education institutions set up a nursing administration courses for general administrators which were not specific to head nurses or the director of nursing. The pilot study by the researcher (2011) found that head nurses in community hospitals were not supported to study or for training from organizations for preparation into the position and continuous development. Therefore, most of head nurses have insufficient knowledge and ability in their positions. The training need and preparation for them should be identified, and the specific curriculum for them should be developed so that head nurses can practice effectively in their jobs.

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Competency Assessment for Head Nurses

Competency assessment for head nurses has been described in two parts including methods of competency assessment, and competency assessment scale for head nurse.

The individual knowledge, abilities and internal characteristics can be assessed by the competency, which is the one process of performance appraisal (Roussel & Swansburg, 2009). Competency assessment is a significant process for human resource management, productivity, selection, training, career planning and reward in nursing management (Swansburg, 1990; Roussel & Swansburg, 2009). The

objectives of assessment are to plan the strategy for fifty eight percent, to find strengths and weaknesses for thirty nine percent, to plan a career path for eighty nine percent, and to provide a reward for one percent (Roussel & Swansburg, 2009). In addition, the goals of competency assessment are to be congruent with healthcare reform, to organize the performance, to maintain the liability and ethics, the risk management, and received certification and recertification of providers (Kak et al., 2001), to improve individual performance, to assess group performance, to reach standards set by a regulatory agency, to address problems within the organization, and to enhance performance review (Wright, 2007). Therefore, the goals of competency assessment rely on the outcome expectation of the organization. The roles of head nurse are in both clinical care and management that differ from other nurses' positions. The nurse administrators are expected to demonstrate both high measurable outcomes and effective management (Healthcare Leadership Alliance, 2010). Competency assessment is an ongoing process that helps the necessary skills evaluation to be achieved in the workplace (Wright, 2007). The assessment will reflect on job efficiency, high productivity, quality production, quality delegation and recruitment (Roussel & Swansburg, 2009; Swansburg, 1990). In addition, competency assessment is a significant instrument for organizational development, job motivation and behavior demonstration to how the professionals work adequately in their role (Marquis & Huston, 2003), and a guideline for achievement to the organizational mission (Roussel & Swansburg, 2009). Thus, competency assessment for head nurses is significant in order to provide effective care, achieve nursing management and foster professional development.

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Methods of Competency Assessment

Competencies integrated with several components such as motives, traits, self-concepts, attitudes or values, skills and abilities all of which differentiate superior performers from average performers (Anitha & Thenmozhi, 2011). Competency can be measured by various methods. Clark (2009) stated that the approaches used to assess competency include essays, forced-choice ratings, critical incident reviews, and observation. However, this literature review was criticized by Evans (2008) which found that common indicators were identified to assess competency including

continuous education, portfolios, examinations, peer review, direct observation, self-assessment, interviewing and patient outcomes. The competency assessment approaches commonly used in the nursing area are described below.

1. Objective-structured clinical examination. Objective-structured clinical examination is typically a series of exercises, which tests a broad spectrum of skills and knowledge. Each exercise relates to one or more skills in the area. The benefits of this method are to provide for teaching and assessment; enhance skills acquisition through a hands-on approach; assess communication satisfaction, clinical skills, knowledge, and intention (Evans, 2008). Moreover, it can be reliable and valid because of performing under artificial conditions (Bradshaw & Merriman, 2008). However, it is costly to run and requires a lot of time. Also, participants are understress due to the setting, time constraints, frustration and inconsistency for the examination (Evans, 2008).

2. Peer review appraisals. Peer review appraisals use data from multiple sources including observations of provider-patient interactions, record reviews, patient interviews, self-appraisals, and sentinel events to evaluate competency. This method helps to reduce assessor bias (Kak et al., 2001). It is a valuable appraisal for data feedback and fostering professional growth. The benefits of this method are confirmation of previously held beliefs in the individual skills, clarification of self-assessment findings, and identification of problems and opportunities for sharing peer experiences. However, empirical evidence about the effectiveness of peer review in competency assessment is limited (Evans, 2008).

3. Direct observation. Direct observation has been identified as a beneficial method for prior learning assessment such as behaviors and physical movement. For competency assessment, there is little evidence to determine the effectiveness of direct observation (Evans, 2008). In addition, direct observation is problematic because they do not measure the cognitive skills needed for effective practice (Trevor, Sarah, Peter, 2009).

4. Self-assessment. Self-assessment is the most common form of competency assessment. It is constructed based on the competency model and used to assess whether individuals have acquired all competencies (Teodorescu, 2006). Self-assessment of clinical competency could form part of a multi method approach such

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as simulation, clinical assessment, and educational assessment relevant to clinical practice combined the assessing method of clinical competency (Watson, Stimpson, Topping, & Porock, 2002). The benefits of this approach include cost-effectiveness, identification of strengths and areas for development with individual consciousness (Evans, 2008). Self-assessment can use pre-structured checklists to reduce bias when identifying areas of poor performance (Kak et al., 2001). However, self-assessment includes subjectivity, and time constraints (Evans, 2008).

To summarize, the methods for competency assessment have a variety of approaches. The appropriate approach for assessment depends on the objective of the organization or assessor, and feasibility. This study will use self-assessment for competency development of head nurses.

Competency Assessment Scale for Head Nurse

Literature reviews for the measurement of competencies of head nurses or nurse managers found that the Nurse Manager Competency Inventories for all head nurses demonstrated reliability, content validity and construct validity. According to the literature reviews, there is not much research on competency for head nurses in community hospitals. The components of competency for nurse managers determined by Chase (2010) are similar to the study of AONE in 2005. However, they were different in each competency description. The Nurse Manager Competency Inventories revealed the competency components which are similar to the nurse manager competency inventories in other studies as 1) human skills: promote staff retention, recruit staff, facilitate staff development, develop self, facilitate interpersonal, group and organizational communication, communication and relationship management, and professionalism, 2) leadership skills: perform supervisory responsibilities, conduct daily unit operations, and leadership (AONE, 2005; Chase, 2010; DeOnna, 2006; HLA, 2010), 3) conceptual skills: manage fiscal planning (Chase, 2010; DeOnna, 2006), and 4) financial skills: business skills and knowledge (AONE, 2005; Chase, 2010; HLA, 2010). In addition, these Nurse Manager Competency Inventories revealed the competency components, which were different as knowledge of the healthcare environment (AONE, 2005; HLA, 2010).

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Other countries focus on the leadership competency of head nurses more than the other competencies, thus, the leadership competency was studied in many countries. According to a literature review, it was found that the component identification of leadership depended on the objective of the experts such as Cook (1999), Hosseine (2007), and Yoon et al. (2010). Also the human capital competency was significant. However, some experts studied only one domain which did not cover all essential competencies of nurse managers. The study revealed the human capital competencies including developing self, recruiting, developing others, utilizing and retaining (Donaher, Russell, & Scoble, 2007).

In Thailand, a literature review for instruments measuring the competencies of head nurses found some competency assessment scales for nurse managers as follows:

Phahong (1995) developed the competency factors of head nurses and variables, which describe those major factors using a rating scale on frequency of important competencies of the head nurses. A sample consisted of 1,380 head nurses in regional medical centers and general hospitals were recruited in this study. It was found that there were seven factors of head nurse competencies including leadership, directing and organizing, planning, controlling, academic matter, marketing, and nursing practice.

Panyanam (2007) explored and tested the psychometric properties of head nurse competencies scale in private hospitals using rating scale questionnaires. The samples consisted of 462 head nurses selected from in 61 private hospitals. The study found that six factors of head nurse competencies consisted of communication and interpersonal skills, knowledge management skills, emotional intelligence skills, business skills, nursing practice skills and human resource management skills that were described by 16 items. This study was conducted in private hospitals where the contexts differed from hospitals in Ministry of Public Health. Therefore, some competencies may not be suitable for use in Ministry of Public Health.

Arechep (2006) developed and tested the psychometric properties of head nurse competencies scale in Siriraj hospital using 5 rating scale questionnaires. The samples consisted of 124 head nurses, 31 supervisor nurses and 278 staff nurses within the hospital. The study found that six components of head nurse competencies consisted of the quality of nursing: improvement, 25 items; leadership, 20 items;

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administration, 17 items; ethics, 11 items; service mindedness and empowerment, 11 items and technology and information, 6 items. This study was studied in Siriraj Hospital only, so it cannot be generalized to other hospitals.

Junadung (2004) investigated the factors of effective leadership of head nurses at a government university hospital using 5 rating scale questionnaires. Four hundred and fifty one staff nurses were recruited in this study. The study found that seven factors with 65 items of effective leadership for head nurses consisted of: leadership vision, 16 items; exemplary leadership characteristics, 19 items; quality innovation and information technology, 8 items; exemplary professional characteristics, power and drive, 5 items; support and promotion of development, 5 items; and nursing expertise, 4 items. The study focused on the leadership only which did not cover other competencies for head nurses.

In conclusion, head nurse competency scales in other countries were developed continuously, and used mostly among healthcare managers and nurse administrators. Some limitations of existing instruments are that they cannot be used in other areas including the difference of the organizational context and culture, uncovering of nurse manager competencies, and not specific for a competency scale for head nurses in community hospitals. In Thailand, the existing competency scale for head nurses were not specific aspects in community hospitals and all instruments were rating scale. Some research studied in some, but not all, domains of competency for head nurses such as leadership competency. Moreover, some scales were only studied for head nurses in general and central hospitals levels.

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Development of a Competency Assessment Scale for Head Nurses in Community Hospitals

Measurement is the process of assigning numbers to objects, events, or situations in such a way as to represent quantities of attributes (Burn & Grove, 2009; Nunnally, 1978), or a measure of a concept (Mishel, 1998). The measures will be the relationship between the constructs and individual items in measures, which are comparable indicators of the underlying construct (DeVellis, 2003). The characteristics of measurement consist of reliability and validity. Reliability refers to

the consistency with which a tool or method assigns scores to subjects. Validity refers to the determination of whether or not a tool or method is useful for the intended purpose. To increase the usefulness of the purpose, it is necessary to employ multiple tools or methods to measure any given variable. Therefore, measurement reliability and validity is a large function of a well-designed and well-executed measurement process (Waltz, Strickland, & Lenz, 2005).

However, there is a common dilemma in nursing where many constructs cannot be assessed directly. Thus, the process of a measure development is important (DeVellis, 2003; Mishel, 1998). The steps of a measure development are various concepts, but the main steps of development are similar. According to the literature review, the measure development based on DeVellis (2003) is identified clearly step by step. Therefore, this study used the processes of measure development of DeVellis (2003).

The process of development of a competency assessment scale of head nurses in community hospitals was modified from the scale development method of DeVellis (2003). The scale development consists of five steps including: 1) specifying the construct of the measure, 2) generating an item pool, 3) determining the format for measurement, 4) having the initial item pool reviewed by experts, and pretesting the initial instrument, and 5) administering items to a development sample and evaluating the items. The details of each step are described below.

Step 1: Specifying the Construct of the Measure

The clarity of the scale development is based on the conceptual model that consists of the phenomenon and situation. The step of conceptual definition includes the theoretical definition, variable definition, and operational definition (DeVellis, 2003; Waltz et al., 2005). The more clearly the concept is defined, the easier the concept is measured (Waltz et al., 2005). The preciseness of the concept can be developed by concept analysis, concept synthesis, and concept derivation (Walker & Avant, 1995). If theory was not used to identify the concept, the study should identify the concept from phenomena (DeVellis, 2003). Moreover, the dimensions of concept can be specified in various ways such as the literature review, and the qualitative study (Mishel, 1998).

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Waltz et al. (2005) suggested that the operational definition is the process of delineating how a concept will be measured. There are several methods as follows: 1) developing the theoretical definition, 2) specifying variables derived from theoretical definition, 3) identifying observable indicators, 4) developing means for measuring the indicators, and 5) evaluating the adequacy of the resulting operational definition. In addition, the operational definition defines a concept in terms of the observations or activities that measure it. The number of sample size in individual interview is not more than 10 participants (Waltz et al., 2005). The number of participants in focus group is needed 6-10 participants (Morgan, 1998).

In conclusion, the concept of competency for head nurses in community hospitals was defined in this step. The methods of concept definition used in the steps were composed of the literature review, individual interview, and focus group discussion among nurse experts. Thus, the operationalization, variables, and dimensions of concept of competency for head nurse were defined.

Step 2: Generating an Item Pool

The significance of generating an item pool is that each item should be related to the construct of interest, related to the objectives of the study, measured by the same concept, and reflect the underlying latent variables. In addition, the characteristics of a good scale should avoid ambiguous items, lengthy items, difficulty in reading, double barreled items, and ambiguous pronoun references. The items should be ensured enough when they are deleted during item analysis, so, they need a large pool initially (Burn & Grove, 2009). Ideally, the pool of items should be generated three to four times as large as the final scale. However, for any situation that items are difficult to generate, the initial pool may be 50% (or 1.5 times) larger than the final scale (DeVellis, 2003). Nunnally (1978) recommended that the initial pool be composed of 1.5 to 2 times as many items as the final items. Items should be equal of both negative and positive items in scale which have negative items (Mishel, 1998).

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Step 3 Determining the Format for Measurement

Determining the format of measurement should be considered initially or simultaneously with generation of items for compatibility (DeVellis, 2003). Waltz et al. (2005) proposed the measurement type to be employed as a function of the conceptual model and subsequent operational definitions to be measured. Most of the scale items are divided into two parts including the stem as each item described differently to the statement expressing of opinion, and the response options as a series of descriptors indicating the strength of agreement with the statement. A quality of a scale should vary, and discriminate meaningfully the ability of respondents (DeVellis, 2003). There are numerous formats of scale that are used widely and proven successfully in diverse applications. They are classified in two major types as follows (Brink & Wood, 1998; DeVellis, 2003):

The summative scales. Brink and Wood (1998) stated that summative scales offer a set of items to the respondent and request a response to the items. Items reflect divergent positions on the selected dimension, and neutral or midline, and the extreme aspects of the dimension are omitted. It may be necessary for some respondents to express in neutral or midpoint options (Polit & Beck, 2008). One of the most common types of summative scale is the Likert scale. The Likert scale is used as a declarative sentence in which the item is presented. This scale indicates several degrees of agreement to disagreement of the statement given (Brink & Wood, 1998; DeVellis, 2003). It is widely used in scale measuring opinions, beliefs, and attitudes (DeVellis, 2003). Moreover, it has a number of advantages over all other types such as it follows from the model; it relates to construct; it is high reliable; it can be adapted to the measurement of different kinds of attitudes; and it has produced meaningful results in many studies (Brink & Wood, 1998). Response choices most commonly address agreement including strongly agree, agree, uncertain, disagree, and strongly disagree that the evaluation indicates positive to negative or excellent to terrible, and frequency including never, rarely, sometime, frequently, and all the time (Burns & Grove, 2009).

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The semantic differential. The semantic differential is used to measure attitudes and beliefs. It refers to one or more stimuli such as attitude measurement. It is identified that the target stimulus is a list of adjective pairs in which each pair represents opposite ends of a continuum (Burns & Grove, 2009; DeVellis, 2003).

In conclusion, the data obtained from the first step was used to generate the first draft scale of competency for head nurses in community hospitals. The purpose of this study was to measure the behaviors integrated of the skills, knowledge, and underlying characteristics of the participants. Therefore, the Likert scale was suitable for this study. The scaling responses were classified into five points from: 1 = hardly never done or never done, 2 = seldom done, 3 = occasionally done, 4 = almost always done, to 5 = always done.

Step 4 Having the Initial Item Pool Reviewed by Experts and Pretesting the Initial Instrument

Having the initial item pool reviewed by experts. This step is the process of asking a group of experts who are knowledgeable in the content area to review the item pool. They should be scale developers, and have experience in scale development. In addition, they clearly examine the phenomenon of interest, a suitable item pool, and an appropriate response format for the items. Their examination serves multiple purposes relating to the content validity (DeVellis, 2003). They are asked to link each item with the objective to measure, to clarify of items, to point out a way of tapping the phenomenon that the researcher has failed to include, and to judge if the items on the tool adequately represent the content or behavior in the domain of interest (DeVellis, 2003; Waltz et al., 2005).

A number of content experts are needed to consider the items agreement for content validity. Lynn (1986) recommended the number of panel experts to be a minimum of three to obtain statistically justifiable results, or, minimum of five experts would provide a sufficient level of control for chance agreement. If there are three to five experts, all must agree on the content validity for their rating, and if there are six or more experts, one or more can be in disagreement with the others and still demonstrate the instrument assessed content validity (Lynn, 1986). However, others recommended from 2 to 20 content experts (Waltz et al., 2005)

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Inter-rater agreement of instrument, and content validity index (CVI), should be analyzed after the data return from content experts (Grant & Davis, 1997). It is quantification of content validity of items and instrument. CVI is used to quantify the extent of agreement of experts or the index of content validity. It is defined as the proportion of items that received a rating of 3 or 4 by the experts (Lynn, 1986; Waltz et al., 2005). The item rating by experts relates to the objectives that ordinal scale is used to rate with four possible responses including a rating of: 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = very relevant (Waltz et al., 2005), or 1 = not relevant, 2= unable to assess relevance without item revision or item is in need of such revision that it would no longer be relevant, 3 = relevant but needs minor alteration, and 4 = very relevant and succinct (Lynn, 1986).

In conclusion, this study has six experts who are knowledgeable in the content area, and have experience in scale development. The panel of experts can independently rate the relevance of each item to the construct, and appropriately measure all dimensions of the construct, using a four point rating scale: 1= not relevant, 2= somewhat relevant, 3= quite relevant, and 4= very relevant. They were invited to review the initial draft of Competency Scale for Head Nurses in Community Hospitals for content validity. Since, the numbers of experts are more than five, the agreement of experts can be accepted when one of the experts disagrees with the group. Thus, the accepted value of I-CVI should be at least .78 (Lynn, 1986), and the value of S-CVI/Ave should be at least .90 (Polit & Beck, 2008; Waltz et al., 2005).

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Pretesting the initial instrument. Pretesting the initial scale is a trial run of a measure (Waltz et al., 2005), and is used in a structured investigation (Brink & Wood, 1998). The pretest has two steps where the first step determines the feasibility of using a given scale in a formal study or preliminary evaluation of items (Polit & Beck, 2008), and the second step determines the base rate of the concept being measured. The participants in the pretest are similar to the participants who will be used in the final scale. The pretest should have many types of participants who will be tested in the pretesting because the participants group can be highly representative of all the different groups (Burns & Grove, 2009).

The preliminary evaluation of items should have a sample from the target population of approximately 10 to 20 people (Polit & Beck, 2008). Burns and Grove (2009) recommended that a sample size of a pretesting should be 15 to 30 participants, 10 or 20 unless the instrument is complex, or the sample is heterogeneous (Fox & Ventura, 1983). However, Wolf et al. (1978) as cited in Brink and Wood (1998) recommended field trials with people similar to the target population of about 50 if the instrument is complex.

In conclusion, pretesting of the scale was conducted early in the scale development, before the scale was used in a structured investigation. Pretesting was conducted for clarity, the length of the scale, readability, and revised draft of a competency scale for head nurses in community hospitals. Thirty head nurses were used, which are similar to the participants in the final scale.

Step 5 Administering Items to a Development Sample and Evaluating the Items

This step is evaluation of the psychometric properties of the instrument. Field-testing concerns the relationships among items included in the measure that are consistent with the theory and concepts (Waltz et al., 2005). The sample size needed for statistical analyses depends on the number of items (Burns & Grove, 2009). Nunnally (1978) proposed that the sample, which concentrates on the adequacy of the items should be large, the sample about 300 persons or 10 persons per one item is an adequate number. The same as, Burns and Grove, (2009), and Hair, Black, Babin, Anderson, and Tatham (2006) proposed the sample about 10 subjects for each item being tested, and more than 300 persons (Tinsley & Tinsley, 1987). Moreover, Arrindell and Van der Ende (1985) proposed the sample about 20 times of the number of items. The risks of inadequate sample size were the correlations among items can be influenced by chance to a fairly substantial degree, and the sample, which is used not the representative population for the intended scale so the alpha of internal consistency reliability may be lower than accepted (DeVellis, 2003).

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In conclusion, the evaluation of the psychometric properties of a competency scale for head nurses in community hospitals, and the scale was evaluated for the reliability and validity. The participants were randomly selected from the regional

area of Thailand, and 10 subjects per item were needed (Burns & Grove, 2009; Nunnally, 1978).

Evaluate the items. The items evaluation is to examine the performance of each item, which is identified appropriate to construct the scale. There are four methods to evaluate the items such as item-scale correlation, item variances, item means, and alpha coefficient (DeVellis, 2003).

Item-scale correlations. Item-scale correlations examine each individual item correlated substantially with the remaining items. Two types of item scale correlation include the corrected item scale correlation - which is the item being evaluated with all the scale items and excluding itself, and the uncorrected item scale correlation - which is the item in question with the entire set of candidate items, including itself (DeVellis, 2003). The standard recommendation is items correlation coefficient with the total scale is .30 or higher (Polit & Beck, 2008). Considering inter-correlations between items in a scale, it is to examine the correlation matrix of all the items. If the correlations are lower than .30 demonstrating little congruence with the underlying construct, and which is higher than .70 suggesting over redundancy (Polit & Beck, 2008). Brink and Wood (1998) and Ferketich (1991) suggested that the correlations coefficient should be average between .30 and .70.

Item variances. The scale should have a relatively high variance. If its variance is 0, it will not discriminate among individuals with different levels of the construct being measured. On the other hand, if the development sample is diverse with respect to the attribute of interest, the range of scores obtained for an item should be diverse (DeVellis, 2003).

Item means. Item means are means close to the center of the range of possible score that an item mean is also desirable. The items with means too near an extreme of the response range demonstrate low variances. They will not discriminate and correlate poorly with other items (DeVellis, 2003).

Alpha coefficient. Alpha coefficient is the most important indicator of a scale's quality. It demonstrates the proportion of variance in the scale scores that is the attribute of true score (DeVellis, 2003). Moreover, it is used to evaluate the successful scale after the investigator considered to retain or delete items (Mishel, 1998). The reliability is measures of internal consistency, which is directly related to

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degree of inter-item correlation. Thus, the homogeneous set of items is directly related to the scale development (Ferketich, 1991). The value of alpha can be 0 to 1. If alpha is negative, something is wrong – demonstrating negative correlations (DeVellis, 2003). Nunnally (1978) suggested that the value of alpha should not be lower than .70. If the coefficient alpha value is not accepted, the items will be added (Mishel, 1998), or the items, which have low correlations will be deleted until the desired reliability (Ferketich, 1991).

In conclusion, the items can be evaluated by several methods. This study evaluated the performance of the items by inter-item correlation, item total correlation, and alpha coefficient. An item was modified or deleted when it did not meet the criterion.

Optimizing scale length. The alpha of scale is influenced by two characteristics including the extent of covariance among the items, and the number of items in the measurement. Thus, the scales should be long enough so that they are more reliable. Likewise, the shorter scales are also good due to less of a burden on respondents. So, the researcher should give some thought to the optimal between reliability and burden (DeVellis, 2003).

Validity. Validity refers to a determination of the extent to which the scale actually reflects the abstract construct being examined (Burns & Grove, 2009). It concerns whether the variable is the underlying cause of item co-variation. In addition, it is inferred from the scale developer that its ability to predict specific events, or relationship to measures of other constructs (DeVellis, 2003). There are three types of validity (DeVellis, 2003; Waltz et al., 2005) as follows:

Content validity. Content validity refers to an estimation of the adequacy in which a specific domain of content is sampled, and individual items are relevant and appropriate in terms of the construct. The data will be determined by the inter-rater agreement and the content validity index (CVI). The items of the scale will be computed by two methods: Item CVI and Scale-CVI. I-CVI is computed as the number of raters giving a ration of either 3 or 4 divided by the number of experts. It should be 1.00 when there are 3 to 5 experts, and at least .78 or higher which is an acceptable value when 6 to 10 experts are used (Lynn, 1986). S-CVI is calculated by two approaches as S-CVI/Ave and S-CVI/UA. S-CVI/UA or universal agreement is

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to calculate the percentage of items on the scale for which all judges agreed on content validity. Disagreements can occur by chance. S-CVI/Ave is computed by averaging the I-CVIs. It should be .90 or higher which is the standard for establishing excellent content validity (Polit & Beck, 2008).

Criterion-related. Criterion-related validity may be use predictive validity or concurrent validity which supports measure functions (Waltz et al., 2005). If there is a theoretical basis, an item or scale is required to have an empirical association with some criterion or gold standard. This association is relevant to the criterion-related validity. It infers rather the strength of the empirical relationship between the two events. Sometimes the prediction in the context of theory may be relevant to the causal relationship among variables (DeVellis, 2003).

Construct validity. Construct validity is concerned with the extent to which relationships among items of the scale are consistent with the theory and concept (Waltz et al., 2005). It is usually divided into four methods as follows:

The contrasted group approach. The contrasted group approach is administered to two different groups by a critical attribute. These two groups are identified by the researcher who knows the individual group differing in extremely high to extremely low of characteristics (Polit & Beck, 2008; Waltz et al., 2005). These are assessed by the appropriate statistical procedure as the t-test or an analysis of variance (Waltz et al., 2005).

Hypothesis testing approach. The hypothesis testing approach refers to the experimental manipulation approach, which involves testing hypothesized relationships. It is often based on theory.

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The multitrait-multimethod approach. The multitrait-multimethod approach involves measuring more than one construct by more than one method so that one obtains a fully crossed method by measure matrix (DeVellis, 2003). This method is used to measure two or more different constructs, using two or more different methodologies to measure each construct, administer all instrument to every subject at the same time, and assume that performance on each scale employed is independent (Waltz et al., 2005). In other words, this approach is known as convergent and discrimination validity. Convergence is a different method of measuring a construct result in similarity. Different measurement approaches should

join in the construct. Discrimination is the ability to distinguish the construct from other similar constructs (Polit & Beck, 2008).

Factor analysis. Factor analysis is a useful analytic tool. It is used to investigate how many latent variables underline a set of items, explain variation among many original variables or items using relatively newly created variables or factors, and define the substantive content or meaning of the factors (DeVellis, 2003). Moreover, it helps the identification of theoretical constructs, and confirmation of a theoretically accurately developed construct (Burns & Grove, 2009). The factoring process will group linear combinations of items by each item independent of all other identified factors. Each factor is correlated with each item to produce factor loadings. There are various methods of performing, such as principal components analysis that are used widely to factor extraction, and common factor analysis. The variance of the first factor is partially out before analysis on the second factor begins. The numbers of factors extracted should account for at least 60 percent of the total variance (Polit & Beck, 2008), eigenvalues are greater than 1.00, and they are interpreted by examining the items loading upon each, usually the minimum of that will be considered over .30 (Burns & Grove, 2009). Then, the factors rotation method for repositioning in a way more interpretability is performed on two classes such as orthogonal rotation and oblique rotation (Waltz et al., 2005). Factor analysis is divided into two types including exploratory factor analysis, and confirmatory factor analysis. Exploratory factor analysis is similar to stepwise regression. Confirmatory factor analysis (CFA) is more similarly related to path analysis, which is based on theory and tests a hypothesis or defines the factors directly, and determines how well the defined the measurement model fits the observed data (Burns & Grove, 2009; Waltz et al., 2005).

Construct validity will be assessed by an exploratory factor analysis to investigate the interrelationships among variables using principal components analysis, and factor rotation with all methods. In addition, this study will be tested for construct validity using contrasted group approach. Data is analyzed using t-test statistical procedure for comparing mean scores between the high and low groups.

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Reliability. Reliability refers to the degree of consistency and repeatability of the scores on an instrument, and indicates the extent of random error in the measurement. For a developed psychosocial instrument, a reliability coefficient is considered acceptable as .80 or more (Burns & Grove, 2009). Reliability focuses on three aspects of reliability as follows:

Test-retest or stability. Test-retest or stability is concerned with the consistency of repeated measure of the same attribute with the use of the same scale over time (Burns & Grove, 2009). The test-retest procedure is often used to determine the reliability of affective measurement, and attitudes. It measures how participants perform at the same level on two separate occasions, so it is called coefficient of stability. However, a specific measure of test-retest is under standardized conditions, to give the test again between the first and second time with the recommendation of being two weeks apart, and to determine the extent to which the two sets of scores are correlated (Brink & Wood, 1998).

Equivalence or inter-rater reliability. Equivalence or inter-rater reliability is used to compare two versions of two observers measuring the same event (Burns & Grove, 2009). The reliability assessment concerns the degree of two or more independent observers agree about the scoring on the scale. The assumption is that measurement errors have been minimized, when there is a high level of agreement (Polit & Beck, 2008). Moreover, the specificity of using this method is to statistically analyze the reliability category by category, determine the equality of the frequency distribution among categories, and examine the possibility that the observer may be systematically confusing some categories (Garvin et al., 1988 as cited in Burns & Grove, 2009)

Internal consistency or homogeneity. Internal consistency or homogeneity is concerned with addressing the correlation of various items within the scale. The statistical procedures used for this process are Cronbach's alpha coefficient for interval and ratio level data, and when the data are dichotomous, the Kuder-Richardson formula (Burns & Grove, 2009). The early measure of internal consistency focused on split-half methods (Brink & Wood, 1998). The Cronbach's alpha coefficient value is .80 to .90, which indicates a scale that will reflect more richly the fine discriminations of the construct (Burns & Grove, 2009).

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In conclusion, the reliability in this study was evaluated by the internal consistency method, and uses the statistical Cronbach's alpha. The scale was evaluated for the construct and reliability coefficient, which accepts the value of above .70. In addition, the study tested item scale correlations that was considered at least .30 or higher (Knapp & Brown, 1995).

Conceptual Framework

The conceptual framework in this study was derived from the competency structure for head nurses of Thailand Nursing and Midwifery Council [TNC] (2013). The competency of head nurses in community hospitals was defined as a set of work behaviors of head nurses working in 30- to 90-bed hospitals, which results from knowledge, skills and characteristics that enable them to carry out their work effectively and goal achievement. Five domains of competency for head nurses in community hospitals include 1) leadership, 2) management and quality improvement, 3) communication and relationships, 4) code of professional conduct and ethical and legal practice, and 5) policy and healthcare environment. These domains were used to guide and generate items of a Competency Assessment Scale for Head Nurses in Community Hospitals that reflect the attributes of head nurse competency.

The process of developing a Competency Assessment Scale for Head Nurse in community hospitals was modified from steps for the scale development of DeVellis (2003) including five steps being: 1) specifying the construct of the measure, 2) generating an item pool, 3) determining the format for measurement, 4) having the initial item pool reviewed by experts and pretesting the initial instrument, and 5) administering items to a development sample and evaluating the items.

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