

การศึกษาสมรรถนะหลักทางการพยาบาลอุบัติเหตุดังของพยาบาล โรงพยาบาลทั่วไป เวียดนาม



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A STUDY OF TRAUMA NURSING CORE COMPETENCY AMONG STAFF NURSES,  
VIETNAMESE GENERAL HOSPITALS

Mr. Dau Vu Van

จุฬาลงกรณ์มหาวิทยาลัย

**CHULALONGKORN UNIVERSITY**

A Thesis Submitted in Partial Fulfillment of the Requirements  
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ดาว วุ แวน : การศึกษาสมรรถนะหลักทางการพยาบาลอุบัติเหตุของพยาบาล  
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การวิจัยครั้งนี้เป็นการวิจัยเชิงความสัมพันธ์ มีวัตถุประสงค์เพื่อประเมินและเปรียบเทียบ  
สมรรถนะหลักทางการพยาบาลอุบัติเหตุของพยาบาล (TNCC) ในพยาบาลประจำการ  
โรงพยาบาลทั่วไปของประเทศเวียดนาม ใช้วิธีการสุ่มตัวอย่างแบบแบ่งกลุ่มและคัดเลือกได้จำนวน  
439 ราย จาก 9 โรงพยาบาลทั่วประเทศเวียดนาม เครื่องมือสำหรับประเมินสมรรถนะหลัก  
ทางการพยาบาลอุบัติเหตุของพยาบาลเป็นแบบประเมินตนเอง ได้รับการพัฒนาด้วยการทบทวน  
งานวิจัยและวรรณกรรมที่เกี่ยวข้องร่วมกับการสัมภาษณ์ผู้เชี่ยวชาญในเชิงลึก ประกอบด้วย 8 มิติ  
จำนวน 48 ข้อ ค่าดัชนีความเที่ยง คือ .90 และค่าสัมประสิทธิ์แอลฟาครอนบาคเป็น 0.95

ผลการวิจัยสรุปได้ดังนี้

1. ระดับคะแนนรวมสมรรถนะหลักทางการพยาบาลอุบัติเหตุของพยาบาลประจำการ  
โรงพยาบาลทั่วไปของประเทศเวียดนามค่อนข้างสูง ( $t = 3.01$ ,  $SD = 0.37$ )

2. ระดับคะแนนสมรรถนะหลักทางการพยาบาลอุบัติเหตุของพยาบาลประจำการ  
โรงพยาบาลทั่วไปของประเทศเวียดนามไม่มีความแตกต่างระหว่างเพศชายและเพศหญิง ระดับ  
การศึกษา ((มัธยมศึกษา วิทยาลัย และปริญญาตรี) ระหว่างการได้รับการฝึกอบรมและไม่ได้รับ  
การฝึกอบรม และระหว่างการหมุนเวียนสถานที่ปฏิบัติงานกับการไม่หมุนเวียนสถานที่ปฏิบัติงาน

3. ระดับคะแนนของ สมรรถนะหลักทางการพยาบาลอุบัติเหตุของพยาบาลประจำการ  
โรงพยาบาลทั่วไปของประเทศเวียดนามมีความแตกต่างกันอย่างมีนัยสำคัญในกลุ่มที่มี  
ประสบการณ์การทำงาน ( $F = 11.73$ ,  $p = 0.00$ ) โดยเฉพาะอย่างยิ่งระหว่างกลุ่มที่มีประสบการณ์  
การทำงาน 1 ถึง 3 ปี และกลุ่มประสบการณ์มากกว่า 10 ปี ( $t = 2.61$ ,  $SD = 28$  และ  $t = 3.10$ ,  
 $SD = .35$ ;  $Sheffé = .00$ )

4. ระดับคะแนนของ สมรรถนะหลักทางการพยาบาลอุบัติเหตุของพยาบาลประจำการ  
โรงพยาบาลทั่วไปของประเทศเวียดนามมีความแตกต่างกันอย่างมีนัยสำคัญระหว่างสถานที่ทำงาน  
( $F = 9.95$ ,  $p = 0.00$ ) โดยเฉพาะอย่างยิ่งระหว่างห้องไอซียูและแผนกฉุกเฉิน ( $t = 3.23$ ,  $SD =$   
 $0.31$  และ  $t = 2.94$ ,  $SD = .33$ ;  $Sheffé = .00$ )

สรุปการศึกษาครั้งนี้พบว่า ระดับคะแนนของ สมรรถนะหลักทางการพยาบาลอุบัติเหตุ  
ของพยาบาลประจำการโรงพยาบาลทั่วไปของประเทศเวียดนามค่อนข้างสูง ขอเสนอแนะว่า  
ปัจจัยที่มีอิทธิพล เช่น การศึกษาต่อเนื่องและระดับการศึกษาควรมีการศึกษาเพิ่มเติมในกลุ่ม  
พยาบาลนี้และมีความจำเป็นสำหรับการปรับปรุงโปรแกรมการศึกษาโดยเฉพาะในการพยาบาล  
อุบัติเหตุ

สาขาวิชา พยาบาลศาสตร์

ปีการศึกษา 2556

ลายมือชื่อนิสิต .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์ร่วม .....

# # 5477163136 : MAJOR NURSING SCIENCE

KEYWORDS: TRAUMA NURSING CORE COMPETENCY / STAFF NURSE

DAU VU VAN: A STUDY OF TRAUMA NURSING CORE COMPETENCY AMONG STAFF NURSES, VIETNAMESE GENERAL HOSPITALS. ADVISOR: ASSOC. PROF. POL. CAPT. YUPIN AUNGSUROCH, Ph.D., R.N., CO-ADVISOR: RUNGRAWEE NAVICHARERN, Ph.D., A.P.N., pp.

The objectives of this descriptive research were to assess and to compare trauma nursing core competency (TNCC) among staff nurses at Vietnamese general hospitals. By cluster sampling method, 439 Vietnamese nurses were recruited from 9 hospitals throughout the country. The measurement of TNCC was developed by the researcher based on literature review and expert in-depth interview. The self-rating TNCC scale composed of 8 dimensions with 48 items, the Content Validity Index was .90 and Cronbach's alpha coefficient was .95, respectively.

The results were as follows:

1. The overall TNCC level of staff nurses was relatively high ( $\bar{x} = 3.01$ ,  $SD = .37$ ).
2. The level of TNCC of staff nurses were no difference between male and female, among education backgrounds (secondary, college, and bachelor), between trained and not trained, and between rotation and not rotation.
3. The level of TNCC of staff nurses were significant difference among working experience groups ( $F = 11.73$ ,  $p = .00$ ), especially between group from one to three years and group over ten years' experience ( $\bar{x} = 2.61$ ,  $SD = .28$  and  $\bar{x} = 3.10$ ,  $SD = .35$ ; Sheffé = .00).
4. The level of TNCC of staff nurses were significant difference among work place ( $F = 9.95$ ,  $p = .00$ ), especially between ICU and ER ( $\bar{x} = 3.23$ ,  $SD = .31$  and  $\bar{x} = 2.94$ ,  $SD = .33$ ; Sheffé = .00).

In conclusion, this study found a relatively high level of TNCC of staff nurses in Vietnam. It is recommended that the factors influencing TNCC such as continuing education and educational level need to be further explored among staff nurses. And need for an improvement of education programs for this specialty.

Field of Study: Nursing Science

Academic Year: 2013

Student's Signature .....

Advisor's Signature .....

Co-Advisor's Signature .....

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## CHAPTER I

### INTRODUCTION

This chapter introduces the situations of trauma nursing care, trauma nursing workforce in the People's Republic of Vietnam, and the overview of trauma nursing core competency of the staff nurses, which provides the contextual background for this study. The scarcity of research concerning the trauma nursing core competency is marked. Therefore, this chapter will present a background and a significance of the problem, the purpose of the study, research questions, a significance of the study, and the definition of terms.

#### **Background and significance of research problem**

Trauma is a significant problem worldwide, the leading cause of death for all age groups under 44 years old (Unhasuta, 2010). The injury costs the United States hundreds of billions of dollars annually. It is one of the most pressing health problems in the United States today, but the problem continues to go largely unrecognized (McQuillan, 2009). In Thailand while the average number of patients with trauma's deaths resulting from motor vehicle crashes alone is 13,260 deaths per year from 2002 to 2006, approximately 5 million people were injured, and several hundreds of thousands became permanently disabled during that same period (Mahaisavariya, 2008).

Vietnam nowadays is suffering from the burden of trauma. It is reported that trauma is one of the ten leading causes of death in Vietnam (Tran Ngoc Linh, 2010). According to the burden of diseases and injuries study, 43.77/100,000 people of

years of life lost in Vietnam are attributed to injuries (Ministry of Health, 2011). In addition, road traffic injuries are considered to be the first cause of disability adjusted life years among males, followed by natural disasters. Tran (2010) reported that accidents in Vietnam are a grave challenge, with a dramatic increase in the number of fatal injuries especially from road accidents, making road accidents a significant social and health problem in Vietnam.

Traumatic care and trauma nursing care have three phases: pre-hospital, emergency rehabilitations (Cothorn, 2007; Demetiades, 2004; Rainer, 2007; Simons, 2002; Teixeira, 2007). The continuum of care in trauma nursing crosses all boundaries and takes place in all settings from pre-hospital care, through acute and primary settings to the patient's place of residence (Lucas, 2002). According to McKay and Thayre (1999), issues to be addressed globally in trauma nursing and the new millennium include helping the staff nurses to adapt to rapid changes within the trauma nursing care place, and ensuring that changes in operational work flow and technological as well as physical design enhance the care given to patients and their relatives.

Trauma nursing is a multidimensional specialty area in nursing with evolving unique needs and challenges related to education and practice. However, although core competency of staff nurses in developed countries has been advanced, nurses in developing countries, such as ASEAN countries are improving competent (Unhasuta, 2010). In Vietnam, the society requests an appropriate nursing care services due to a very high prevalence of traumatic patients. Nevertheless, the current situation in Vietnam demonstrates that nurse core competency in this area is

still in its infancy with the lack of standards in all education, administration, research, and clinical practice areas (Xuan, 2009).

In education and administration, the Ministry of health (MOH) oversees, supervises, and coordinates all health services. Department of Health Care Management (DHCM) in Vietnam is the statutory body responsible for regulating the education and practice of nursing nationally, makes provision for the training, registration/enrolment nurse to regulate their conduct, and to ensure their maximum participation in health care. There are currently five categories of nurses' education with different levels of credential in healthcare settings including primary, secondary, college, bachelor, and master levels (Ministry of Health, 2005). Among nursing workforce, most of them are at secondary level (82%), primary level accounts (10.5%), and college level (3.5%), bachelor, and master level (4%).

In research and practice, although continuing to evolve, trauma nursing practice is still relatively new in Vietnam and has not been listed as a specialty area by the DHCM. The scope of practice for the trauma nursing is spelt out together with the general nurses' scope of practice. The DHCM acknowledges that who nurses trained in other countries and within Vietnam, are working in various trauma places in Vietnam (Xuan, 2009). The scope of practice for trauma nursing in Vietnam is based on the emergency nurse associated scope of practice, which is laid out in a broad and non-specific manner. Staff nurses' perception of trauma nursing core competencies has not been explored nor was any literature available on delineated trauma nursing core competencies for the staff nurses as perceived by nurses who work in the trauma units in general hospitals and/or in Vietnam (Tran, 2011).

In some general hospitals where almost trauma procedures are performed, there are not enough advanced trauma life support physicians, so the critically injured patient receives initial trauma care from nurses. Most hospitals provide only in-service training on traumatic care for nurses and there is no accreditation for those courses (Xuan, 2009). This is one of the factors contributing to causes of death due to injury increased in recent years at Vietnam (Khieu, 2010; Ngoc Lan, 2011). It is a snapshot of life and trauma management in Vietnam health system. This situation needs the health care providers who have high core competency of traumatic care to prevent death in these patients.

Nursing competency of staff nurse is important to ensure patient safety and improve the quality of nursing care. The trauma environment in which nurses provide care to patients can determine the quality and safety of patient care. As the largest health care workforce, nurses apply their TNCC to care for the various and changing needs of patients especially patients with threatening life after accident. The literature indicated that staff nurses are managing minor trauma in some areas, major or urgent emergency cases (Christmas, 2005). Moreover, Zhang (2001) delineated the importance of studying nursing core competencies, as these would contribute to effective performance. The literature also states that nurses will perform well with trauma cases if there is active participation in advanced trauma care for nursing and trauma nursing core course, with continued reinforcement of learned skills (Baird, 2004). A gap exists in the literature on the incorporation of relevant trauma competence as it relates to nurse specialty practitioners, in Vietnam currently do not have trauma nursing core competency of staff nurses. There is no study been

conducted in Vietnam until now, it is imperative that the current level of trauma core competency of staff nurses should be explored.

However, there is currently no core competency standard to assess the trauma core competency of the staff nurses in Vietnam. Although there are similarities competencies in certain areas among the countries (Unhasuta, 2010), there are difference specific circumstances each country. Therefore, it is very imperative now to identify trauma core competency for staff nurses in Vietnam. This study was conducted to identify and assess trauma nursing core competencies among staff nurses at general hospitals.

#### **Objectives of the study**

1. To assess trauma nursing core competency among staff nurses in Vietnamese general hospitals.
2. To compare trauma nursing core competency of staff nurses among various units and personal background data (gender, working experience, and education background, continuing education, working place and work rotation).

#### **Research Questions**

1. What is the level of trauma nursing core competency of staff nurses in Vietnamese general hospitals?
2. What is different level of trauma nursing core competency of staff nurses among personal background data and various units at general hospitals?

## Hypothesis and Rationale

Trauma nursing core competency is important to ensure patient safety and improve the quality of trauma nursing care. Suffice it to say, trauma nursing core competency does not exist in a vacuum. As the definition implies a type of action, so it will have the abilities to be acted on it. Literature indicated that there are different perceived of staff nurses about trauma nursing core competencies that have been identified include: gender, working experience, education background, continuing education, working place, and work rotation ((AACN, 2005; Ameera, 2008; Axley, 2008; Boylan, 1998; Brunt, 2002; McMullan, 2003; Watson, 2002; Ying, 2007).

Baird (2004) found that gender, preconceived notions and theory are refined through encounters with many actual practical situations. Rezwan (2013) indicated that there is a significant relationship between gender and clinical competency ( $t=2.21$ ,  $p<0.05$ ). Females achieved significantly more clinical competency than males. However, research has not mainly found a significant relationship between gender and clinical competence (Blackman, 2009; Klein, 2007).

Pitayavatanachai (2005) analyzed the factor influencing nursing core competency and found that experience were important individual information that has an affectation on nursing competency. According to Baird (2004), by experience, preconceived notions and theory are refined through encounters with many actual practical situations. Due to the vast differences in experience, there was significant variation in level of trauma nursing core competency.

According to Benner (1984), by education background, preconceived notions and theory are refined through encounters with many actual practical situations. Baird (2004) indicated education background, preconceived notions, and theory are



refined through encounters with many actual practical situations. Due to the vast differences in background education, there was significant variation in level of trauma nursing core competency.

Continuing education can provide an effective foundation for necessary competencies (O'Shea, 2002; Walter, 2000). There were countless references to the important of education in developing nursing competency. Longenecker (1998) and others speak to the importance of continued and ongoing educational support for those in managerial/leadership positions. Franklin, Carr, and Padden (2008) indicated that trauma nursing course experience was not significant to self-perceived trauma competency.

Work rotation paves the way to seeing more trauma patient (Jarvi, 2004). Jeans (2005) stated that work rotation was found to be the most important enabling factor for management as to acquire and maintain competencies. Due to the differences in rotation, there was significant variation in level of trauma nursing core competency.

Positive relationship between nursing competency and working place was supported (Lynn, 2006). Personal-place theory has demonstrated that there is a relationship between employees' perception of working place characteristics and their work behavior (Mitchell, 2001). Estabrooks (2002) noted that a positive nursing work place enables nurses to demonstrate professional practice, such as decision-making capability. Due to the vast differences in working place, there was significant variation in level of trauma nursing core competency.

Therefore, this research was conducted with hypothesis follows:

1. The level of trauma nursing core competency of staff nurses was significant difference among male and female.
2. The level of trauma nursing core competency of staff nurses was significant difference among trained and not trained.
3. The level of trauma nursing core competency of staff nurses was significant difference among rotation and not rotation.
4. The level of trauma nursing core competency of staff nurses was significant difference among working experience groups.
5. The level of trauma nursing core competency of staff nurses was significant difference among education background groups.
6. The level of trauma nursing core competency of staff nurses was significant difference among work places in general hospitals.

### **Operational definitions**

**1. Trauma nursing core competency** refers to the combination the basic knowledge, skills, and attitudes as perceived by staff nurses with the multiple dimensions of legal and ethical practice, comfort enhancement, cooperation, partnership/guide, leadership and management, critical thinking for caring, risk management, and clinical practice to perform the core functions of staff nurses role. Each dimension is operational defined as follows:

**1.1 Legal and ethical practice** refers to proficiency relating to principles of right conduct within an organization that guide decision making and behavior in the trauma care.

**1.2 Comfort enhancement** refers to the proficiency relating to human experience, impart strength and hope to patient in the trauma care to encourage, relieving, and consoling as well as a diminution of pain.

**1.3 Cooperation** refers to proficiency establishing and sustaining the nurse and patient relationship, interacting with other members of health care team, and commitment to others in the trauma care.

**1.4 Partnership/guide** refers to proficiency relating to support, consult, and encourages inherent in the trauma care.

**1.5 Leadership and management** refer to the proficiency to lead, motivate, influence, support others to get the job done, and to promote trauma care.

**1.6 Critical thinking for caring** refers to the proficiency in analysis of data, decision making or judgment, and problem solving in the trauma care.

**1.7 Risk management** refers to the proficiency in safely assess, manage, standard and prescribed care in the delivery of traumatic care.

**1.8 Clinical practice** refers to the proficiency to use nursing process to promote and support optimal human functioning and wellbeing inherent in the trauma care.

**2. Staff nurse** is a nurse who work at general hospital has acquired knowledge base, decision making skills, and clinical skills for practice, the characteristics of which is determined by the context in which she/he is credentialed to practice and which unit she/he work.

**2.1. Gender** refers to the range of physical, biological, mental and behavioral characteristics pertaining to, and differentiating between, masculinity and femininity.

**2.2 Working experience** refers to the number of years that nurse worked as staff nurses in Vietnamese general hospitals.

**2.3 Education background** refers to any prior schooling nurse have successfully completed in nursing field such as Secondary clinical practice, college degrees, and bachelor degrees.

**2.4. Continuing education** refers to the activity that nurses attended to learn and were trained about how to take for patient with trauma injuries.

**2.5. Work rotation** refers to the process that nurses move from their position or unit to other position or unit in Vietnamese general hospitals.

**2.6 Working place** refers to the physical location where staff nurses work such as ER, ICU, OR, RD and in patient trauma department in Vietnamese general hospital.

**3. General hospital** refers to the health care organization of government institutions, which are province hospitals providing secondary care in emergency, intensive and general cases for the clients in medical department, surgical department, obstetrics and gynecology department, pediatric department.

**3.1 Emergency department** refers to a section of general hospital that is staffed and equipped to provide rapid and varied emergency care, especially for those who are stricken with sudden and acute illness or who are the victims of severe trauma. The emergency department uses a triage system of screening and

classifying clients to determine priority needs for the most efficient use of available personnel and equipment.

**3.2 Intensive care unit (ICU)** refers to a unit in general hospital in which is concentrated special equipment and specially trained personnel for the care of seriously ill patients requiring immediate and continuous attention.

**3.3 Operating room** refers to a specially equipped room, in general hospital, where surgical procedures are performed.

**3.4 In patient trauma department** refers to a unit in general hospital in which is concentrated special equipment and specially trained personnel for the care of patient with trauma.

**3.5 Rehabilitation department** refers to the a unit in general hospital where the treatment of physical disabilities by massage, electrotherapy, and exercises

#### **Expected benefits**

1. The research undertaken to assess core competency reflected the strength and weakness of their competency. Core competency form used in determining the eligibility for registration of people who had undertaken nursing courses in Vietnam.

2. It can be applied to assess nurses who wish to return to work after being out of the workforce for defined period; and to assess qualified staff nurses who are required to demonstrate they are fit to continue working in trauma care system.

3. It may be provided a foundation for the design of nursing curriculum in both basic and continuing education programs. Especially, it used to distinguish the nurses' graduates' core competency in order to give the evidence for nursing

education reform in the currently intense debate on replacement of secondary nursing education by degree, diploma or not in Vietnam.

4. It can also be used to assess basic core competency pre and post orientation, to determine the learning needs of both older nurses and new graduates.

### **Scope and limitation of the study**

The study was conducted in the hospitals care phase (emergency to rehabilitations) among Vietnamese general hospitals to identify and assess trauma nursing core competencies among staff nurses. The instrument was developed for the first time and there were not enough information was revealed on how self-assessment of the competencies was related to the quality of actual care given to the patients and the peer-evaluation of TNCC.

On measurement point of view, self-assessment or self-perceptions of staff nurses about TNCC in the study may not sufficient and directly observation. However, there were evident of relevance by experience, work place, work rotation and continue education accordance to research hypothesis that relationship between competency and such factors. There were also not enough research studies conducted in this topic in Vietnam context to compare findings.

## CHAPTER II

### LITERATURE REVIEW

This chapter describes a literature review and a theoretical framework for the study. The literature review included the following topics:

1. Trauma profile in Vietnam
2. Management and care for trauma patients in Vietnam
3. Nursing situation and trauma nursing care at general hospitals in Vietnam
4. Trauma nursing core competency
5. Assessment of trauma nursing core competency
6. Impact of trauma nursing core competency on client outcome
7. Factors related to trauma nursing core competency
8. Related research to trauma nursing core competency

#### **1. Trauma profile in Vietnam**

Trauma is defined as injury that caused from an external source and it can be described as a physical wound or injury that commonly unintentional and intentional injuries such as a fracture or blow. Vietnam is a country in ASEAN that is increasing injury and trauma. This research topic was provided details of Vietnam's profile including incidence of trauma patients, cause of trauma, and type of trauma.

##### **1.1 Incidence of trauma patients**

Patient with trauma is a significant problem in Vietnam. Trauma is one of the forth of ten leading causes of death (Tran Ngoc Linh, 2010). It accounts for the highest number of occupied hospital beds. Number of cases of injury increases by

the years and mortality was relatively high every year. Injuries occur at any age, although the annual rate may vary for different age groups but overall the highest was at the age of 20-60. Injury because of trauma is no longer considered an accident. The most common location of injury is on the road and followed by injuries at home, namely, falls and violence. In this part the researcher explained or reviewed the content of causes and types of trauma patients which are as follows:

### **1.1.1 Causes of trauma**

Trauma or Injuries can be caused by any combination of external forces that act physically against the body. The leading causes of traumatic death are blunt trauma, motor vehicle collisions and falls. Subsets of blunt trauma are the number one and two causes of traumatic death. The leading causes of injuries are first, traffic accidents and then, falls (Cuong, 2009; Ngoc, 2011).

**1) Traffic accident** means an accident resulting in bodily injury to any person or damage to property caused by, or arising out of, the use of a motor vehicle on a road or other public place in Vietnam. Responsible for half the injury deaths (52%) and they increased fourfold between 2001 and 2011. There has been a five-fold increase in non-fatal casualties due to road accidents, making road accidents a significant social and health problem in Vietnam. Motor vehicle accidents (MVA) is the major health hazard worldwide and traumatic injury, secondary to MVA is the leading cause of mortality, morbidity and disability worldwide in young adults (Tran, 2011). Blunt trauma is seen most often with motor vehicle crash, contact sports, and blunt force injuries.

**2) Falls** is the second leading cause of accidental death in Vietnam and is a major cause of personal injury, especially for the elderly. Builders,



electricians, miners, and painters are occupations with high rates of fall injuries (Cuong, 2009).

**3) Penetrating injuries** occur with stabbings, firearms, or impalement injuries that penetrate the skin and result in damage to internal structures (Tran, 2010).

### **1.1.2 Type of trauma**

The literature reviewed presents the type of trauma in many ways. The type of trauma focus on anatomy and physiological and the trauma occurs highest in musculoskeletal, followed by head and spinal injuries. The majority of cases were treated at the general hospitals.

#### **1) Musculoskeletal injuries**

Musculoskeletal injuries are one of the most frequently occurring types of trauma. Although these injuries often occur in isolation, 85% of multiple trauma patients will have one or more skeletal injuries. Musculoskeletal injuries are rarely life threatening but do cause a significant amount of disability that may be lengthy or permanent. This disability may result in high costs to the patient and society as wages are lost and medical expenses incurred (Ngoc Lan, 2011). Impairment of mobility may have a profound and permanent impact on a person's life. Optimal care in the early hours after trauma may help prevent complications and facilitate healing, thus diminishing the potential disability faced by patient.

#### **2) Head injury**

Head injury may result in impaired vision because of optic, oculomotor, trigeminal, or abducens nerve injury. Individuals with impaired vision are also at risk to sustain head injury caused by fall, motor vehicle accidents, and

occupational and recreational accidents. Many patients who have sustained a head injury may have sustained an eye injury also. Injury to the brain may impair responsiveness as the result of disruption in sensory and cognitive processing. The clinical topic of eye injury is included with head injury because 67% of patients sustaining blunt maxilla-facial trauma will also sustain ocular or orbital injury (Tran, 2010).

In the acute phase of head injury, nursing care is focused on safe and rapid execution of medical prescriptions for therapy, preparation and transport of the patient for diagnostic testing or surgery, and neurologic assessment. Throughout this period, nursing interventions directed at minimizing the secondary injuries caused by increased intracranial pressure are critical.

### **3) Spinal injuries**

With the exception of high spinal cord trauma and massive pelvic damage, injuries to the spinal cord and musculoskeletal system are usually not life threatening. However, because these injuries may temporarily or permanently alter a patient's mobility, they are a major source of disability. Thus, they require early and appropriate care to prevent permanent complications and to achieve optimal outcomes. Approximately 2000 spinal injuries are sustained each year in Vietnam, with young men as the group most frequently injured and elderly women as the next most frequently injured. Motor vehicle accidents are the leading cause of spinal injury in all populations, followed by falls, and diving accidents (Tran, 2010).

### **4) Pulmonary, thoracic and facial injuries**

Impaired ventilation and gas exchange can result from a variety of conditions, including damage to the airway, chest wall, pleura, and pulmonary

parenchyma, mediastinum, and diaphragm. The injuries can result from maxillofacial, thoracic and abdominal trauma. Chest injuries account for approximately 25% of all trauma deaths in Vietnam (Tran, 2010). The potentially life-threatening nature of these injuries mandates an organized approach to patient care by experienced team of skilled, knowledgeable clinicians. In all cases, optimal treatment demands a coordinated effort that begins in the pre-hospital setting and continues in to the ED, OR, ICU, acute care, and, at times, rehabilitation.

### **5) Cardiac and vascular injuries**

The source of impact (e.g., motor vehicle collision, fist, and bullet, etc...); direction and rate of impact, and body composition and position all influence the potential for vascular injury and altered perfusion. Some organs, such as the brain and kidney, can auto regulate blood flow, whereas other organs and tissues depend on cardiac output and systemic changes in vascular tone for their blood supply.

The very structures that serve to protect the thorax may cause addition injury when the force applied is great enough, such as a fracture rib lacerating an intercostal artery. The pericardial tissue surrounding the heart allows the development of cardiac tamponade, a life-threatening condition, but also may contribute to saving a patient's life by literally tamponading a critical cardiac hemorrhage until definitive repair by emergent thoracotomy. Both blunt and penetrating injuries can lead to perfusion deficits.

The nursing role in maintaining adequate perfusion involves (1) awareness of the principles of oxygen transport, vascular flow, and indicators of

hidden hemorrhage; and (2) astute anticipation and assessment of inadequate perfusion.

### **6) Gastrointestinal and genitourinary injuries**

The gastrointestinal (GI) and genitourinary (GU) systems incorporate the processes of metabolism, elimination, and sexuality. Each organ functions individually but contributes to the overall physiologic processes of supplying energy substrates, eliminating and detoxifying waste products, and serving protective functions pertinent to the response to trauma. Abdominal injuries account for nearly 10% of all trauma-related deaths occurring in Vietnam (Ngoc Lan, 2011). Both blunt and penetrating forces result in disruption of the physiologic integrity of the abdomen and its underlying structures.

Care of the patient with GI trauma presents a unique challenge to nursing, since rapid and organized care can ultimately determine survival and return of the patient to a complete and productive life. Care of a patient who has experienced GU trauma is likewise complex and challenging. It requires excellent assessment skills and the ability to detect subtle changes in a patient's condition. Although all patients should receive holistic care, these patients may require emotional assistance and psychologic or spiritual resources because of the nature and function of the GU organs. It is possible that astute care can prevent the occurrence of potentially devastating lifelong complications.

### **7) Surface trauma**

Surface trauma occurs frequently and is often associated with other serious trauma. Because surface trauma is rarely life threatening, it is not the priority in trauma care. Yet surface trauma can have many serious implications for the

patient. Complications such as bleeding, infection, scarring, or loss of function can mean significant long-term physical and psychologic changes for the patient. This area of trauma nursing provides rich opportunities for nursing assessment and intervention. Nurses become the experts in wound care and patient teaching for surface trauma cases (Ngoc Lan, 2011).

It is important, if possible, for the initial treatment of surface trauma to occur before the patient is admitted to intensive care unit. If wounds are not cleaned, they may be hidden under dressings and not noticed in time to prevent complications. Ideally, wounds should be cleaned and dressed in the emergency department or the operating room. Tetanus prophylaxis must be addressed early in the treatment plan. If this initial treatment is not completed, that fact must be clearly conveyed to the receiving staff.

### **1.1.3 Burden of trauma patient**

One of the main findings was that injuries are among the leading causes of death and disability for both sexes in many countries. Road-traffic injuries were the 10th most important cause of death and the ninth most important cause of the burden of disease; they were followed closely by self-inflicted injuries, falls and inter-personal violence (Tran, 2010). In the Vietnam, road-traffic injuries and home and leisure injuries have also been shown to contribute greatly to the burden of disease. In both, this Vietnamese study and the global burden of disease and injury study, the years of life lost were dominated by diseases of the circulatory system and by neoplasms, while the years lived with disability were mainly caused by neuropsychiatric disorders. It is reported that trauma is one of the ten leading causes of death in Vietnam (Tran Ngoc Linh, 2010). According to the burden of diseases

and injuries study, 43.77/100,000 people of years of life lost in Vietnam are attributed to injuries (Ministry of Health, 2011).

In summary, the trauma patient can be complex because many variables exist that may complicate the patient's outcome. Prevention and minimizing morbidity and mortality in the trauma patient should be of primary concern.

## **2. Management and nursing care for trauma patients in Vietnam**

The management of trauma patients in Vietnam is divided into three phases: Pre-hospital care, hospital care, and posttraumatic care or rehabilitation. The term of care means provision of life support or organ support systems in patients who are injured. Trauma nursing care is caring for the injured. The details are as follows:

### **2.1 The management and nursing care for trauma patient during Pre-hospital care**

The meaning of pre-hospital care for trauma patient is assessment, stabilization, and care of a trauma victim, including transport to the appropriate receiving facility. Currently, pre-hospital care in Vietnam is limited in both quality and coverage, with fewer than 10% of victims receiving first aid on site (Nguyen, 2008).

The management of trauma patient is controlled by Emergency Management System (EMS) organization which works under the supervision of the ministry of health, the main organizational body responsible for leadership of pre-hospital care. The definitive care location may be arrived at via any of the four routes: the diagnostic imaging, the operating theatre, high dependence unit and critical care unit. If a patient has to be transferred, clear communication and coordination to ensure

appropriate and timely transfer of the patient and the delivery of expert care is important. Failure to coordinate and communicate effectively fragments trauma management and delays patient care, resulting in poor outcomes.

The EMS organization in Vietnam is responsible for providing pre-hospital care to patients. Anybody in need of emergency services can get in touch with the phone number 115. Thus, most people go to the emergency room themselves (by family members or friends). In some areas of the country, there are limited or no resources for communication and medical directing between the dispatch center and ambulances, also, between ambulances and destination hospitals.

In Vietnam, fifty two percent of injured cases did not receive first aid at the site of the accident. Basic supplies that we take for granted, such as cervical collars, are not readily available and; overall, emergency department (ED) staff are unable to prepare for a trauma patient's arrival. Pre-hospital trauma care was separately provided by the emergency service centers and hospitals. There was limited communication network between the emergency service center and hospitals, ambulances and hospitals, or between different hospitals. When people are injured, they become trauma patients and the health care providers in the trauma care system provide the steps of care to them during the phase of pre-hospital care, compose of patients' assessment, triage and transferring to the hospital (Nguyen, 2008).

### **2.1.1 Patients' assessment**

The initial time, the basic life support must be perform within 30 to 60 seconds to complete airway (A), breathing (B), circulation (C), disability and neurological assessment (D), and exposure and place al control (E). The purposes of

primary survey are to assess ABCDE and to initiate appropriate measures in the presence of life and limb threatening injuries (Ministry of Health, 2009). The patients with trauma always receive basic life support at the area of accident, the support includes:

A - Airway with cervical spine control: Assess the airway while immobilizing the cervical spine, the 3 Ps strategies is adopted, ensure or provide, patent and protect the airway. Assume cervical spine injury in patients who have suffered blunt trauma or injuries above the clavicle until ruled out;

B - Breathing and ventilation: The assessment of breathing in detail in the manual used during the education of the ATLS course; look, listen and feel to assess the respiratory rate and efficiency. Provide oxygen using an appropriate device;

C - Circulation with hemorrhage control: Priority is given to arresting any external bleeds. Assess for circulatory compromise and establish an intravenous access. Obtain blood samples before commencing fluid therapy;

D - Disability and neurological assessment: Assess level of consciousness using the Glasgow Coma Scale. Make a neurological consultation with the doctor as necessary;

E - Exposure and place al control: Expose the patient to assess for any injuries or conditions. The patient must be kept warm by either covering or warming the place or both; more often than not the patient requires both.

**2.1.2 Triage protocols** are not well developed and the patients are usually transferred to the hospitals according to the main injuries. There are specialized trauma hospitals equipped with required facilities and manpower, but formal designation of trauma centers is not performed. In other words,



there are no different levels of trauma centers for admission of trauma patients according to the severity of their injuries (Tran, 2010).

### **2.1.3 Transferring to the hospital**

Depends on each situation, emergency medical technicians (EMTs) decide on which hospital a patient should be transferred to. This decision is made according to severity of injuries, the distance between the injury scene and the potential destinations. Protocols for transfer of patients between health care facilities are not well defined and the physician in charge of the trauma patients decides on each case. Thus, almost all patients are brought to hospital by private vehicles. Various types of vehicles were used for transporting the injured to the hospital. Motorbikes were most often used (50.7%), followed by cars (10.7%). Only 4% of injured cases were transported to the hospital by ambulances (Nguyen, 2008).

A nurse functioning in the pre-hospital setting may have the first and last contact with a conscious patient and bystanders. Therefore any information the nurse may get from the patient and bystanders is vital.

## **2.2 Hospital care**

Hospitals provide both the basic life support and advance life support care to patients with trauma. The system of care to provide inpatient trauma in the general hospital is treated in the emergency care unit operating room, critical care, and inpatient care department.

### **2.2.1 Emergency care unit**

After the emergency care unit transfer the patient to the emergency room. The caring involves a detailed head-to-toe examination to identify any other

injuries that may need attention or call for further investigation. This caring was done by nurses and other health care providers. According to the Ministry of Health (2009), the emergency care provider should expose the patient completely and look for any signs and symptoms of injuries. The patient should be monitored carefully throughout the duration of secondary assessment for change in condition. It is important to contrast the injuries observed against the mechanism of injury as given in the history. This depends on the severity of trauma patients.

Trauma patients are always in the acute phase, nurses often observe and record the assessment of them as well as their own actions; whereas in some trauma settings, the nurse is expected to conduct and document a full nursing assessment (Kidd, 1993). In either situation, the nurse must be aware of pertinent pathophysiology related to particular mechanisms on injuries and manifestations of abnormalities. To record other's actions the nurse must have skills and know what should be done. In a tense, busy place, the nurse must be able to focus on and easily comprehend the significant findings to fully and accurately record the sequence of assessment and interventions, as well as patients' responses. Knowledge of anatomy and physiology is prerequisite to understanding the pathophysiology of trauma (Tran, 2010).

### **2.2.2 Perioperative care unit**

Perioperative nursing includes the preoperative (before), intraoperative (during) and postoperative (after) periods. During the preoperative time, staff nurses visit the patients in the ED or contacts the ED nurse to assess the patient's readiness for surgery and to identify the proposed procedure and any special needs for equipment or personnel. This is an important time to address issues that may come

up during surgery; this is also where the patient and family can be taught about what to expect before, during and after a procedure.

### **2.2.3 Critical care unit**

Trauma patients arriving into the ICU tend to have multisystem organ injuries requiring complex nursing care. The challenge of providing nursing care to trauma patients in the ICU generates a certain amount of excitement and stress. Care of the trauma patient in the ICU places great cognitive, physical, and personal demands on the nurse (Kidd, 1993, Tran, 2011).

The main job of nurses is to make sure all of their injured patients in their unit are provided with the care that they need to improve their mental and physical state. These nurses make use of their specialized knowledge of the human anatomy to provide the best possible care they can for their patients. A more specific list of jobs done by staff nurses are assessing a patient's condition, planning, implementing patient care plans, treating wounds, providing advanced life support, assisting physicians in perform procedures, observing, recording patient vital signs, ensuring ventilators, monitoring other types of medical equipment function properly, administering intravenous fluids and medications, ordering diagnostic tests, collaborating with fellow members of the critical care team, responding to life-threatening situations, using nursing standards and protocols for treatment, acting as patient advocate, and providing education and supporting to the patient's family.

### **2.2.4 In-patient care department.**

After admission to the emergency room, the patient is cared for in the clinical ward selected according to the type of the main injuries of the patient. Specialists other than the one responsible for the care of the main

injuries of the admitted patient also provide consultation for the optimal care and management of his/her other injuries, in the case of multiple trauma. This is to say that in many hospitals, there are no wards as the “trauma ward”. Instead, the patients might be admitted in orthopedics, vascular surgery or general surgery ward and other specialists provide care simultaneously.

### **2.3 Post traumatic care or rehabilitation**

Rehabilitation centers are available for post-discharge care. Rehabilitation medicine is a recognized and well-developed specialty in Vietnam and there are numerous centers providing rehabilitative care to patients. Nevertheless, rehabilitation is not an integrated part of the care provided to trauma patients and the trauma hospitals are not necessarily equipped with rehabilitation devices and work force. Instead, trauma patients can be introduced/ referred to such centers after discharge in the case of residual disabilities.

Nurses are the healthcare professionals who initiate the process of rehabilitation by incorporating early rehabilitation techniques into the initial care of these individuals (Kidd, 1993). An understanding of the entire rehabilitation process can provide an element of hope to the trauma nurse. Although a severely injured person may initially look unsalvageable for a return to any meaningful existence, the rehabilitation process can contribute significantly to the quantitative and qualitative aspects of the disabled person’s life. This understanding gives a broader perspective to the trauma nurse of what lies ahead for the traumatically injured patient. This perspective can also contribute in the emergency and critical care stages of treatment.

### 3. Nursing situation and trauma nursing care at general hospital in Vietnam

#### 3.1 Characteristics of hospital in Vietnam

The healthcare organizational structure in Vietnam is organized according to the general governmental administrative system consists of four levels: central, provincial, district, and communal.

1) The central level includes multi-field medical facility and specialized hospitals under direct control of the Ministry of Health (MOH). This is the final level of the treatment ladder, with specialized interventions and complex, modern techniques.

2) The provincial level under central management includes 64 general hospitals, regional hospitals, and provincial specialized hospitals. They provide both general and specialized healthcare services for local inhabitants and adjacent areas.

3) The district level includes district hospitals and hospitals of other sectors. This level provides healthcare services with basic techniques and primary health care.

4) The communal level includes communal health stations that provide primary health care services, early detection of epidemic outbreak, treating common diseases, attending normal deliveries, family planning, hygiene, prophylactics, and health promotion (Ministry of Health, 2011).

General hospitals is provincial level hospital where provide secondary care in both emergency and general cases for the clients. It includes a medical department, surgical department, obstetrics and gynecology department, pediatric department, infection department, intensive care unit, emergency room, operating room, and outpatient department. *There are 64 general hospitals in the 63 provinces of*

*Vietnam where almost all trauma patient procedures are performed.* In some general hospitals, there are few Advanced Trauma Life Support physicians, so the critically injured patient receives initial trauma care from nurses. Most hospitals provide only in-service training on traumatic care for nurses and there is no accreditation for those courses (Xuan, 2009).

Increasingly, these nurses come in close contact with trauma patients. Currently, Nurses are prepared to practice in expanded roles to deliver primary health services to individuals, families, and communities, they conduct comprehensive health assessments aimed at health promotion and disease prevention. They also diagnose and manage common acute illnesses and manage chronic stable conditions, making referrals as appropriate. Curriculum in nurses' programs includes theory, research, health assessment, pathophysiology, and pharmacology. Other courses are included and are geared toward their primary role of health promotion and disease prevention; nurses' programs typically do not include trauma or emergency rotations but do cover acute conditions encountered in the infant through geriatric population. Acute care staff nurses, although trained in trauma, do not have the flexibility for the majority of the injuries (Ministry of Health, 2011).

### **3.2 Characteristics of nurses in Vietnam**

Nurses are the second major group of health professional providing health care in Vietnam. According to 2010 statistics, there are about 80,000 staff nurses with more than eighty percent are female and average working experience is 30 years in range from 20 to 55 years old. There are currently five categories of nurses with different levels of credential in healthcare settings including elementary, secondary, college,

bachelor, and master level. Among nursing workforce, most of them are at secondary level (82%), elementary level accounts 10.5%, college level: 3.5%, bachelor and master level: 4%, especially Vietnam exist assistant physicians of which most of them work as nurses with or without nurse certificated. In addition, there is not license for staff nurses in Vietnam and nurse can be rotated form these units to other unit depend on their manager in hospital (Vietnamese Nursing Council, 2012).

The Vietnamese Ministry of Health promulgated a policy to strengthen the quality of nursing services in the country. Under this policy, the nursing organizational structures for the administration and formulation of policies concerning nursing were established in each provincial government. In 2005, a nursing personnel policy system for career promotion was established. The professional title system has been used to identify and differentiate the different level of nurses. From higher to lower rank, this includes preliminary nurse - Code 16b.122, Intermediate nurse - Code 16b.121, College Nurse - Code 16a.200, Bachelor nurse - Code 16b.120, and main nurse - Code 16a.199. Each level has the specified qualifications and processes for fulfilling the promotion requirements. The evaluation criteria for promotion include education background, years of service, achievements made in service and research, evaluation by peers, and foreign language ability (Ministry of Health, 2005).

On the other hand, to assist in achieving high quality of care, the Vietnamese Nurse Association and Nursing center in the MOH have developed some policies and requirement standards for nursing practice. Such as “Nurse’s clinical practice ability requirement”, and the “Quality of nursing care evaluation standard” provide the broad framework for professional nursing practice (Ministry of Health, 2005). In

addition, the job description guidelines for staff nurses addressed the six aspects of abilities:

- 1) Apply knowledge and skills at each required level.
- 2) Demonstrate responsibility for practice and decisions.
- 3) Articulate an awareness of regulatory, professional and ethical standards.
- 4) Advocate client welfare prevails.
- 5) Participate in professional development activities.
- 6) Collaborate with other health professional

Nursing and midwifery organizational structure in Vietnam is organized along with the healthcare organizational structure. At central level, there is nursing office in Ministry of health, whereas available head nurse position at provincial health bureau, and head nurse position at district health section. In most of hospitals at provincial and central level, there are nursing offices and nurse managements including chief nurses, head nurses, and nursing supervisors (Ministry of Health, 2005). However, the qualification and leadership capacity of nurse and midwifery management is still limited (Xuan, 2009).

### 3.3 Trauma nursing care in Vietnam

In Vietnam, research related to trauma nursing care is in the initial stage of development. Although continuing to evolve, trauma nursing practice is still relatively new in Vietnam and has not been listed as a specialty area by the DHCM. The scope of practice for the trauma nurse is spelt out together with the general nurses' scope of practice. This is because the DHCM acknowledges that there are trauma nurses trained in other countries and within Vietnam, who are working in various trauma environments in Vietnam (Ministry of Health, 2009). The scope of



practice for trauma nurses in Vietnam is based on the Emergency Nurse Association (ENA) scope of practice, which is laid out in a broad and non-specific manner.

In some general hospitals where almost trauma procedures are performed, there are not enough advanced trauma life support physicians, so the critically injured patient receives initial trauma care from nurses. Most hospitals provide only in-service training on traumatic care for nurses and there is no accreditation for those courses. In addition, nursing position is not in long-term stability, this can be rotated to any department in the hospital. Rotation phenomenon is quite common in hospitals in the health system (Xuan, 2009).

### **3.4 Trauma nursing care at general hospitals**

Trauma nursing care is the central or most important part of trauma system and competent as adequately qualified or capable, effective and legally qualified and core competency as the ability or an area in which a person is proficient and essential behaviors and skills that an individual should possess and demonstrate to practice in a specific discipline (Santy, 2005). Trauma nursing care at general hospital is delivered mostly in emergency care, critical care, and rehabilitation care department.

#### **3.4.1 Emergency care for trauma patients**

The Emergency department (ED) is recognized as the entry point to the hospital; it is often the site of emergency resuscitation. The most critical role for nurses in the ED is resuscitation, including assessment and stabilization of the injured patient. In addition, the emergency nurse contributes to care of the patient before arrival at the hospital and beyond resuscitation. The following clinical competencies pertain to caring for trauma patient in the emergency department:

1) Demonstrate proficiency in the following trauma nursing core course: assessment of the trauma patient, multiple trauma interventions, cervical spine immobilization, helmet removal, splinting, including traction splint application; airway device use and oxygen delivery.

2) Describe indications, contraindications, and hypothesized effects of pneumatic anti-shock garment; demonstrate application, inflation, deflation, and removal.

3) Anticipate need for chest drainage and auto transfusion; assemble equipment and provide appropriate pain control and support to patient.

4) Implement use of rapid infuser and fluid warmer when indicated.

5) Appropriately anticipate and assist with surgical procedures: sterile technique, instrument identification, nursing aspects of the procedure (venous cut down, peritoneal lavage, cricothyroidotomy, pericardiocentesis, and resuscitative thoracotomy).

6) Maintain familiarity with internal defibrillator: indications for use; how to assemble equipment; how to select voltage.

7) Describe indications for invasive monitoring, assist with line placement and monitor set-up, assess parameters; intervene appropriately.

8) Perform preoperative nursing assessment.

9) Maintain patient safety in positioning, use of equipment, and transport.

10) Monitor fluid loss and replacement in conjunction with other trauma team members.

11) Perform surgical counts while recognizing potential urgent need for surgery.

12) Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury, and

13) Recognize need for and provide emotional support to patient's family members/ significant others (Kidd, 1993).

The major goals of trauma care at ED are to prevent early death from failure to resuscitate and to prevent late organ failure/death from inadequate or delayed resuscitation. The nurse as a trauma team member plans the patient's injuries with these goals in mind (Kidd, 1993).

#### **3.4.2 Critical care for trauma patients**

Consequently, trauma patients arriving into the intensive care unit (ICU) today tend to have multisystem organ injuries requiring complex nursing care. Although the events that take place before ICU admission usually determine survival, a significant number of trauma patients die in the ICU as a result of the late complications of trauma (Meyer, 1986).

A key responsibility of nurse at ICU is assessment of trauma patient. Ongoing monitoring techniques using invasive and noninvasive data can detect missed injury and late complications of trauma. When planning care the nurse at ICU must assess a variety of factors that impact on nursing care delivery and trauma patient recovery, including the trauma patient profile, the family profile, physical and personal demands on the ICU nurse, the ICU environment, and ethical issues in the ICU. The role and responsibilities of the ICU nurse have changed with the rapid pace of technologic developments in the care of the critically ill trauma patients. These

developments include advances in mechanical ventilation, sophisticated monitoring systems, pharmacologic support, pain management, and infection control.

The clinical competencies pertaining to caring for trauma patient in ICU are:

1) Perform continuous assessment of trauma patients to evaluate effectiveness of interventions to detect complication.

2) Coordinate multidisciplinary services to improve patient outcomes. Include patient's family in the delivery of health services.

3) Apply nursing process in meeting family members' needs. Promote nursing standards of care for the trauma patient.

4) Evaluate the impact of intensive care services on trauma patient outcomes (Kidd, 1993).

### **3.4.3 Rehabilitation care for trauma patient**

Trauma rehabilitation is a broad term that is defined as the extensive process of helping injured individuals facilitate movement toward health and regain functional abilities. Rehabilitation is not a place, but a dynamic process of planned adaptive change that is imposed on the individual by the traumatic incident. The focus is not on cure, but on living with as much freedom and autonomy as possible at every stage in whichever direction the disability progresses (Bitter, 1979).

Trauma nurses across the continuum of recovery contribute to and facilitate the long process of rehabilitation. Rehabilitation is an important component of nursing practice overall. It is also an area of specialized practice that is implemented within focused rehabilitation settings. It is difficult to concentrate on and fathom the long-term aspects and impact of the traumatic injury at the initial

scene and emergency care stage. However, understanding the broad perspective of the recovery process after traumatic injury is essential. This understanding serves to enhance the skills of the trauma nurse in these early stages by recognizing the impact that early care and treatment have on the ultimate outcome of the injured person. The following clinical competencies pertain to caring for trauma patient in rehabilitation phase:

- 1) Demonstrate proper bed-positioning techniques.
- 2) Demonstrate proper transfer techniques.
- 3) Apply immobilization and assistive devices correctly.
- 4) Demonstrate knowledge of assistive device use and maintenance.
- 5) Demonstrate knowledge of managing the physical environment to minimize overstimulation.
- 6) Demonstrate proper use of safety promotion devices.
- 7) Demonstrate safe methods of physical management.
- 8) Demonstrate of knowledge of common cognitive impairments that alter the patient's own safety awareness and judgment (Kidd, 1993).

Although continuing to evolve, trauma nursing practice is still relatively new in Vietnam and has not been listed as a specialty area by the Ministry of Health. The scope of practice for the traumatic care is spelt out together with the general nurses' scope of practice. This is because the MOH acknowledges that there are nurses trained in other countries and within Vietnam, who are working in various trauma environments in Vietnam. The scope of practice for trauma nursing care in Vietnam is based on the ENA scope of practice, which is laid out in a broad and non-specific manner (Xuan, 2009).

In summary, the issues regarding nursing care in Vietnam, there is no core competency framework as a guidance to build nursing education curricula, to formulate the professional boundary standards for the public, and to set up the measurement criteria for competent nursing care.

#### **4. Trauma nursing core competency**

##### **4.1 Definition of core competency**

The definition of 'core competency' is not clearly stated in the literature to analyze the uncertainty in defining nursing competency, and argued that the ill definition of nursing core competency is not helpful for the preparation and assessment of competency, and is a potential safety hazard for both patient and nurse (Bradshaw, 1998). An appropriate definition of nursing core competency plays a crucial role in the development of the profession. It would enable nurses to work safely, effectively and legally within their particular scope of practice that have at its core concepts of professionalism, autonomy, self-regulation, awareness of the limits of personal practice and the practice of the profession to which the individual belongs, within which, structured, career-long learning and development to meet identified learning need form an integral part.

There were many points of view to conceptualize nursing competency. For example, Gonczi (1994) proposed three ways of conceptualizing nursing competency, which are:

- 1) Task based or behaviorist, which depends upon 'direct observation of performance' for evidence

2) Pertaining to the 'general attributes of the practitioner that are crucial to effective performance

3) Bringing together a range of general attributes, such as knowledge, skills and attitudes, in such a way that specifically address the needs of the practitioner

From literature review, it seems to be that the existing definitions related to nursing core competency can be classified into two categories: core competency from general viewpoint and core competency from clinical viewpoint.

#### **4.1.1 Core competency from general viewpoint**

In the health care literature, the term core competency is often used to describe the knowledge to be able to perform at a particular task. More simply, core competency can be described as public statements of minimum occupational standards providing information about specialist services (Erault, 1994). Competencies can be described as underlying behaviors necessary to achieve a desired outcome upon standard and core competency as a "level of knowledge or skill required to function effectively" (Weightman, 1994).

Erault (1994) described core competency which refers to specific capabilities. These capabilities made up of the attributes of knowledge, skills and attitudes. Alspach (1995) proposed that core competency as a simultaneous integration of the knowledge, skills, and attitudes that are required for performance in a designated role and setting. Kane (1992) defined core competency as the degree to which individuals can apply the skills and knowledge associated with a profession to the full range of situations that fall within the domain of that particular profession

#### 4.1.2 Nurses core competency from clinical viewpoint

According to Norman (1985), core competency is determined by comparing current work functioning with established performance standards developed in the work environment according to a specific role and setting. Core competency is more than knowledge. It includes the understanding of knowledge, clinical, clinical practice, and communication skills, and the ability to problem solve using clinical judgment. In agreement, Zhang, Luk, Arthur, and Wong (2001) defined nursing competencies as sets of knowledge, skills, attitudes, motives and traits that are required for effective performance in a wide range of nursing jobs and various clinical settings.

Considering the definition of clinical competency, nursing core competency generally consists of the following dimensions: patient care clinical practice skill, critical thinking, nursing process, or planning and evaluation, teaching, interpersonal relationship/communication, professional development, and management/leadership (Lawrette, 2008). Dunn et al. (2000) described three components to competency. First, there is knowledge of cognitive skill involving the mastery of the multitude of facts that form the basis on which nursing practice is founded. Also required are performance skills for the application of factual knowledge to the clinical situation. These include psychomotor skill in the performance of clinical practice bedside responsibilities, attitudes, affective skills, and clinical problem solving skills. Core competency is the overlap of knowledge with the performance components of psychomotor skills and clinical problem solving within the realm of affective responses.



Similarly, Benner (1982) defined nursing core competency as ‘the ability to perform the task with desirable outcomes under the varied circumstances of the real world’. There are three components to competency: knowledge of cognitive skill involving the mastery of the multitude of facts that form the basis of nursing practice, psychomotor skills, and attitudes and affective skills. Core competency in this sense is viewed as areas of skill or practicability. The knowledge and skills required to carry out these competencies are also context dependent. Being able to demonstrate core competency in a given content area in one context does not guarantee core competency in a different context.

Beside skills and knowledge, authors also argued that nursing core competency must consist of moral and ethical component. Nagelsmith (1995) mentioned that nursing core competency is more than knowledge and skill, values, critical thinking, and clinical judgment; formulation of attitudes, and integration of theory from the humanities and the sciences into the nursing role are also the component of competencies. On the other hand, Roger and Murphy (1994) suggested that a competent practitioner must not only consistently be able to select and perform using psychomotor and interpersonal skills, but also consistently use appropriate moral and personality attributes.

Additionally, Bradshaw (1997) from the policy view broadly defined nursing core competency as being able to demonstrate awareness of social and political factors relating to health care, developing helpful caring relationships with patients and demonstrating the knowledge and skills necessary to meet the health and sickness requirements of individuals.

In summary, to synthesize the variety of definitions above, nursing core competency is defined as a cluster of nursing knowledge, skills and attitude in the clinical situation. Core competency is generally demonstrated in three broad aspects: (a) clinical care competency-assessment, planning and intervention, clinical judgment, and clinical practice skills, (b) general competency-interpersonal relationships, critical thinking, problem solving, and professional development, and (c) moral core competency the individual's abilities consistent with a professional accountability and role responsibilities.

#### **4.2. Nursing core competency for trauma patients from clinical viewpoint**

Nursing core competency combines with core and the nursing care for patients with trauma composed of many procedures and management that require the nurse to have clinical knowledge, attitude and skills. It is recognized that trauma practitioners require specific, specialist knowledge and skills at different levels of practice (Clarke, 2003; Santy, 2005). Resuscitation of a traumatic patient is a crisis situation both for the injured patient who has a life-threatening condition, and the trauma team members who are responsible for timeliness of care. Since lives can be saved with optimal care and appropriate management, rapid resuscitation is critical (Cothorn, 2007; Rainer, 2007; Simons, 2002). Thirty-four percent of trauma deaths occur within 1-4 hours following injury. Many of these deaths are potentially preventable with early and appropriate intervention (Demetiades, 2004). Delay in treatment and errors in judgment are considered to be the leading causes of preventable deaths (Teixeira, 2007).

Core competencies pertaining to caring for the patient with ventilation and gas exchange problems are the performance of initial assessment and subsequent

assessments appropriately and in a timely fashion to auscultate breath sounds, detect evidence of impending respiratory failure, and evaluate weaning parameters, accurately interpret arterial blood gases results, maintain a patient away, set up and maintain a chest drainage system, evaluate and dress facial wounds appropriately, and employ techniques to maximize ventilation for immobilized patients or patients in pain (Neff, 1993).

Core competencies pertaining to caring for the patients with perfusion injury are manage and monitor systems for rapid delivery of warm crystalloid and colloid; maintain communication links with transfusion services, operating room, and radiology during resuscitation; recognize low perfusion states, and intervene appropriately for hypovolemic, cardiogenic, obstructive, and distributive shock; verify the accuracy of noninvasive heart rate and blood pressure measurement devices by clinical assessment and manual techniques; Anticipate the need for invasive monitoring, and differentiate dampened tracings from normal tracings; Understand the implications of  $VO_2$ ,  $DO_2$ , CI, SVR, PWP, and  $Svo_2$  readings, their limitations, and the expected treatment for unacceptable values (Kidd, 1993).

The following core competencies pertain to caring for the patient with traumatic injury affecting responsiveness and/or vision:

- 1) Identify signs of a malfunctioning intracranial pressure monitoring system and the actions to be taken to correct the malfunction, using the policies and procedures of the individual organization.
- 2) Describe or demonstrate interventions that will protect the patient in status epilepticus, using the organization's nursing care standards.
- 3) Demonstrate psychosocial skills in crisis intervention when

interacting with the family/significant others of the patient with a head injury.

4) Provide accurate and complete information regarding the signs and symptoms requiring immediate action on the part of the patient/family/ significant other when discharging a patient from the ED, using the guidelines developed by the individual organization.

5) Identify priority interventions in the patient with acute intracranial hypertension, based on clinical knowledge of interventions and rationale, standing orders or written protocol, and the nurse practice act.

6) Recognize the signs and symptoms of neurologic deterioration, including pupillary size, shape, and reactivity, level of consciousness, motor and cranial nerve assessment, respiratory patterns, ICP and CPP trends and abnormal values, and vital sign trends and abnormal values for the patient.

7) Perform a visual acuity examination, using both the Snellen eye chart and the pocket chart.

8) Properly patch an injured eye.

9) Instill ophthalmic solutions and ointments according to physician orders.

10) Irrigate/flush an eye using normal saline or other solution.

11) Adapt patient education/discharge instructions to facilitate compliance by the visually impaired patient.

The following core competencies pertain to caring for the patient with spinal or musculoskeletal injuries (Kidd, 1993).

1) Demonstrate spinal precautions in moving the trauma patient.

2) Perform neurovascular assessment before and after immobilizing extremities.

3) Properly align extremities when applying splinting devices.

4) Monitor the musculoskeletal injury patient for the presence of compartment syndrome.

5) Intervene appropriately when compartmental syndrome is detected.

6) Assess the spinal injury patient for spinal shock.

The core competencies pertaining to caring for the patient with GI and GU traumas are (Kidd, 1993).

1) Demonstrate proper assessment of high-risk GI and GU injuries.

2) Document information regarding continence, fertility, and sexuality on nursing care record

3) Monitor intake and output, gastric and urinary drainage

4) Prepare patient for GI and GU diagnostic procedures, including administration of contrast material.

The core competencies pertaining to caring for the patients with surface trauma are: Demonstrate proper technique for wound cleaning, Perform neurovascular check, Apply immobilization devices correctly, Apply wound dressing correctly, Demonstrate knowledge of high-risk wound management, Teach and demonstrate proper aftercare techniques to patient by time of discharge (Kidd, 1993).

In summary, as defined above, trauma core competencies are responsible for conducting a systematic and pertinent assessment for each patient. It begins with triage and determining priorities of care and ends at discharge or transfer of the patient. The benefits to patient care because of nurses performing assessment are numerous; they include, (1) setting priorities of care appropriately, (2) recognizing subtle changes, and (3) evaluating patient's response to therapy.

### 4.3 Components and measurement of trauma nursing core competency

Based on the review of literature, there are few tools available to evaluate perceived related to trauma nursing core competency (Table 1- Synthesis table review of the literature) which were:

Schwirian (1978) developed instrument including content, structure, validity, and reliability of the nursing core competency, which consisted of 52 items grouped into six dimension subscales: leadership (5 items), critical care (7 items), teaching/collaboration (11 items), planning/evaluation (7 items), interpersonal relations/communications (12 items), and professional development (10 items). The instrument was found to be suitable for performance evaluation as well as a useful research tool.

Santy (2005) identified five core activities of trauma nursing; these were comfort enhancement included 4 items, coordination had 6 items, partnership /guide included 6 items, risk management had 4 items, and technician/reflect composed 10 items. These core activities were felt to inclusively represent orthopedic and trauma nursing practice. The context of these five core activities was placed within a framework that included the notions that: Orthopedic and trauma patients are those whose musculoskeletal conditions originate or are caused by place al factors, genetic factors, infection/immunity, degenerative processes, and trauma. These conditions are commonly managed through surgery and/or casts/orthotics/appliances. Mobility, disability and independence are central concepts to the orthopedic patient's needs. Orthopedic and trauma nursing care is provided from birth to death across all age ranges. The continuum of care in orthopedic nursing crosses all boundaries and takes place in all settings from pre-hospital care, through acute and primary settings to the

patient's place of residence. Specialist and generic knowledge, education and research underpin orthopedic nursing practice.

Malaysia Nursing & Midwifery Council (2005) developed core competency for Malaysian nurses had 25 items divided in 5 dimension which were ethic and legal practice composed 2 items; professional and midwifery included 8 items; leadership and management composed 9 items; education and research included 4 items; professional personal and quality improvement composed 2 items.

Australian Nursing & Midwifery council (2006) built competency standards for the registered nurse are organized into 4 domains: Professional practice this relates to the professional, legal and ethical responsibilities which require demonstration of a satisfactory knowledge base, accountability for practice, functioning in accordance with legislation affecting nursing and health care, and the protection of individual and group rights; Critical thinking and analysis this relates to self-appraisal, professional development and the value of evidence and research for practice. Reflecting on practice, feelings and beliefs and the consequences of these for individuals/groups is an important professional benchmark; Provision and coordination of care this domain relates to the coordination, organization and provision of nursing care that includes the assessment of individuals /groups, planning, implementation and evaluation of care. And collaborative and therapeutic practice this relates to establishing, sustaining and concluding professional relationships with individuals/groups. This also contains those competencies that relate to nurses understanding their contribution to the interdisciplinary health care team.

Franklin et al, (2008) identified for inclusion were based on the need to manage trauma patients. The 26 elements thought to be important in the

management of a trauma patient, as identified in advanced trauma life support/ advanced trauma care for nursing/Trauma nursing core course covered the following 8 domains of trauma care: hemostasis, airway, breathing, circulation, neurological, intramuscular therapy, fracture management, and electronic monitoring.

Ameera (2008) identified 25 elements of core competencies for a trauma subspecialty nurse practitioner the following 5 domains of trauma care: Neurologic, respiratory, cardiovascular, gastrointestinal and musculoskeletal/skin.

Filipino Nursing & Midwifery council (2009) developed core competency for Filipino nurses had 47 items divided in 11 dimension which were safe and quality nursing care composed 7 items; Communication included 5 items; Collaboration and teamwork composed 2 items; Health education included 5 items; Legal responsibility composed 3 items; Ethico-moral responsibility included 3 items; Personal and professional development composed 6 items; Records management included 3 items; Management of resources and place composed 4 items; Quality improvement included 4 items; Research composed 5 items.

Unhasuta (2010) in terms developing trauma core competencies for nurses in Thailand; six dimensions of core competency were identified: cooperation, decision-making, leadership, problem-solving, teamwork, and clinical practice knowledge. Because of the knowledge, skills, abilities and other characteristics that an individual cannot produce results superior to others. Core competency the overall appearance of a person that helps the organization achieves its goals, Job core competency (Encourage the person who has created a higher standard), Personal core competency (Characteristics superior to the common person). Professional Nurse Competencies included Nursing Knowledge (Research, Health policy, Ethics) and



Nursing Practice (Advance health assessment, Advance physiology & pathophysiology, Advance pharmacology).

According Royal College of Nursing (2012) there are four core domains of practice within orthopedic and trauma practice that are Partnership/guide (Support and guidance, patient information and education, health promotion, rehabilitation). Comfort enhancement (Pain and comfort assessment, Pain and comfort management, Moving and handling); risk management (Risk assessment; Risk management; Discharge planning, Orthopedic and trauma practitioner knowledge); and technician (Traction, Casting, External fixator and skeletal pin site care, Appliances; slings; splints and braces, Mobility aids, Cervical collars).

Thailand Nursing Council (2000) initiated 14 core competencies of Thai nurse and midwife. The core competencies emphasized the professional nurses and midwives should demonstrate the required competencies related in professional standard and ethical practice, in teaching counseling, communication, health promotion and disease prevention, in self and professional development, and in awareness of evidence-based practice.

Vietnam Nursing Associated initiated 25 standards and 110 criteria core nursing competencies of general nurses. The standard is structured into three areas; each field represents a basic function of nursing. The core competencies emphasized the professional nurses should demonstrate the required competencies related 3 areas are: the capacity to practice, care management and career development, legal and ethical nursing (Vietnamese Nursing Council, 2012).

Table 1 TNCC dimensions from the synthesis review of the literature

Dimensions	Synthesis											
	Santy (2005)	Royal college of nursing (2012)	Krongdal (2010)	Vietnam Nursing Associated (2012)	Schwirian (1978)	Franklin et al, (2008)	Ameera et al (2008)	Australian Nursing & Midwifery council (2006)	Malaysia Nursing & Midwifery council (2005)	Filipino Nursing & Midwifery council (2009)	Thailand Nursing Council (2000)	Core competency Trauma Nursing from Literature Review
Comfort enhancer	✓	✓	✓			✓						Comfort enhancer
Cooperation/ collaboration/ provision and coordination of care/ collaborative and therapeutic practice	✓		✓		✓			✓		✓		Coordinator/ cooperation/ collaboration
Partner/guide/ teamwork/ interpersonal relationship	✓	✓	✓		✓				✓			Partner/ teamwork/
Risk manager/ quality improvement/ safe and quality nursing care/ quality	✓	✓							✓			Risk manager/ Safety and quality improvement
Technician/ technical knowledge/ capacity to practice/ care management/ critical care/ clinical nursing care/ Professional Practice/ practice inquiry/ independent practice	✓	✓	✓	✓	✓							Technical capacity/ clinical nursing care/



According to Anne et al (2005) at least two different methods of collecting data should be used in core competency identification. Every method of data collection has relative strengths and weaknesses, so multiple methods can complement each other and compensate for the weaknesses in singular approaches. If the resulting data obtained from one method is similar to the data collected in a second approach, there is greater credibility and greater assurance that required competencies have been accurately identified. Multiple methods are also useful in assuring that a core competency is not missed all together. This research will be used literature review and focus groups to identify trauma nursing core competencies. Expert panels are a special type of focus group where persons who are considered highly knowledgeable about the job and its requirements meet to develop a list of the competencies required for success.

Choosing items that reflect the scale's purpose, theoretically, a good set of items is chosen randomly from the universe of items relating the construct of interest ( DeVellis, 1991). Items should be generated for each dimension (Mishel, 1998). Items should be generated for each dimension of the instrument in such a way that items are homogeneous within each dimension (Mishel, 1998). Items need to be unambiguous statements, convey a single idea, avoid use of multiple negatives, have statements of 20 or fewer words, be factual statements, and avoid statements in form of compound or complex sentence (DeVellis, 1991).

An expert panel member can be defined by certain characteristics: clinical experience with the target population, achieved professional certification in a related topic area, or initiated research on the topic area (Davis, 1992). The number of experts often depends on how many accessible and agreeable persons the

instrument developer, or not on a population estimation principle. A minimum of three is acceptable, but five experts would provide a sufficient level of control for chance agreement, and the maximum number of judges that might be used has not been established, but it is unlikely to exceed 10 (M. R. Lynn, 1986). Others recommend from 2 to 20 panel members (Tilden, 1990).

After clarifying a concept, researcher formulated the theoretical definition and specifies dimensions of the concept. Based on the literature review, the inductive qualitative study, or deriving a concept from another field, the researcher was able to identify the dimensions of the concept, which are then specified in the theoretical definition. It indicated that trauma nursing core competencies composed Legal and ethical practice, comfort enhancement, cooperation, partnership/guide, leadership, critical thinking, risk management, and clinical practice.

**4.3.1 Legal and ethical practice** refers to abilities relating to principles of right conduct within an organization that guide decision making and behavior in the trauma care (Ameera, 2008; Franklin, 2008; Malaysia Nursing & Midwifery council, 2005; Filipino Nursing & Midwifery council, 2009).

- 1) Act in accordance with legal and ethical professional responsibilities (e.g., patient management, documentation, advance directives).
- 2) Integrate ethical principles in decision making for trauma care.
- 3) Evaluate the ethical consequences of decision making for trauma nursing care.
- 4) Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care.

5) Accept patient response when making decisions and to interventions care.

**4.3.2 Comfort enhancement** refers to the abilities relating to human experience, impart strength and hope to patient in the trauma care to encourage; to relieve; to console as well as a diminution of pain. Comfort is a concept which is central to the fundamental care of the trauma patient. Comfort is a complex human experience which can be interpreted in different ways. It is closely related to the experience of pain, especially for patients who have received an assault to musculoskeletal tissue. The comfort of trauma patients is paramount for high-quality care and positive health outcomes. This essential aspect of care may be more complex for the trauma patient due to the nature of their condition, injury or surgery (Franklin, 2008; Unhasuta, 2010; Royal College of Nursing, 2012; Santy et al., 2005)

1) Comfort enhancement provides nursing care to meet the hygiene and comfort needs of patients that take into account their trauma condition and is sensitive to their cultural and spiritual needs.

2) Assesses and monitors pain levels of patients with chronic and acute pain showing an understanding of the patient condition.

3) Administers prescribed analgesia according to prescription and prescribed need.

4) Utilize a small selection of alternative/complementary strategies for pain relief.

Competence in providing essential care within this context is therefore central to high-quality care and again highlights the need for that care to be provided

in a specialist setting where practitioners possess the requisite specialist competency (Royal College of Nursing, 2012).

**4.3.3 Cooperation** refers to abilities in establishing and sustaining the nurse and patient relationship, interacting with other members of the health care team, and commitment to others in the trauma care. To cooperate in the work, community health team and others, and external agencies involved the collaborative teamwork. To assist local authorities and external agencies involved coordination with outside agencies are encouraged to help the team (Australian Nursing & Midwifery council, 2006; Filipino Nursing & Midwifery council, 2009; Unhasuta, 2010; Santy, 2005; Schwirian, 1978). Such as:

- 1) Accurate assessment of patients with a range of conditions and/or injuries and records such assessments.
- 2) Planning and evaluation care for a wide range of patients.
- 3) Undertake basic pre-assessment of patients awaiting admission for elective surgery.
- 4) Effective planning and management of discharge and/or transfer for patients with uncomplicated discharge needs.
- 5) Arrangement of appropriate post discharge support for patients with uncomplicated needs.
- 6) Liaise with other members of the multidisciplinary team regarding uncomplicated discharges.
- 7) Coordinated multidisciplinary services to improve trauma care outcomes.

**4.3.4 Partnership/guide** refers to abilities relating to support, education and encouragement which are inherent in the trauma care. The partnership between patients and healthcare professional is a unique role, guiding the patients through their journey of trauma demands healthcare that includes:

1) Use of knowledge in anatomy & physiology, conditions, surgery and injuries to be able to give basic information to patients and career.

2) Gives basic preoperative, post-operative and pre-discharge advice to patients and career following surgery, conditions and injury.

3) Actively provides support and education to patients undergoing surgery and/or with injury or other conditions.

4) Supports and encourages patients when mobilizing according to their rehabilitation plan and with a focus on maintaining body integrity.

5) Recognize the psychological consequences of trauma conditions and reports issues and problems to a senior staff.

6) Use simple health promotion strategies to promote health within the immediate community.

7) Demonstrate of knowledge of common cognitive impairments that alter the patient's own safety awareness and judgment

This domain relates to the partnership between the patient and the healthcare professional and the unique role in guiding the patient through their journey in trauma health care. Supporting the patient and ensuring they are at the center of their care is essential. In addition, working in partnership with the patient's family/informal careers is vital, as is liaison and collaboration with all members of the multi-professional team to ensure seamless holistic care (Franklin, 2008;



Unhasuta, 2010; Filipino Nursing & Midwifery council, 2009; Royal College of Nursing, 2012; Santy, 2005; Schwirian, 1978).

**4.3.5 Leadership and management** refer to the ability to lead, motivate, influence, and support others to get the job done and to promote trauma care (Ameera, 2008; Franklin, 2008; Unhasuta, 2010; Schwirian, 1978; Thailand Nursing Council, 2000).

- 1) Demonstrate leadership that uses critical and reflective thinking.
- 2) Participate in the unit planning and communicates practice knowledge effectively both orally and in writing.
- 3) Leads nurse member to practice inquiry, individually or in partnership with others.
- 4) Identify the job or task to be accomplished in order priority.
- 5) Organize work flow to get things done; managing the physical environment to minimize overstimulation.
- 6) Workflow management, personal time effectively and science

**4.3.6 Critical thinking for caring** refers to those abilities in analysis of data, decision-making or judgment, and problem solving in the trauma care (Ameera, 2008; Franklin, 2008; Malaysia Nursing & Midwifery council, 2005; Schwirian, 1978).

- 1) Maintains awareness of known casualty incidents and the treatment modalities required for trauma care
- 2) Critically analyzes data and evidence for improving trauma care
- 3) Provides patient centered care recognizing cultural diversity and the patient or designee as a full partner in decision making
- 4) Demonstrate proper bed-positioning techniques

- 5) Demonstrate proper use of safety promotion devices
- 6) Apply nursing process in meeting family members' needs
- 7) Promote nursing standards of care for the trauma patient
- 8) Evaluate the impact of intensive care services on trauma patient outcomes
- 9) Demonstrate knowledge of managing the physical place to minimize overstimulation
- 10) Demonstrate safe methods of physical management

**4.3.7 Risk management** refers to the abilities in safely assessing, managing, and executing of the prescribed care in the delivery of traumatic care (Ameera, 2008; Filipino Nursing & Midwifery council, 2009; Franklin, 2008; Malaysia Nursing & Midwifery council, 2005; Schwirian, 1978; Vietnamese Nursing Council, 2012).

- 1) Perform assessment of trauma patients to evaluate effectiveness of interventions to detect complications
- 2) Uses common active measures to prevent the complications
- 3) Delivers appropriate prescribed care in the presence of the complications.
- 4) Actively adheres to the local policy for manual handling in order to prevent injury to self, patients and others
- 5) Recognize need for and provide emotional support to patient's family members/ significant others

Staff nurses need to safely assess and manage the delivery of trauma care. One of the most central aspects of trauma practice is the fact that trauma

surgery and injuries may carry with them a high risk of complications. The range of complications varies from those which are common to all situations where there is immobility and/or an assault to body tissues. However, there are a number of complications which are specific to trauma patients. It is the nature of these complications which requires highly specialized care (Santy, 2005; Franklin, 2008).

**4.3.8 Clinical practice** refers to the abilities to use nursing process to promote and support optimal human functioning and wellbeing inherent in the trauma care. As well as the knowledge, understanding and skill required for specialized devices and equipment that used either to treat injuries conditions or to protect patients from complications (Ameera, 2008; Franklin, 2008; Unhasuta, 2010; Schwirian, 1978; Schwirian, 1978; Vietnamese Nursing Council, 2012).

- 1) Perform initial assessment and subsequent assessments appropriately and in a timely fashion to auscultate breath sounds, detect evidence of impending respiratory failure, and evaluate wearing parameters.
- 2) Maintain a patent airway
- 3) Recognize low perfusion states, and intervene appropriately for hypovolemic, cardiogenic, obstructive, and distributive shock.
- 4) Employ techniques to maximize ventilation for immobilized patients or patients in pain.
- 5) Provide appropriate pain control and support to patient.
- 6) Implement use of rapid infuser and fluid warmer when indicated.
- 7) Appropriately anticipate and assist with surgical procedures such as sterile technique and instrument identification.

8) Maintain patient safety in positioning, use of equipment, and transport.

9) Monitor fluid loss and replacement in conjunction with other trauma team members.

10) Perform surgical counts while recognizing potential urgent need for surgery.

11) Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury

12) Apply immobilization and assistive devices correctly

Staff nurses need to be competent in managing and using such treatment modalities. These technical aspects of care carry their own risk of complications and are therefore linked to the risk management domain. Many of these technical aspects of trauma care are highly specialized and some practitioners develop enhanced expertise in specific aspects. Keeping specialist skills up to date is imperative for safe and effective trauma care (Unhasuta, 2010; Royal College of Nursing, 2012)

In summary, from literature trauma nursing core competencies consists of the following dimensions: legal and ethical practice, comfort enhancement, coordination, partnership/guide, leadership and management, critical thinking for caring, risk management, and clinical practice. Integrating such elements into a comprehensive model is significant for nursing practice in terms of nursing education curriculum development, nurse personnel recruitment, and clinical qualification assurance.

#### 4.4. Model of trauma nursing core competencies

The study used concepts and components from literatures. Two theoretical assumptions were identified from a broad literature review. Specifically, they are (a) trauma nursing core competency that is multidimensional and with three attributes of knowledge, skills, and attitudes (Australian Nursing Council, 2000; Canada Nursing Council, 2008); and (b) trauma nursing core competency that is quantifiable (Unhasuta, 2010; Royal College of Nursing, 2012). Eight main categories are identified: the legal and ethical practice, comfort enhancement, cooperation, partnership/guide, leadership, critical thinking, risk management, and clinical practice. Integration of the attributes of trauma nursing core competency (Table 1); the model of trauma nursing core competency for staff nurses is constructed (Figure 1).



Figure 1 Model of trauma nursing core competencies

## 5. Trauma nursing core competency assessment

The principle of measuring for competency, rather than intelligence, was first introduced by David McClellan in the 1970s (Robertson, 1998). The purpose of the assessment of core competency is to contribute to the maintenance of professional standards and to facilitate judgments about practitioner's qualities, abilities and knowledge against predetermined criteria (Milligan, 1998).

DeVellis (1991) concluded that core competency refers to the total of observable behaviors that occur in professional practice, categorized and specified in relation to measurable standards; core competency also refers to the unobservable attributes, capacities, dispositions, attitudes, and values that the professional should have, but these must be detectable as behaviors. However, it is highly specific to a given field, role, setting and level of practice. The optimal measure of core competency occurs during job performance (Alspach, 1992), that measure competencies in the real world. However, the vast majority of core competency assessment processes in health care occur outside of the practice setting because they are easier to organize and control (Jeska, 1998).

In terms of assessment methods, there is a failure to agree on methods, which can adequately measure competency. Quantitative measures have been criticized as reductionist or task orientated and qualitative measures accused of lacking both definition and transferability (Bartlet, 2000). Some of the limitations of rating core competency have been highlighted by Benner (1982) who argues that where core competency measurement stresses the functional characteristics of a job, any ability to differentiate between the nurse with functional skills and one with deeper personal perceptions. DeVellis (1991) argued that core competency must

refer to the total of observable behaviors that occur in professional practice, categorized and specified in relation to measurable standards. Roberson (1998) who supported the use of measurable core competency standards, advocate the development of an integrated approach, incorporating the measurement of performance, emotions, values and knowledge in context.

Self-assessment is best used to help individuals analyze their work practices and to promote reflection on performance (Stewart, 2000). Individuals using self-assessment should be able to provide summative evaluation of themselves (Kerby, 2005) as well as detailed analysis of items that support that summary statement (Eva, 2005). Self-assessment can constitute the basis for professional development to further on the job learning in collaboration with their nursing peers (Wora-ulai, 2006). Core competency assessment should be evaluated from multiple raters: self, peers and administrators (Weigelt, 2004). Self-assessment and peer evaluation have been shown to be important methods for ascertaining the changes and successes in the development of nursing practice. Self-assessment and peer evaluation are seen as being complementary, supporting one another; but, nurses were found to be more critical in their self-assessment than in peer evaluation (Lofman, 2007).

In summary, Self-assessment was a foundational part of various researches to assess nurse's competency. The results from all the preceding work demonstrates a high average score for teamwork as would be expected for nurses who routinely work together. They assessed themselves greater in leadership capability than their peers and head nurses did. Staff nurses expressed great confidence in task performance. However, they identified themselves as having limited competence in

decision-making abilities. On the surface, it appeared they were able to discriminate between their weaknesses and strengths.

## **6. Impact of trauma nursing core competency on client out come**

Staff nurse who work at general hospital has acquired knowledge base, decision making skills and clinical skills for practice, the characteristics of which is determined by the context in which she/he is credentialed to practice and which unit she/he work. Nursing competency of staff nurse is important to ensure patient safety and improve the quality of nursing care (Heinemann, 1997).

There appeared to be consistent relationships among TNCC of staff nurse and patient outcomes (Aiken, 2003; Lichtig, 1999). The trauma environment in which nurses provide care to patients can determine the quality and safety of patient care. As the largest health care workforce, nurses apply their TNCC to care for the various and changing needs of patients especially patients with threatening life after accident. A large part of the demands of patient care is centered on the work of nurses. When care falls short of standards, whether because of resource allocation (e.g., workforce shortages and lack of needed medical equipment) or lack of appropriate policies and standards as mention above, nurses shoulder much of the responsibility.

To understanding the complexity of the TNCC and engaging in strategies to improve its effects is paramount to higher-quality, safer care. High-reliability TNCC that have capitalize on evidence-based practice offer favorable working conditions to nurses and are dedicated to improving the safety and quality of care (Tourangeau,



2002). Emphasis on the need to improve nurses' TNCC so that they can provide the right care and ensure that patients will benefit from safe, quality care.

In summary, a consistent pattern of results was reported in trauma care, with richer TNCC associated with lower failure to rescue rates, lower inpatient mortality rates, and shorter hospital stays. The pattern of findings is less consistent regarding the association between TNCC and complications or adverse events. In long-term care high TNCC associated with higher likelihood of discharge to home decreased adverse events, higher functional status, and lower mortality rates.

## **7. Factors related to trauma nursing core competency**

As the definition implies a type of action, so it must be the ability to be acted on. Suffice it to say, competency does not exist in a vacuum. There are several factors that related to competencies, but some of the most prevalent that have been identified include: Gender, education level, working experience, work/life balance, continuing education, accessibility to a mentor, peer support, reasonable workload, work rotation, supportive working, financial support, accessibility to management, and organizational climate (Longenecker, 1998; Kleinman, 2003; Mathena, 2002; Sullivan et al., 2003).

**7.1. Gender** refers to the range of physical, biological, mental and behavioral characteristics pertaining to, and differentiating between, masculinity and femininity. Lakanmaa (2012) identified gender, previous nursing education, clinical practice in comparable unit, experienced autonomy in nursing care; independent information retrieval and use of nursing journals in information retrieval were positively associated with core competency. After this, explorative factor analysis was

performed, suggesting a seven-factor solution for the model instead gender, before nursing education, optional studies, work experience in nursing, Further education in intensive care nursing, working place and work motivation.

Baird (2004) found that gender, preconceived notions and theory are refined through encounters with many actual practical situations. Rezwan (2013) indicated that there is a significant relationship between gender and clinical competency ( $t=2.21$ ,  $P<0.05$ ). Females achieved significantly more clinical competency than males. However, research has not mainly found a significant relationship between gender and clinical competence (Klein and Fowels, 2007; Blackman et al., 2009).

**7.2 Working experience** refers to the number of years that nurse worked as staff nurses in Vietnamese general hospitals. Benner (1984) divided working experience in to 5 groups: group 1 (0–1 year), group 2 (>1–3 years), group 3 (>3–5 years), group 4 (>5–10 years) and group 5 (>10 years). Pitayavatanachai (2005) analyzed the factor influencing nursing core competency and found that experience were important individual information that has an affectation on nursing competency.

According to Baird (2004), by experience, preconceived notions and theory are refined through encounters with many actual practical situations. Due to the vast differences in background experience and education, there was significant variation in level of trauma nursing core competency and indicated that continuing education is superior to increasing trauma competence.

**7.3 Education background** refers to any prior schooling nurse have successfully completed in nursing field such as: secondary diplomas, college degrees, bachelor degrees, and master degrees. Thus, nurses can get good experience from

their continued clinical work. According to Benner (Benner, 1984), by education background, preconceived notions and theory are refined through encounters with many actual practical situations. Baird (2004) indicated education background, preconceived notions and theory are refined through encounters with many actual practical situations. Due to the vast differences in background education, there was significant variation in level of trauma nursing core competency.

**7.4 Continuing education** refers to the activity that nurses attend to learn and update information about how to take for patient with trauma injuries.

Continuing education can provide an effective foundation for necessary competencies (O'Shea, 2002; Walter, 2000). There were countless references to the important of education in developing nursing competency. Indeed, the majority of writings contained some reference to this facilitator. This could take the form of continuing education directed toward nursing competency development or advanced academic preparation (Mathena, 2002).

Longenecker (1998) and others speak to the importance of continued and ongoing educational support for those in managerial/leadership positions. Conversely, nurse identified the lack of time and resources for such activities in Mathena's (2002) study as major barriers to their professional development. Authors such as Calhoun et al. (2002) stress the advantages of academicians and practitioners working in concert to identify and prioritize major educational outcomes for health care management. Gelade (2003) also reported that the introduction of training programs was likely to have a positive influence on employee perceptions of task support. Changes in pay and promotion policies also were expected to alter

employees' perceptions of reward orientation and conceptions of equity and fairness.

Franklin, Carr, and Padden (2008) indicated that trauma nursing course experience was not significant to self-perceived trauma competency. There were countless references to the importance of education in developing nursing skills. Indeed, the majority of writings contained some reference to this facilitator. This could take the form of continuing education directed toward nursing skills development or advanced academic preparation. On the other hand, nurses who attended trauma nursing course did well on trauma competence evaluation. The literature also states that nurses will perform well with trauma cases if there is active participation in advanced trauma care for nursing and trauma nursing core course, with continued reinforcement of learned skills (Longenecker, 1998).

**7.5 Work rotation** refers to the process that nurses move from current position or unit to other position or unit in Vietnamese general hospitals. Work rotation also paves the way to seeing more trauma patient (Jarvi, 2004). Jeans (2005) stated that work rotation was found to be the most important enabling factor for management as to acquire and maintain competencies. On the other hand, the policy in Vietnam required all organization under government should count and independent about budget or financial, follows that many staff nurses were rotated in their work at general hospitals to contribute to success of this policy (Xuan, 2009).

**7.6 Working place** refers to the physical location where staff nurses work such as unit or department in Vietnamese general hospital.

Positive relationship between nursing competency and working place was supported (Lynn, 2006). Based on competency-based human resource management,

competency identification relies on a thorough understanding of an organization's strategic objectives and current or future work outputs or results to be achieved (Dubois, 2004). In addition, an employee's behavior is often reflected by the working place. Personal-place theory has demonstrated that there is a relationship between employees' perception of working place characteristics and their work behavior (Mitchell, 2001).

The Joint Commission on Accreditation of Healthcare Organization standards has stipulated that leaders should provide a good work place to ensure staff competency by continuously assessing employees so as to maintain and improve competency levels (Wolgin, 1998). In the nursing care setting, Estabrooks (2002) noted that a positive nursing work place enables nurses to demonstrate professional practice, such as decision-making capability. Davies (2002) also stated that the nursing work place is an important factor that influences nurses' research capabilities.

Research conducted by Hunter (1990) demonstrated that when nurses felt good about being in an organization, they gave the best care to patients, even under stress and various work conditions, and were creative and energized in their daily work. All of these factors have been found to contribute to nurses' perceptions of their working place.

Khomeiran, et al., (2006) identified six categories that influence competency development: experiences, opportunities, working place, personal characteristics, motivation and theoretical knowledge. Thus, the working place in which one works as well as the type of organizational system in which one works and learns can affect the development of competencies. This stems from the literature on education and the learning environment. It also translates the work of nurse researchers (Aiken,

et.al.) who document the impact that the environment has on the satisfaction of nurses at work. Learning and competence, it seems, occur best in environments in which the employee, in this case the nurse, feels empowered and able to freely learn.

Hassanat (2013) found that the factors that affect the competency components it appeared that training, management guidelines, qualification, experience in nursing and number of years expended in ICU and emergency department. Positive relationship between nursing core competency and working place was supported (Lynn, 2006). Based on competency-based human resource management, core competency identification relies on a thorough understanding of an organization's strategic objectives and current or future work outputs or results to be achieved (Dubois & Rothwell, 2004). In addition, an employee's behavior is often reflected by working units. Personal-place theory has demonstrated that there is a relationship between employees' perception of working place characteristics and their work behavior (Mitchell, et al., 2001).

The American Association of Colleges of Nursing (AACN) Task Force on Hallmarks of the Professional Practice Setting (AACN 2005) identified characteristics of the practice setting that best support professional nursing practice and allow baccalaureate and higher degree nurses to practice to their full potential. Examples of these hallmarks, which are present in health care systems, hospitals, organizations, or practice places, include the following:

- 1) Manifestation of a philosophy of clinical care emphasizing quality, safety, interdisciplinary collaboration, continuity of care, and professional accountability.

2) Recognition of contributions of nurses' knowledge and expertise to clinical care quality and patient outcomes.

3) Empowerment of nurses' participation in clinical decision-making and organization of clinical care systems.

4) Maintenance of clinical advancement programs based on education, certification, and advanced preparation; and demonstrate professional development support for nurses.

In summary, Trauma nursing core competency assists staff nurses to maintain and improve their practice to produce optimal care to the injured-patient. To synthesize the variety of the factors related to trauma nursing core competencies, the existing factors related nursing core competency were generally categorized such as gender, year experience, education background, continuing education, working place, and work rotation. Moreover, literature review indicated that there is no existing trauma nursing core competency framework for trauma nurse in Vietnam.

## **8. Related research to trauma nursing core competency**

Bradshaw (1997) from the policy view broadly defined nursing competency as being able to demonstrate awareness of social and political factors relating to health care, developing helpful caring relationships with patients and demonstrating the knowledge and skills necessary to meet the health and sickness requirements of individuals

In 1998 the World Health Organization described competency requires knowledge, appropriate attitudes and observable mechanical or intellectual skills which, together account for the ability to deliver a specified professional service

(Storey, 2001). International Council of Nursing defined the competency of the generalist nurse as a level of performance demonstrating the effective application of knowledge, skill and judgment (Alexander, 2003). Besides, many countries have defined the nursing competency in the individual social context. Though the main dimensions here seem quite broad, under each broad dimension, there are sub-dimensions with identified behavioral clusters, which distinguish between professional capabilities i.e. what a person can do that is relevant to nursing professions rather than additional capabilities i.e. what an individual can do but which is not required of a job.

To compare the assessments of the nurse competency level and the frequency of nursing competencies in nursing practice made by nurses and their managers in a hospital setting, Finland researchers Meretoja (2003) adopted Benner's competency framework to develop a 73-item questionnaire with seven competency categories.

Ying (2007) in her research Nursing competency and organizational climate as perceived by staff nurses in Zhongshan hospital, a Chinese university hospital found that the overall level of nursing competency as perceived by register nurses was at high level and there was a significantly moderate positive relationship between nursing competency and organizational climate. (Aphicharttbutra, 2004) reported that the total competency of professional nurses in primary, secondary and tertiary hospital in the northern region of Thailand were at a moderate level.

Xuan, et al (2008) conducted research study about functions and tasks of 914 nurse managers in 5 central level hospitals, 16 general hospitals and several communal hospitals around the country. This cross-sectional descriptive study



combined quantitative and qualitative method by used the questionnaire that developed by researchers following the tasks and functions of nurse managers which were given by Ministry of Health to self-assess their accomplishment the given tasks and functions; observed one day working of 126 first-line nurse managers; and meeting and interviewed hospital administrators, chief of nursing officers and staff nurses to determine the factors that influence the first-line nurse manager competency. The results shown that 84% nurse managers accomplished their tasks from moderate to excellent according to the criteria which promulgated by the Ministry of Health. However, qualifications, information technology, foreign language of nurse managers have been low levels; for example, 83.5% holds secondary degree, still has 0.4% of them holds elementary degree; 54,5% of them have not been trained in nursing management. Besides that, age, qualifications, resources, overwork load were considered as the factors influence their competency. Moreover, 20.2% of them haven't participated in any research or professional conferences; 21.1% are weak in planning and maintaining holistic care. However, there has not been any research that measures how the factors that influence the competency of first-line nurse managers in Vietnam.

## 9. Conceptual framework of study

From literature review no less critical to the concept of competency than critical attributes (in many cases overlapping with them) are antecedents. Awareness/knowledge, experience, and frameworks of skill behaviors must be present in order to achieve competency (Dunn, 2000; Manley, 2000; Winchcombe, 2000). This study was conducted to identify, assess and compare trauma nursing core competency of staff nurses among various groups within sample (gender, working experience, education background, continuing education, working place, and work rotation). The conceptual framework of this study was derived from literature and a preliminary research findings conducted by this researcher (Figure 2).

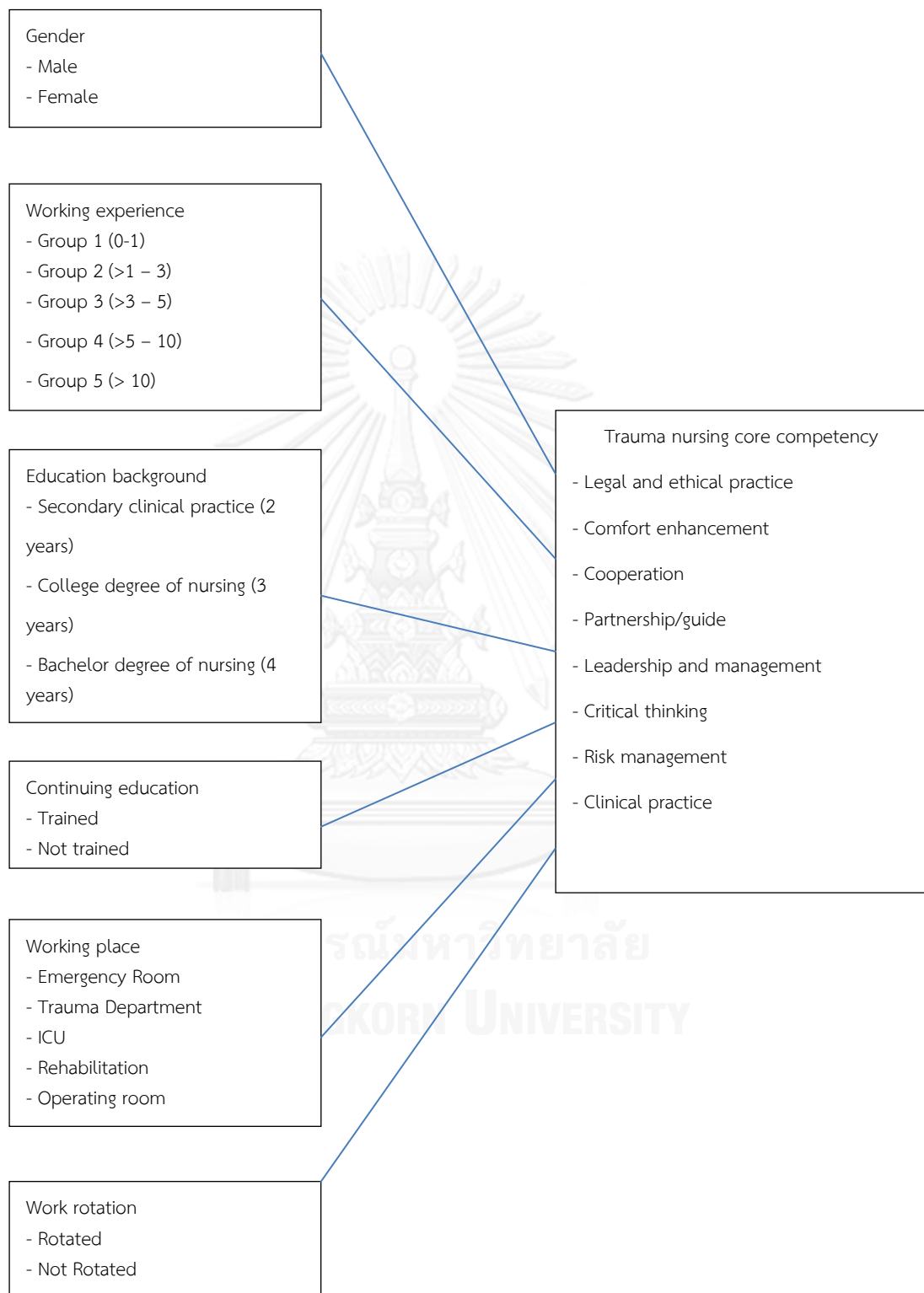


Figure 2 Conceptual Framework of Study

## CHAPTER III

### METHODOLOGY

This chapter describes the methodology of the study. It includes a description of the research design and settings, population and sample, sampling, research instrument, protection of human right subjects, data collection procedure, and data analysis procedure.

#### **Research design and settings**

A descriptive design was employed to study trauma nursing core competency and determine the level of trauma nursing core competency of staff nurses among demographic data (gender, working experience, education background, continuing education, and work rotation) and various units (working place) at Vietnamese general hospitals.

#### **Population and sample**

##### **Population**

The population of this study was staff nurses working in Vietnamese general hospitals.

##### **Sample**

Sample in this study were staff nurses who were employed fulltime and worked in their positions at least one year in emergency department, ICU, operative department, in patient department, and/or rehabilitation department in Vietnamese general hospitals. The sample size of this study was calculated by using Yamane

(1967: 886). A 95% confidence level and  $p = 0.5$  are assumed for the following equation.

$$n = N / [1 + N (e)^2]$$

$n$  = Sample size

$N$  = Total population [Total staff nurses is approximately 80,000

(Vietnamese Nursing Associated, 2012)]

$e$  = the error in the sample defined as 5%

According to the above formula, the sample size needed in this study was about 399 staff nurses. Considering the loss of subjects, 10% of the sample size (40 subjects) was added into the sample making 439 staff nurses in total since the expected overall response rate was approximately 90 percent. As a result, there was 100% returned. Among returned questionnaires, 418 questionnaires were completed for using data analysis. The response rate is 95.22%.

### **Sampling**

The target population for this study was staff nurses who worked in Vietnamese general hospitals. Cluster sampling was used to choose participants. Vietnam has 63 provinces divided into three regions. Each province has one provincial general hospital: North 25 hospitals, Center 19 hospitals, and South 19 hospitals. Each area was chosen randomized 3 general hospitals by simple random sampling. Five departments in each hospital were chosen; ICU, emergency, operating room, trauma department, and rehabilitation department. All of 439 staff nurses in these departments were invited to participate in this study.

Table 2 Number of subjects from general hospitals in Vietnam

General hospitals	Sample	Sample used in data analysis
<b>North</b>		
1. Bac Ninh General hospital	50	50
2. Ha Dong General hospital	55	55
3. Quang Ninh General hospital	52	50
<b>Center</b>		
1. Ha Tinh General hospital	42	40
2. Nghe An General hospital	45	36
3. Kon Tum General hospital	43	40
<b>South</b>		
1. Thong Nhat General hospital	66	66
2. Tien Giang General hospital	38	35
3. Can Tho General hospital	48	46
<b>Total</b>	<b>439</b>	<b>418</b>

## **Research instrument**

Research instrument was a questionnaire consisting of two parts: the demographic data and the trauma nursing core competency for staff nurses.

### **Demographic data form**

The demographic data form was developed by the researcher. It was designed to collect the subjects' information including gender, age, working experience, education background, work place, continuing education, and work rotation. The questions are check list and open ended (Appendix A).

### **Trauma nursing core competency questionnaire**

Trauma nursing core competency (TNCC) questionnaire for staff nurses was developed. The TNCC questionnaire was integrated between literature review and interview experts in trauma care in Vietnam.

#### **1. Review literature**

Researcher explored from literature review to generate a vision of what trauma nursing care could become in trauma care. From the review of literature, there are few tools available to evaluate perceived trauma nursing core competencies. (Santy, 2001; Royal college of nursing, 2012; Unhasuta, 2010; Vietnam Nursing Associated, 2012; Schwirian, 1978; Liu Ming, 2005; Thomas, et al. 2012; Australian Nursing & Midwifery council, 2005; Malaysia Nursing & Midwifery council, 2005; Filipino Nursing & Midwifery council, 2009; Thailand Nursing Council, 2000). Based on Synthesis Table Review of the Literature the numbers of items in 8 dimensions of trauma nursing core competency from literature review were follows:

Trauma nursing core competencies from review literature have 8 dimensions and 55 items (Appendix B):

- 1) Dimension 1: Legal and ethical practice has 5 items.
- 2) Dimension 2: Comfort enhancement has 4 items.
- 3) Dimension 3: Cooperation has 7 items.
- 4) Dimension 4: Partnership/guide has 7 items.
- 5) Dimension 5: Leadership has 5 items.
- 6) Dimension 6: Critical thinking has 10 items.
- 7) Dimension 7: Risk management has 5 items.
- 8) Dimension 8: Clinical practice has 12 items.

## **2. Interview experts**

Ten experts (6 clinical nurses, 3 instructor nurses, and 1 physician) were shown in Appendix C, who were persons with a high degree of skill in or knowledge of trauma nursing care from all levels of trauma care system in Vietnam, were invited to participate. These experts have widely recognized as a reliable source of technique or skill in trauma care system.

Qualifications of the experts included:

- 1) Have more than 5 years experience in trauma nursing care
- 2) Hold bachelor of nursing science certificate or higher with nurses and master degree with physician
- 3) Agree to become the expert in this research

From information of Vietnamese Nurse Association, researcher found and invited 10 experts to interview, using invitation letter of the Faculty of Nursing Chulalongkorn University (Appendix D). Experts were received full research proposal and all documents related before interview by email. Including the list of these questions:



- 1) What is the meaning of TNCC?
- 2) What are the components or dimensions in TNCC?
- 3) What activities or items should be in each dimension?

During interview, paper and tape record were applied. The researcher explored information in details to get all ideas and summary information into the dimensions and list items. TNCC from interview the 10 experts get 8 dimensions, 70 items as follows (Appendix E).

- 1) Dimension 1: Ethical practice has 1 item.
- 2) Dimension 2: Comfort has 4 items.
- 3) Dimension 3: Cooperation has 5 items.
- 4) Dimension 4: Health education has 6 items.
- 5) Dimension 5: Leadership has 3 items.
- 6) Dimension 6: Critical thinking has 8 items.
- 7) Dimension 7: Risk management has 18 items.
- 8) Dimension 8: Clinical skill has 25 items.

Based on that information, researcher integrated between literature reviews and interviews the experts. Choosing items theoretically that reflect the scale's purpose, a good set of items is chosen from the universe of items relating the construct of interest. Items were generated for each dimension of the instrument in such a way that items are homogeneous within each dimension. Items were unambiguous statements, convey a single idea, avoid use of multiple negatives, have statements of 20 or fewer words, were factual statements, and no statements in form of compound or complex sentence. Researcher analyzed and integrated information from literature review and interview results to make items. Results made

trauma nursing core competency instrument for staff nurses with 8 dimensions, 53 items (Appendix F).

1. Dimension 1: Legal and ethical practice has 5 items.
2. Dimension 2: Comfort enhancement has 5 items.
3. Dimension 3: Cooperation has 5 items.
4. Dimension 4: Partnership/guide has 6 items.
5. Dimension 5: Leadership and management have 8 items.
6. Dimension 6: Critical thinking has 8 items.
7. Dimension 7: Risk management has 6 items.
8. Dimension 8: Clinical practice has 10 items.

### **3. Instrument testing**

#### **3.1 Bilingual testing**

One bilingual expert translated TNCC instrument from English to Vietnamese and one another bilingual expert back translated from Vietnamese to English. Reliability analysis was reported with internal consistency of 0.96.

#### **3.2 Content Validity**

The instrument testing for content validity was sent to five experts in the field of trauma care. Based on information of Vietnamese Nurse Association, these experts are as follows:

- 1) Have more than 5 years experience in nursing research
- 2) Hold master certificated in nursing science or Advanced Practice Nurse in nursing practice, studied oversea.
- 3) Agree to become expert for testing instrument by using invitation letter of the Faculty of Nursing Chulalongkorn University.

According to the expert's rating of each item's relevance to concepts and operational definitions with four scales (1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= very relevant), the expert response was showed in Appendix G and the Content Validity Index (CVI) was calculated as follows:

$$\text{CVI} = \frac{\text{Number of items rated quite/very relevant or agreement by the experts}}{\text{Number of the total items}} = 0.90$$

Some items have number rate in agreement (items rated 3 or 4) lower than 0.7 would be deleted from instrument (Denise, 2006). So 3 items were deleted as follows:

- 1) Item 29 – “Concisely suggest quality improvement for trauma nursing” in Leadership and Management dimension.
- 2) Items 34 – “Promote nursing standards of care for the trauma patient” in Critical thinking for caring dimension.
- 3) Items 50 – “Monitor fluid loss and replacement in conjunction with other trauma team members” in Clinical practice dimension.

### 3.3 Reliability

Reliability of TNCC was determined using Cronbach's alpha. In this study, the internal consistency of TNCC was tested among thirty staff nurses with same criteria as the subjects at the study but in different setting, Nam Dinh general hospital. Item analyses were conducted and internal consistency reliability was evaluated. The item analyses included the correlation of item to item, item to total correlation coefficient. The Cronbach's alpha coefficient of TNCC was .95 (Table 3).

Data analysis using correlation matrix, item and total correlation coefficient accepted, the criteria of each item to determine which item keep or delete from instrument was considered. The items have item- total correlation coefficient lower than .3 would be deleted (Waltz, 2005). There two items were deleted as follows (Appendix H):

1) Item 21- “Uses simple health promotion strategies to promote health community immediate” in Partnership/guide dimension.

2) Item 27 – “Control nursing standard, plans, and evaluates care for trauma patients” in Leadership and Management dimension.

Then the major portion of the research study was conducted to assess trauma nursing core competencies among staff nurses at general hospitals in Vietnam. This instrument includes 48 items in eight dimensions (Appendix I) which there are no violating the TNCC concepts and all operational definition as follows:

Dimension 1: Legal and ethical practice consists of 5 items

Dimension 2: Comfort enhancement consists of 5 items

Dimension 3: Cooperation consists of 5 items

Dimension 4: Partnership/guide consists of 5 items

Dimension 5: Leadership and Management consists of 6 items

Dimension 6: Critical thinking for caring consists of 7 items

Dimension 7: Risk management consists of 6 items

Dimension 8: Clinical practice consists of 9 items

Table 3 Cronbach's Alpha of TNCC questionnaire from Tryout study (n = 30) and from study sample (n = 418)

Dimension	Number of items	Try out (n = 30)	Study Sample (n = 418)
1. Legal and ethical practice	5	0.78	0.71
2. Comport enhancement	5	0.77	0.72
3. Cooperation	5	0.78	0.76
4. Partnership/ Guide	5	0.78	0.78
5. Leadership and Management	6	0.87	0.86
6. Critical thinking for caring	7	0.86	0.89
7. Risk management	6	0.80	0.69
8. Clinical practice	9	0.86	0.87
<b>Total</b>	<b>48</b>	<b>0.95</b>	<b>0.94</b>

Trauma nursing core competency questionnaire was used to collect data on participants' self-perceived core competency level. The instrument used a five-point Likert Scale. The scores meaning are as follow:

0 = not competent

1 = slightly competent

2 = some-what competent

3 = competent enough

4 = very competent

The score of nursing core competency ranged from 0–4, containing five ranks; thus, the mean score of nursing core competency was divided into five levels by using the class interval formula  $\bar{x} = (\bar{x}_{\max} - \bar{x}_{\min})/k$ . Furthermore, in order to keep the intervals from overlapping, 0.01 was added to each subsequent lower limit (Polit, 1996).

Therefore, the criteria to interpret mean scores are as follows:

Mean score	Interpretation
0.00–0.80	Low trauma nursing core competency
0.81–1.60	Relatively low trauma nursing core competency
1.61–2.40	Moderate trauma nursing core competency
2.41–3.20	Relatively high trauma nursing core competency
3.21–4.00	High trauma nursing core competency

### Protection of Human Subject

The research proposal submitted to the Research Ethics Committee of the Vietnamese MOH to review and approve before data collection. Subjects for this study selected from general hospitals in Vietnam with the permission from the hospitals. In addition, prior to data collection, to assure the protection of human rights of the subjects, all participants were informed about the purposes, methods, and benefits of the study. They also were informed that participation in the study is voluntary, so they can refuse to participate or withdraw from the study at any time without any punishment or losing any benefits. In addition, their responses were used only for the purpose of the study, and their identities that are stated in the cover letter are not revealed on research reports and publications of the study. The

participants who agree to participate in the study will be asked to sign a research consent form (Appendix J), and there is no cost to the participants. The data were kept in safety file and analyzed from total responses.

### Data collection

Data was collected by the researcher following these steps:

1. Receive approval to collect research data from the Research Ethics Committee under Vietnamese MOH (Appendix K).
2. Sought permission from Nursing Department Director of all general hospital to conduct the research (Appendix L).
3. Nurses' name list was obtained from the nursing department of the hospitals.
4. The researcher under look the work to list all the participants.
5. A letter including the purpose of the study, a request for permission to collect data, a list of names of nurses, and a copy of questionnaires in Vietnamese were sent to the nursing director of the hospitals and all research assistants. The research assistants who were nurse worked at the general hospital and got training how to conduct research from researcher before 1 month (Appendix M).
6. The research assistants who are trained about process to conduct data met with five wards supervisors in the nine general hospitals and received permission.
7. The research assistants provided cover letter and consent form to selected subjects. The cover letter was explained the nature of study, method for assurance of confidentially and anonymity, and period for completion of the questionnaires.

After staff nurses answer the questionnaire, they put in an envelope that researcher had already prepared and send research assistants or nursing department.

8. Two weeks later research assistants collected data forms from the 9 hospitals and sent all to researcher by post express. The data collection was done during November 15 to December 15, 2013.

9) The researcher reviewed 436 return questionnaires. Eightteen questionnaires were uncompleted, and then 418 questionnaires were used for data analysis. The response rate was 95.22%.

#### **Data analysis procedure**

The data collected from the surveys were entered into a Statistical Package for Social Science (SPSS) program. Both descriptive and inferential statistics were used for data analysis. The analysis was divided into the following steps:

1. Demographic data were analyzed by using frequency, percentage, the mean, and standard deviation.
2. Scores of trauma nursing core competency was analyzed using the mean and standard deviation.
3. The t-test was conducted to compare trauma nursing core competency among male and female, training and no training, and work rotation and no work rotation. The one way ANOVA was conducted to compare trauma nursing core competency among working experience groups, education background groups, and work places.



## CHAPTER IV

### RESEARCH FINDINGS

This chapter presents research findings and related results focusing on the research objectives. The demographic data, TNCC, and its difference among several groups of subjects are presented.



### 1. Demographic characteristics of subject

Table 4 Frequency and percentage of the subjects by gender, age, working place, working experience, education level, continuing education, and work rotation (n = 418)

Demographic characteristics	Frequency	Percentage (%)
<b>Gender</b>		
Male	107	25.6
Female	311	74.4
<b>Age (years) (Mean = 33.51, SD = 3.76)</b>		
20-30	223	53.4
31-40	121	28.9
More than 40	74	17.7
<b>Working place</b>		
Emergency Room	110	26.3
Trauma Department	97	23.2
ICU	80	19.2
Rehabilitation	69	16.5
Operating room	62	14.8
<b>Working experience (years) (Mean = 9.85, SD = 6.77, range 1 – 31 years)</b>		
Group 1 (0-1)	3	0.07
Group 2 (>1 – 3)	20	4.78
Group 3 (>3 – 5)	35	8.37
Group 4 (>5 – 10)	169	40.43
Group 5 (> 10)	191	46.35

Table 4 (Cont.)

Demographic characteristics	Frequency	Percentage (%)
<b>Education level</b>		
Secondary clinical practice (2 years)	239	57.1
College degree of nursing (3 years)	111	26.6
Bachelor degree of nursing (4 years)	68	16.3
<b>Continuing education</b>		
Trained	105	25.1
Not trained	313	74.9
<b>Work rotation</b>		
Rotated	125	29.9
Not Rotated	293	70.1

As showed in the Table 4, subjects were 25.6% male and 74.4% female. The mean age of subject was 33.51 years old. The majority of subjects had earned a secondary clinical practice certificate of nursing (57.1%), while 111 (26.6%) subjects held College's degree of nursing and Sixty-eight (16.3%) subjects held a Bachelor's degree of nursing. Most of the subjects worked on emergency room (26.3%) and then followed by Trauma department, ICU, Rehabilitation, and Operating room (23.2%, 19.2%, 16.5%, and 14.8%, respectively). In addition, the subjects had worked as nurses with average of 9.85 years, a standard deviation of 6.77, and range from 1-31 years. The data also showed that one fourths of subjects (25.1%) had taken in training courses and more than one fourths of the subjects (29.9%) had work rotated during their work.

### Trauma nursing core competency

This part aims to describe the level of trauma nursing core competency as perceived by staff nurses in Vietnamese general hospitals (Table 5-13).

**Table 5 Mean, standard deviation, and level of trauma nursing core competency as perceived by staff nurses in Vietnamese general hospitals (n = 418)**

Trauma nursing core competency	Mean	SD	Level
1. Leadership and management	3.24	.45	High
2. Critical thinking for caring	3.23	.55	High
3. Legal and ethical practice	3.12	.40	Relatively high
4. Comfort enhancement	3.10	.42	Relatively high
5. Cooperation	3.00	.43	Relatively high
6. Partnership/ Guide	2.90	.46	Relatively high
7. Clinical practice	2.84	.61	Relatively high
8. Risk management	2.75	.61	Relatively high
<b>Overall</b>	<b>3.01</b>	<b>.37</b>	<b>Relatively high</b>

As illustrated in Table 5, the overall score of trauma nursing core competency as perceived by staff nurses in Vietnamese general hospital were at relatively high ( $\bar{x}$  = 3.01, SD = .37). For each dimension, the level of nursing core competency in Leadership and management and Critical thinking for caring were at high level ( $\bar{x}$  = 3.24, SD = .45 and  $\bar{x}$  = 3.23, SD = .55, respectively). The other dimensions were at relatively high level: Legal and ethical practice ( $\bar{x}$  = 3.12, SD = .40), Comfort enhancement ( $\bar{x}$  = 3.10, SD = .42), and coordination ( $\bar{x}$  = 3.00, SD = .43), and Partnership/guide, clinical practice, and risk management ( $\bar{x}$  = 2.93, SD = .46;  $\bar{x}$  = 2.75, SD = .61;  $\bar{x}$  = 2.84, SD = .61, respectively).

Table 6 Mean, standard deviation, and level of Leadership and management (n = 418)

Leadership and management	Mean	SD	Level
1. Manage the physical place	3.35	.57	High
2. Organize work follow	3.33	.57	High
3. Participate in the unit planning	3.27	.55	High
4. Identify the job or task	3.20	.60	Relatively high
5. Lead nurse member practice inquiry	3.17	.68	Relatively high
6. Demonstrate leadership that uses critical and reflective thinking	3.13	.57	Relatively high
<b>Total</b>	<b>3.24</b>	<b>.45</b>	<b>High</b>

As illustrated in Table 6, the overall score of leadership and management were at high level ( $\bar{x} = 3.24$ ,  $SD = .45$ ). There were 3 items at high level: Manage the physical place, Organize work follow, and Participate in the unit planning ( $\bar{x} = 3.35$ ,  $SD = .57$ ;  $\bar{x} = 3.33$ ,  $SD = .57$ ; and  $\bar{x} = 3.27$ ,  $SD = .55$ , respectively).

Table 7 Mean, standard deviation, and level of Critical thinking for caring (n = 418)

Critical thinking for caring	Mean	SD	Level
1. Maintains awareness and treatment modalities	3.50	.56	High
2. Provides patient centered care	3.34	.63	High
3. Critically analyzes data and evidence	3.24	.78	High
4. Apply nursing process in meeting family members	3.17	.78	relatively high
5. Demonstrate safe methods	3.16	.72	relatively high
6. Evaluate the impact of trauma nursing care	3.16	.80	relatively high
7. Demonstrate proper side nursing-positioning	3.07	.65	relatively high
<b>Total</b>	<b>3.23</b>	<b>.55</b>	<b>High</b>

As illustrated in Table 7, the overall score of Critical thinking for caring were at high level ( $\bar{x} = 3.23$ ,  $SD = .55$ ). There were 3 items at high level: Maintains awareness and treatment modalities, Provides patient centered care, and critically analyzes data and evidence ( $\bar{x} = 3.50$ ,  $SD = .56$ ;  $\bar{x} = 3.34$ ,  $SD = .63$ ; and  $\bar{x} = 3.24$ ,  $SD = .78$ , respectively).

Table 8 Mean, standard deviation, and level of Legal and ethical practice (n = 418)

Legal and ethical practice	Mean	SD	Level
1. Applies ethically sound solutions to complex issues	3.44	.57	High
2. Acts in accordance with legal and ethical professional responsibilities	3.20	.53	Relatively high
3. Integrates ethical principles in decision making	3.07	.51	Relatively high
4. Evaluates the ethical consequences of decision making	3.00	.58	Relatively high
5. Accept patient response	2.92	.72	Relatively high
<b>Total</b>	<b>3.12</b>	<b>.40</b>	<b>Relatively high</b>

As illustrated in Table 8, the overall score of Legal and ethical practice was relatively high level ( $\bar{x} = 3.12$ ,  $SD = .40$ ). There was only one item at high level: Applies ethically sound solutions to complex issues ( $\bar{x} = 3.44$ ,  $SD = .57$ ).

Table 9 Mean, standard deviation, and level of Comfort enhancement (n = 418)

Comfort enhancement	Mean	SD	Level
1. Utilize an alternative/complementary	3.17	.62	Relatively high
2. Promptly administer prescribed medication	3.17	.64	Relatively high
3. Provide nursing care to meet the hygiene and comfort needs of patients that is sensitive to their cultural and spiritual needs	3.16	.57	Relatively high
4. Provide nursing care to meet the hygiene and comfort needs of patients that take into account their trauma condition	3.10	.57	Relatively high
5. Effectively assesse and monitor symptom	2.94	.67	Relatively high
<b>Total</b>	<b>3.10</b>	<b>.42</b>	<b>Relatively high</b>

As illustrated in Table 9, the overall score of Comfort enhancement was relatively high level ( $\bar{X} = 3.10$ ,  $SD = .42$ ). Top three items were: Promptly administer prescribed medication, Utilize an alternative/complementary, and Provide nursing care to meet the hygiene and comfort needs of patients that is sensitive to their cultural and spiritual needs ( $\bar{X} = 3.17$ ,  $SD = .64$ ;  $\bar{X} = 3.17$ ,  $SD = .62$ ; and  $\bar{X} = 3.16$ ,  $SD = .57$ , respectively).



Table 10 Mean, standard deviation, and level of coordination (n = 418)

Coordination	Mean	SD	Level
1. Accurately assess patients	3.25	.57	High
2. Effectively plan and manage discharge plan	3.13	.55	Relatively high
3. Liaise with other members	2.94	.65	Relatively high
4. Arrange appropriate post discharge support	2.93	.62	Relatively high
5. Undertake basic pre-assessment of patients awaiting admission or discharge	2.75	.63	Relatively high
<b>Total</b>	<b>3.00</b>	<b>.43</b>	Relatively high

As illustrated in Table 10, the overall score of coordination were at relatively high level ( $\bar{x} = 3.00$ ,  $SD = .43$ ). There was only one item at high level; accurately assess patients ( $\bar{x} = 3.25$ ,  $SD = .57$ ).

Table 11 Mean, standard deviation, and level of Partnership/Guide (n = 418)

Partnership/Guide	Mean	SD	Level
1. Recognize the psychological consequences	3.02	.66	Relatively high
2. Support and encourage patients when mobilizing	3.01	.57	Relatively high
3. Apply knowledge of anatomy & physiology	2.90	.66	Relatively high
4. Actively provide support and education to patients	2.86	.68	Relatively high
5. Provide preoperative, post-operative and/ or pre-discharge advice	2.75	.57	Relatively high
<b>Total</b>	<b>2.90</b>	<b>.46</b>	<b>Relatively high</b>

As illustrated in Table 11, the overall score of Partnership/Guide were at relatively high level ( $\bar{x} = 2.90$ ,  $SD = .46$ ). The highest level of Partnership/Guide competency were Recognize the psychological consequences, Support and encourage patients when mobilizing, and Apply knowledge of anatomy & physiology ( $\bar{x} = 3.02$ ,  $SD = .66$ ;  $\bar{x} = 3.01$ ,  $SD = .57$ ; and  $\bar{x} = 2.90$ ,  $SD = .66$ , respectively).

Table 12 Mean, standard deviation, and level of Clinical practice (n = 418)

Clinical practice	Mean	SD	Level
1. Apply immobilization and assistive devices	3.55	.60	High
2. Provide appropriate instrumentation and supplies	3.40	.72	High
3. Perform initial assessment and maintain a patent airway	3.24	.72	High
4. Recognize low perfusion states	2.68	.98	Relatively high
5. Implement use of rapid medication	2.64	.91	Relatively high
6. Employ techniques to maximize ventilation	2.64	.95	Relatively high
7. Perform surgical counts while recognizing	2.60	.87	Relatively high
8. Appropriately anticipate and assist with surgical procedures	2.41	.93	Relatively high
9. Maintain patient safety in positioning	2.41	.97	Relatively high
<b>Total</b>	<b>2.84</b>	<b>.61</b>	<b>Relatively high</b>

As illustrated in Table 12, the overall score of Clinical practice was at relatively high level ( $\bar{x} = 2.84$ ,  $SD = .61$ ). There were 3 items at high level: Apply immobilization and assistive devices, Provide appropriate instrumentation and supplies, and perform initial assessment and maintain a patent airway ( $\bar{x} = 3.55$ ,  $SD = .60$ ;  $\bar{x} = 3.40$ ,  $SD = .72$ ; and  $\bar{x} = 3.24$ ,  $SD = .72$ , respectively).

Table 13 Mean, standard deviation, and level of Risk management (n = 418)

Risk management	Mean	SD	Level
1. Perform assessment of trauma patients	3.49	.58	High
2. Actively adhere to the local policy in order to prevent injury to self, patients and others	3.38	.64	High
3. Provide emotional support	3.00	.76	Relatively high
4. Demonstrate knowledge of common cognitive impairments	2.61	.93	Relatively high
5. Deliver appropriate prescribed care in the presence of the complications.	2.19	1.30	Moderate
6. Uses common active measures to prevent the complications	1.88	1.30	Moderate
<b>Total</b>	<b>2.75</b>	<b>.61</b>	relatively high

As illustrated in Table 13, the overall score of Risk management were at relatively high level ( $\bar{x} = 2.75$ ,  $SD = .61$ ). There were 2 items at high level: Perform assessment of trauma patients and Actively adheres to the local policy in order to prevent injury to self, patients and others ( $\bar{x} = 3.49$ ,  $SD = .58$  and  $\bar{x} = 3.38$ ,  $SD = .64$ , respectively), There were 2 items at moderate level: Delivers appropriate prescribed care in the presence of the complications and Uses common active measures to prevent the complications ( $\bar{x} = 2.19$ ,  $SD = 1.30$  and  $\bar{x} = 1.88$ ,  $SD = 1.30$ , respectively).

## 2. The difference of trauma nursing core competency among several groups of subjects (Table 14-19).

To examine the difference of trauma nursing core competency among demographic groups: gender (male and female), continuing education (trained and not trained), rotation (rotate and not rotate) of staff nurses at Vietnamese general hospitals. Independent t-test was used for data analysis (Table 14-16).

To examine the difference of TNCC among experience group 1 (0–1 year), group 2 (>1–3 years), group 3 (>3–5 years), group 4 (>5–10 years) and group 5 (>10 years), education levels (Secondary clinical practice, College degree of nursing, and Bachelor degree of nursing), and working palaces of staff nurses at Vietnamese general hospitals (ER, ICU, OR, Trauma department, and Rehabilitation). One way ANOVA and pairwise test were used for data analysis (Table 17-19).

Table 14 The difference of trauma nursing core competency between male and female staff nurses (n = 418)

Trauma nursing core competency	Male (n = 107)			Female (n = 311)			t-test	Sig.
	Mean	SD	Level	Mean	SD	Level		
1. Leadership and Management	3.35	.44	High	3.20	.45	Relatively high	.084	.772
2. Critical thinking for caring	3.33	.50	High	3.19	.56	Relatively high	2.170	.141
3. Legal and ethical practice	3.18	.35	Relatively high	3.10	.41	Relatively high	2.007	.157
4. Comport enhancement	3.14	.40	Relatively high	3.09	.43	Relatively high	.055	.815
5. Cooperation	3.06	.40	Relatively high	2.98	.44	Relatively high	1.321	.251
6. Partnership/ Guide	2.95	.41	Relatively high	2.89	.47	Relatively high	3.377	.067
7. Clinical practice	3.02	.48	Relatively high	2.77	.64	Relatively high	12.628	.000
8. Risk management	2.94	.55	Relatively high	2.69	.62	Relatively high	3.796	.052
<b>Overall</b>	<b>3.12</b>	<b>.32</b>	<b>Relatively high</b>	<b>2.98</b>	<b>.38</b>	<b>Relatively high</b>	<b>2.334</b>	<b>.127</b>

As showed in the Table 14, there were no different of TNCC between male ( $\bar{x} = 3.12$ ,  $SD = .32$ ) and female ( $\bar{x} = 2.98$ ,  $SD = .38$ ). Only TNCC in Clinical practice between male ( $\bar{x} = 3.02$ ,  $SD = .48$ ) and female ( $\bar{x} = 2.77$ ,  $SD = .62$ ) had significance different ( $t = 12.62$ ,  $p = .00$ ). For all dimensions, the level of TNCC in Leadership and Management, Critical thinking for caring, Legal and ethical practice, Comport enhancement, Cooperation, Partnership/Guide, Clinical practice, and Risk management were relatively high. Only TNCC in Leadership and management and Critical thinking for caring of Male were high ( $\bar{x} = 3.35$ ,  $SD = .44$  and  $\bar{x} = 3.33$ ,  $SD = .50$ , respectively).

Table 15 The different of trauma nursing core competency between trained group and not trained group of staff nurses (n = 418)

Trauma nursing core competency	Trained (n = 105)			Not Trained (n = 313)			t-test	Sig.
	Mean	SD	Level	Mean	SD	Level		
1. Leadership and management	3.30	.50	High	3.22	.44	High	2.557	.111
2. Critical thinking for caring	3.28	.59	High	3.21	.54	High	1.073	.301
3. Legal and ethical practice	3.21	.41	High	3.09	.39	Relatively high	.792	.374
4. Comfort enhancement	3.18	.42	Relatively high	3.07	.42	Relatively high	.871	.351
5. Cooperation	3.08	.44	Relatively high	2.97	.43	Relatively high	.601	.439
6. Partnership/ Guide	2.98	.48	Relatively high	2.88	.45	Relatively high	.381	.538
7. Clinical practice	2.96	.62	Relatively high	2.80	.60	Relatively high	.031	.861
8. Risk management	2.94	.57	Relatively high	2.69	.61	Relatively high	1.913	.167
<b>Overall</b>	<b>3.11</b>	<b>.38</b>	<b>Relatively high</b>	<b>2.98</b>	<b>.36</b>	<b>Relatively high</b>	<b>1.164</b>	<b>.281</b>



As showed in the Table 15, there were no different of TNCC between trained ( $\bar{x} = 3.11$ ,  $SD = .38$ ) and not trained ( $\bar{x} = 2.98$ ,  $SD = .36$ ) with relatively high level. For each dimension, the levels of TNCC in Leadership and management and Critical thinking for caring were at high level and no significant difference. The level of TNCC in Legal and ethical practice: Trained group was at high level ( $\bar{x} = 3.21$ ,  $SD = .41$ ) and not trained group at relatively high ( $\bar{x} = 3.09$ ,  $SD = .39$ ). The others, Comfort enhancement, Cooperation, Partnership/Guide, Clinical practice, and Risk management were at relatively high level with no significant difference.

Table 16 The different of trauma nursing core competency between rotation group and not rotation group of staff nurses (n = 418)

Trauma nursing core competency	Rotation (n = 125)			Not Rotation (n = 293)			t-test	Sig.
	Mean	SD	Level	Mean	SD	Level		
1. Leadership and management	3.40	.48	High	3.17	.43	High	8.209	.004
2. Critical thinking for caring	3.29	.53	High	3.20	.56	Relatively high	1.423	.234
3. Legal and ethical practice	3.19	.44	Relatively high	3.09	.38	Relatively high	6.325	.012
4. Comfort enhancement	3.16	.46	Relatively high	3.07	.40	Relatively high	3.115	.078
5. Cooperation	3.07	.49	Relatively high	2.96	.40	Relatively high	6.545	.001
6. Partnership/ Guide	2.97	.50	Relatively high	2.87	.44	Relatively high	2.555	.111
7. Clinical practice	2.98	.55	Relatively high	2.78	.62	Relatively high	4.252	.040
8. Risk management	2.89	.57	Relatively high	2.69	.62	Relatively high	2.788	.096
<b>Overall</b>	<b>3.12</b>	<b>.35</b>	<b>Relatively high</b>	<b>2.97</b>	<b>.38</b>	<b>Relatively high</b>	<b>.449</b>	<b>.503</b>

As showed in the Table 16, there were no different of TNCC between rotation ( $\bar{X} = 3.12$ ,  $SD = .35$ ) and not rotation ( $\bar{X} = 2.97$ ,  $SD = .38$ ). For each dimension, the level of TNCC in Critical thinking for caring, Comfort enhancement, Partnership/ Guide, Risk management were no different. The of level of TNCC in Leadership and management, Legal and ethical practice, Cooperation, and Clinical practice between rotation group and not rotation group of staff nurses have significance different at  $p < 0.05$ .





The results in the Table 17 showed that:

1) Overall competency and all eight dimensions of TNCC mean scores are ascending ordered when years of experience gained

2) F-test reject null hypothesis of equal means at .05. There were significant difference among group of experience ( $F = 11.73$ ,  $p = .00$ )

3) Pairwise test using Sheffé revealed that overall competency mean are significantly different between G1 (0 – 1 year) and G4 (> 5 – 10 years), G1 (0 – 1 year) and G5 (> 10 years), G2 (>1 – 3 years) and G3 (>3-5 years), G2 (>1 – 3 years) and G4 (> 5 – 10 years), G2 (>1 – 3 years) and G5 (> 10 years), and G4 (> 5 – 10 years) and G4 (> 5 – 10 years). All dimensions of TNCC between G2 (>1 – 3 years) and G5 (> 10 years) are significantly different at  $p = .00$ .

Table 18 The different of trauma nursing core competency among unit of staff nurses (n = 418)

Trauma nursing core competency	RE (1) (n = 69)		OR(2) (n = 62)		ER (3) (n = 110)		TD (4) (n = 97)		ICU (5) (n = 80)		F	Sig.	Scheffe									
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD			G12	G13	G14	G15	G23	G24	G25	G34	G35	G45
1. Leadership and management	3.13	.45	3.18	.36	3.21	.44	3.20	.48	3.46	.42	6.61	.00	.98	.00	.99	.00	.87	.81	.00	.00	.00	1.0
2. Critical thinking for caring	3.25	.58	3.21	.42	3.14	.55	3.03	.55	3.58	.45	13.34	.00	.99	.00	.94	.00	.13	.73	.00	.00	.00	.71
3. Legal and ethical practice	3.14	.40	2.97	.36	3.08	.35	3.17	.43	3.23	.42	4.33	.00	.23	.00	.61	.74	.99	.90	.90	.90	.14	.60
4. Comfort enhancement	3.10	.49	3.03	.39	3.02	.41	3.12	.41	3.24	.39	3.48	.00	.90	.07	.76	1.0	.45	.99	.82	.52	.02	.59
5. Cooperation	3.01	.42	2.98	.39	2.87	.40	3.07	.47	3.09	.44	3.95	.00	.99	.65	.82	.65	.83	.94	.38	.99	.01	.03
6. Partnership/ Guide	2.83	.51	2.89	.38	2.85	.41	2.93	.49	3.02	.47	2.24	.06	.97	.55	.99	.98	.18	.79	1.0	.75	.15	.81
7. Clinical practice	2.58	.84	2.72	.50	2.70	.55	3.07	.49	3.05	.50	11.95	.00	.76	.02	.01	1.0	.00	.00	.77	1.0	.00	.00
8. Risk management	2.49	.64	2.64		.76	.51	2.70	.66	3.12	.54	12.11	.00	.72	.00	.98	.76	.00	.28	.05	.00	.00	.95
<b>Overall</b>	<b>2.92</b>	<b>.44</b>	<b>2.94</b>		<b>.94</b>	<b>.33</b>	<b>3.03</b>	<b>.38</b>	<b>3.23</b>	<b>.31</b>	<b>9.95</b>	<b>.00</b>	<b>.99</b>	<b>.00</b>	<b>.64</b>	<b>1.0</b>	<b>.00</b>	<b>.39</b>	<b>.99</b>	<b>.01</b>	<b>.00</b>	<b>.50</b>

The results in the Table 18, showed that:

1) Overall competency of TNCC means scores by unit line up are RE OR ER TD and ICU

2) Overall F-test reject null hypothesis of equal means at .05. There were significant difference among units ( $F = 9.95$ ,  $p = .00$ ) and Significant difference among units in all dimensions.

3) Pairwise test using Sheffé revealed that overall competency mean are significantly different between RE and ER, OR and ER, ER and TD, and ER and ICU.

Table 19 The different of trauma nursing core competency among education level of staff nurses (n = 418)

Trauma nursing core competency	1		2		3		F	Sig.	Scheffé		
	Secondary (n = 239)		College (n = 111)		Bachelor (n = 68)				12	13	23
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD					
1. Leadership and management	3.22	.44	3.27	.46	3.25	.48	.49	.60	.61	.92	.93
2. Critical thinking for caring	3.23	.56	3.21	.55	3.26	.53	.19	.82	.97	.88	.82
3. Legal and ethical practice	3.10	.41	3.13	.39	3.18	.37	1.11	.32	.74	.35	.78
4. Comfort enhancement	3.10	.45	3.06	.41	3.17	.34	1.28	.27	.79	.47	.28
5. Cooperation	2.97	.46	2.98	.39	3.11	.37	2.72	.06	.99	.07	.14
6. Partnership/Guide	2.86	.49	2.92	.40	3.03	.40	3.81	.02	.54	.02	.27
7. Clinical practice	2.78	.63	2.90	.60	2.94	.54	2.41	.09	.26	.18	.90
8. Risk management	2.71	.63	2.77	.61	2.88	.50	2.06	.12	.73	.13	.48
<b>Overall</b>	<b>2.99</b>	<b>.39</b>	<b>3.03</b>	<b>.36</b>	<b>3.09</b>	<b>.31</b>	<b>2.21</b>	<b>.11</b>	<b>.66</b>	<b>.11</b>	<b>.50</b>



As result showed in the Table 19, there is no difference of TNCC among education level of staff nurses at Vietnamese general hospitals ( $F = 2.215$ ,  $p = .110$ ). Only Partnership/Guide dimension is significant different among education level ( $F = 3.811$ ,  $p = .023$ ). Pairwise test using Sheffé revealed that only Partnership/Guide between secondary level and bachelor level (Sheffé = 0.025)



## CHAPTER V

### SUMMARY, DISCUSSION, AND RECOMMENDATION

The purpose of this study were to identify trauma nursing core competency among staff nurses at general hospitals and to assess trauma nursing core competency among staff nurses at general hospitals in Vietnam. This chapter presents summary, discussion and recommendation for future research.

#### **Summary**

The objectives of this research were to assess and to compare trauma nursing core competency (TNCC) among staff nurses at Vietnamese general hospitals. By cluster sampling method, 439 Vietnamese nurses were recruited from 9 hospitals throughout the country. The measurement of TNCC was developed by the researcher based on literature review and expert in-depth interview. The self-rating TNCC scale composed of 8 dimensions with 48 items, the Content Validity Index was .90 and Cronbach's alpha coefficient was .95. The findings of this study showed that:

1. The level of trauma nursing core competency of staff nurses was at relatively high ( $\bar{x} = 3.01$ ,  $SD = .37$ ). When considering each dimension, Comfort enhancement, Coordination, Partnership/Guide, Leadership and management, Risk management, and Clinical practice were all at relatively high. Legal and ethical practice, Critical thinking for caring were at high level.

2. The difference of TNCC among several groups of subjects:

- 2.1 There was not significance different of TNCC between male ( $\bar{x} = 3.12$ ,  $SD = .32$ ) and female ( $\bar{x} = 2.98$ ,  $SD = .38$ ). Only TNCC in Clinical practice

between male ( $\bar{x} = 3.02$ ,  $SD = .48$ ) and female ( $\bar{x} = 2.77$ ,  $SD = .62$ ) have significance different ( $t = 2.334$ ,  $p = .127$ ).

2.2 There was not significance different of TNCC between trained ( $\bar{x} = 3.11$ ,  $SD = .38$ ) and not trained ( $\bar{x} = 2.98$ ,  $SD = .36$ ).

2.3 There was not significance different of TNCC between rotate ( $\bar{x} = 3.12$ ,  $SD = .35$ ) and not rotate ( $\bar{x} = 2.97$ ,  $SD = .38$ ). However, the of level of TNCC in Leadership and Management, Legal and ethical practice, Cooperation, Clinical practice between rotate group and not rotate group of staff nurses have significance different at  $p < .05$ .

2.4 There was significance different of TNCC among experience groups ( $F = 11.73$ ,  $Sheffé = .00$ ). Between group one (0–1 year) and group four (>5–10 years), group one and group five (>10 years), group two (>1–3 years) and group three (>3–5 years), group two and group four, group two and group five, group four and group five have significance different at  $p < .05$ .

2.5 There was significance different of TNCC of staff nurses at ICU with all others working place. In addition, have significance different in all dimension of TNCC between ICU and ER.

2.6 There was not significance different of TNCC between educations level groups of staff nurses at Vietnamese general hospitals.

## Discussion

The findings were organized into two parts according to the objectives of the research.

### Trauma nursing core competency as perceived by staff nurses

This study found that the trauma nursing core competency as perceived by staff nurses at general hospitals in Vietnam was at a relatively high level with the mean score 3.01 and standard deviation of .37. A reasonable explanation of the overall trauma nursing core competency at relatively high level may be due to the nurses in the developing countries, such as ASEAN countries are improving competent (Unhasuta, 2010). In addition, the current situation in Vietnam demonstrates that the nurse core competency in this area is still in its infancy (Xuan, 2009).

The finding in this study that TNCC ranked as relatively high level was lower with that of Pitayavatanachai (2005). This author studied levels of competency of professional nurses in a university hospital in Thailand where the mean score was high at 3.68. However, the finding of this study was incongruent with that of Aphicharttbutra (2004). Later author reported that the total competency of professional nurses in primary, secondary and tertiary hospital in the northern region of Thailand were at a moderate level. The potential reason is that the nurses were from different levels of the hospital. In this study, all of staff nurses came from same level, general hospitals in Vietnam compared with the subjects that Aphicharttbutra (2004) who studied in primary, secondary and tertiary hospitals in Thailand.

When considering each dimension, Leadership and management, and Critical thinking for caring were at high level ( $\bar{x} = 3.24$ ,  $SD = .45$ ), and ( $\bar{x} = 3.23$ ,  $SD = .55$ ). However, the level of nursing core competency in Legal and ethical practice, Comport enhancement, coordination, partnership/ guide, risk management, and clinical practice were also at a relatively high level. The details were summarized in Table 5.

The high levels of critical thinking, leadership and management in this study was same with level of nursing competencies of RN in Zhongshan hospital in China (Ying, 2007). It may be associated with the nursing education reform that was conducted in Vietnam. Increasing students' critical thinking, leadership and management skills were considered as the important outcomes of the new curriculum design. This was a good sign because in fact there were many training courses on nursing leadership and management has taken effectively.

In dimension of Leadership and management there were 3 items at high level: Managing the physical place ( $\bar{x} = 3.35$ ,  $SD = .57$ ), Organizing work follow ( $\bar{x} = 3.33$ ,  $SD = .57$ ), Participating in the unit planning ( $\bar{x} = 3.27$ ,  $SD = .55$ ). In dimension of Critical thinking for caring There were 3 items at high level: Maintains awareness and the treatment modalities ( $\bar{x} = 3.50$ ,  $SD = .56$ ), Provides patient centered care ( $\bar{x} = 3.34$ ,  $SD = .63$ ), and critically analyzes data and evidence ( $\bar{x} = 3.24$ ,  $SD = .78$ ). Therefore, the score of these dimensions is still low ( $\bar{x} = 3.24$ ,  $SD = .45$ ), and ( $\bar{x} = 3.23$ ,  $SD = .55$ ). The reason is that Vietnamese people were trained in affective control. In addition, the need to preserver harmonious relations would ensure that the acts of impoliteness (such as challenging another person's viewpoint) are avoided as much as possible (Xuan, 2009).

The dimension of Legal and ethical practices at a relatively high level ( $\bar{x} = 3.12$ ,  $SD = .40$ ). However, there was one item at high level: Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care ( $\bar{x} = 3.44$ ,  $SD = .57$ ). This was good information because staff nurses concerned about human right of patients and understood nursing role when they provided nursing care.

All items of Comfort enhancement and partnership/guide at relatively high level and overall score were at relatively high level ( $\bar{x} = 3.10$ ,  $SD = .42$ ) and ( $\bar{x} = 2.90$ ,  $SD = .46$ ) but the score was good as nowadays the nurses understood that in nursing care, patient is center of every activity and this is the most important standard in 25 standards of the core competencies of general nurse was approved by Vietnamese Nursing Council in 2012.

There was only one item at high level that was accurately assesses patients ( $\bar{x} = 3.25$ ,  $SD = .57$ ) while the overall score of coordination was at relatively high level ( $\bar{x} = 3.00$ ,  $SD = .43$ ). In trauma care resuscitation of a traumatic patient is a crisis situation both for the injured patient who has a life-threatening condition and the trauma team members who are responsible for timeliness of care. Since lives can be saved with optimal care and appropriate management, rapid resuscitation is critical (Unhasuta, 2010). Delay in treatment and errors in judgment are considered to be the leading cause of preventable deaths by accurately assesses patients. So the high level in this item is shall able.

There were 3 items at high level: Apply immobilization and assistive devices ( $\bar{x} = 3.55$ ,  $SD = .60$ ), Provide appropriate instrumentation and supplies ( $\bar{x} = 3.40$ ,  $SD = .72$ ), perform initial assessment and maintain a patent airway ( $\bar{x} = 3.24$ ,  $SD = .72$ )

while the overall score of Clinical practice was at relatively high level ( $\bar{x} = 2.84$ ,  $SD = .61$ ). It's can explain that this is the skill that staff nurses at general hospitals perform regular (Kidd, 1993) so they confident in those clinical skills.

The lowest of Risk management core competency ( $\bar{x} = 2.75$ ,  $SD = .61$ ) might related to the situation that the number of nursing student in Vietnam is high and not enough place for practice and still don't have standard for license before becoming staff nurse at hospitals (Vietnamese Nursing Council, 2009).

### **The difference of trauma nursing core competency among several groups of staff nurses**

To answer the question what is different level of TNCC of staff nurses among various units and demographic data at general hospitals the results of this study showed that:

1) There was not significance difference of TNCC between male and female. Except the different of level of TNCC in clinical practice male and female have significance and the score of the dimensions of Leadership and management and Critical thinking for caring of Male were high ( $\bar{x} = 3.35$ ,  $SD = .44$ ) and ( $\bar{x} = 3.33$ ,  $SD = .50$ ) while of female were relatively high ( $\bar{x} = 3.20$ ,  $SD = .45$ ) and ( $\bar{x} = 3.19$ ,  $SD = .48$ ). It can explain that male staff nurses and female staff nurses got the education program and same role in general hospitals. However, in some technical skills in trauma care need more power of muscle and fast control such as transferring patient or applying immobilization (Kidd, 1993). In addition, in Vietnamese culture male usually thinks and feels more confident than female on almost duties at any positions where they work.

2) To explain for there was not significance different of TNCC between trained and not trained may be due to most hospitals provide only in-service training on traumatic care for nurses and there is no accreditation for those courses (Xuan, 2009). However, the score of trained group were higher especially in dimension of Legal and ethical practice of trained group at high level ( $\bar{x} = 3.21$ ,  $SD = .41$ ) and not trained group ta relatively high ( $\bar{x} = 3.09$ ,  $SD = .39$ ) because these courses somehow have positive effect on nurses perception.

3) To explain for there was not significance different of TNCC between rotation and not rotation group while the different of level of TNCC in Leadership and management, Legal and ethical practice, Cooperation, Clinical practice between rotation group and not rotation group of staff nurses had significance. Now a day health policy in Vietnam, allows all hospitals manager finances by himself or herself so nurses rotation is the one of many ways to increase job performance (Ministry of Health, 2005). Due to this target, the nurses worked in different working environments with different duties got more knowledge, more relationships and more chances to perform what they were taught before.

4) A reasonable explanation for there was significant difference of TNCC among experience groups: group one (0–1 year) and group four (>5–10 years), group one and group five (>10 years), group two (>1–3 years) and group three (>3–5 years), group two and group four, group two and group five, group four and group five. That is a level of nursing core competency may relate to work experience. Benner (1984), in her classical analysis of the attribution of effective nurses, created a core competency framework from novice to expert and found that nurses who have more experience would have greater competency. This was proven that the more



experience nurses gained and possessed professional development during service, the more core competency or capability they have.

Pitayavatanachai (2005) analyzed the factor influencing nursing core competency and found that experience was the important individual information that has an effect on nursing competency. As shown in the Table 4, the average years of nursing working experience was 9.85 years. Thus, nurses can get good experience from their continuous clinical work. Meretoja et al (2004) studied nurses' perceptions of core competency in different university hospital among 593 nurses who have 11.1 years working experience and documented that the length of work experience was positive correlated with the self-assessed overall level of nursing competency.

5) To explain for there was significant difference of TNCC of staff nurses at ICU with all others units. In addition, it had significant difference in all dimension of TNCC between ICU and ER. Due to the vast differences in background experience and job performance those with ICU experience thought themselves to be more competent in most of the trauma skills identified, most likely related to previous experience (Table 18). With that said, it is possible to increase the competence level of the TNCC by increasing the training and providing practical, real-world training and application in an ICU setting (Unhasuta, 2010).

6) To explain for there was no significant difference of TNCC among educations group of staff nurses at Vietnamese general hospitals that might be this is core competency or outcome of education system in Vietnam which does not related to trauma core competency of staff nurses at Vietnamese general hospitals. On the other hand, in almost Vietnamese general hospitals the role of staff nurses'

daily rote is same to all nurses at all level of education (Xuan, 2009). A central concept of human capital theory has explained that individuals with higher levels of education embody knowledge and skills that would increase individual capacity (Young, 1991; Gu 1994). The finding of this study showed that 57.2% of staff nurses have a secondary clinical practice certificate of nursing. It indicated that most of staff nurses has received moderate level of nursing education so trauma nursing core competency is relatively high is related. On the other hand, the result showed that there was no significant difference trauma nursing core competency between levels of education.

### **Implications**

The results of this study provide the implications for nursing administration, nursing research, nursing education and nursing practice as follows.

#### **1. Implications for nursing administration**

The results of this study may be generalized to all population of staff nurses in Vietnam, so nurse managements can take some of findings into consideration when design administration interventions.

Nurse managements can use TNCC for staff nurses' performances appraisal and job specification, recruitment, or promotion guidance. The core competency assessment model can be integrated into quality assurance systems, human resources management and nursing workforce planning. Nurse management can also use the TNCC framework to design clinical staff development programs as well as Vietnamese nursing international training program.

This study also demonstrated that rotation group has level of TNCC in Leadership and management, Legal and ethical practice, Cooperation, Clinical higher than group no rotation of staff nurses (significance with  $p < 0.05$ ). Therefore, nurse managements could provide professional development to staff nurses, like planned orientation, emphasis on in-service training and continuing education.

### **2. Implications for nursing research**

This study was a preliminary study on identifying TNCC score. The findings of this study provided the information about TNCC. Moreover, these results could provide the evidence for further study in this area and provide a reference for study on TNCC in Vietnam and others country, such as ASEAN countries.

### **3. Implications for nursing education**

Since staff nurses perceived the nursing competence in each dimension at a relatively high level, it provides the evidence for nursing educators use this framework as a guideline for developing nursing curriculum both on the basic nursing education programs and on clinical staff development programs to increase trauma nursing core competencies of staff nurses in the future. Nursing educator can implement special programs on conducting research and improving TNCC for Vietnamese staff nurses. In addition, TNCC can use by clinical mentors for assessing staff nurse learning needs, formulating teaching strategies, and evaluating the success of training programs.

#### **4. Implications for nursing practice**

The TNCC was identified for evaluating trauma nursing core competency which to acts as a vehicle for feedback to nurses for themselves awareness of core competency level and career opportunities since they should have knowledge of the competencies required for their jobs before being assigned responsibility for them. The nurse management s can use TNCC for staff nurse perform appraisal and job specification, recruitment, or promotion guidance. In addition, evidence-based management to guarantee good clinical nursing practice depends on systematic evaluation of nurse's competencies. This core competency assessment model may be integrated into quality assurance systems to improve quality of trauma nursing care.

#### **Recommendations**

Based on the result of this study, some recommendations need to be considered for future study. We recommended that the policy maker would consider staff rotating, shift working, especially staff nurses who had 1 to 3 years of working experience as the promising mean to enhance nurses' core competency. Moreover, factors influencing TNCC such as continuing education and educational level need to be further explored among staff nurses. And need for an improvement of education programs for this specialty.

## REFERENCES

- AACN, American Association of Critical-Care Nurses (2005). Standards of practice and professional performance for the acute and critical care clinical nurse specialist.
- Aiken, L., Clarke, S.P., Cheung, R.B., Sloane, D.M., & Silber, J.H. (2003). Educational levels of hospital nurses and surgical patient mortality. *American Medical Association*, 290(12 ), 1617–1623.
- Alexander, M.F., & Runciman, P.J. (2003). ICN framework of competencies for the general nurse: Report of the development process and consultation. Geneva (Switzerland): Jean-Marteau, CH-1201.
- Alspach, J.G. (1992). Concern and confusion on over competence. *Critical Care Nurse*, 12, 9-11.
- Ameera, A. (2008). Core competencies for a trauma subspecialty nurse practitioner. *Journal of Trauma Nursing*, 15, 145.
- Aphicharttbutra, K. (2004). Competency of professional nurses. Unpublished research report, Chiang Mai University, Thailand.
- Australian Nursing Council. (2000). *Position statement continuing competence in nursing*. Retrieved on November 20, 2002, from, <http://www.anci.org.au/print/s-continuing>.
- Axley, L. (2008). Competency: A concept analysis. *Nursing Forum*, 43(4), 214-222.
- Baird, C., Kernohan, G., Coates, V. (2004). Outcomes of advanced trauma life support training: Questioning the role of observer. *Accident Emergency Nursing*, 12, 131-135.
- Bartlet, H.O., Simonite, V., Westcott, L., & Taylor, H.R. (2000). A comparison of the nursing competence of graduates from UK nursing programs. *Journal of Clinical Nursing*, 9, 369-381.
- Benner, P. (1982). Issues in competency-based training. *Nursing Outlook*, 30(5), 303–309.
- Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*
- Bitter, J. (1979). *Introdcution to rehabilitation*: Ct. Louis: Mosby - Year Book.
- Blackman, I., Hall, M., & Darmawan, I. J. (2009). Undergraduate nurse variables that predict academic achievement and clinical competence in nursing. *Journal of International Education*, 8(2), 222-236.
- Boylan, C., & Westra, R. (1998). Meeting joint commission requirements for staff competency. *Journal of Nursing Care Quality*, 12(4), 44-48.
- Bradshaw, A. (1997). Defining "competency" in nursing (part I): A policy review. *Journal of Clinical Nursing*, 6, 347-354.

- Bradshaw, A. (1998). Defining "competency" in nursing (part II): An analytical review. *Journal of Clinical Nursing*, 7, 103-111.
- Brunt, B.A (2002). Identifying performance criteria for staff development competencies. *Journal for Nurses in Staff Development*, 18, 314-321.
- Canada Nursing Council. (2008). *Competence and competence assessment. A summary of literature published since 2000*. Canada: Canada Nursing Council.
- Clarke, S. (2003). A definitional analysis of specialist practice in orthopaedic nursing. *Journal of Orthopaedic Nursing*, 7(2), 82-86.
- Cothern, C., Moore, E., Hedegaard., & Meng, K. (2007). Epidemiology of urban trauma deaths: A comprehensive reassessment 10 years later. *World Journal Surgery*, 31, 1507-1511.
- Cuong, P.V. (2009). Injury situation in Hai Phong, Hai Duong, Quang Tri, Thua Thien Hue, Can Tho and Dong Thap in 2008. *Journal of practical medicine*, 786, 194-197.
- Christmas, B., Reynolds, J., & Hodges, S., et al. (2005). Physician extenders impact trauma systems. *Journal trauma injury, infection critical care*, 58, 917-920.
- Davies, J., Heyman, B., & Bryar, R. et al. (2002). The research potential of practice nurses. *Health Social Care Community*, 10, 370-381.
- Davis, L. (1992). Instrument review: Getting the most from your panel of experts. *Applied Nursing Research*, 5, 104-107.
- Demetiades, D., Murray, J., Charalambides, K., Kathy, A., Velmahos, G., Rhee, P., & Chan, L. (2004). Trauma fatalities: Time and location of hospital deaths. *Journal of America Surgery* 198(1), 20-26.
- Denise, F.P., & Cheryl T.B. (2006). The Content Validity Index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29, 489-497.
- DeVellis, R.F. (1991). *Scale development: Theory and application*
- Dubois, D.D., & Rothwell, W.J. (2004). *Competency-based human resource mangement*. Mountain View, Davies-Black Publishing.
- Dunn, S.V., Lawson, D., Robertson, S., Underwood, M., Clark, R., Valentine, T., Walker, N., Wilson-Row, C., Crowder, K., & Herewane, D. (2000). The development of competency standards for specialist critical care nurses. *Journal of Advanced Nursing*, 31(2), 339-346.
- Erault, M. (1994). *Developing professional knowledge and competence*. London: The Faimer Press.

- Estabrooks, C.A., Tourangeau, A.E, Humphrey, C.K., Hesketh, K.L., Giovannetti, P., Thomson, D. (2002). Measuring the hospital practice environment: A Canadian context. *Research in Nursing & Health, 25*, 256–268.
- Eva, K.W., & Regehr, G. (2005). Self-assessment in the health profession: A reformulation and research agenda. *Academic Medicine, 80*, 546–554.
- Filipino Nursing & Midwifery council. (2009). *National core competency for Filipino nurses*. Manila: Filipino Nursing & Midwifery council.
- Franklin, B. E., Carr, K. V., & Padden, D. L. (2008). Self-assessment of trauma competencies among army family nurse practitioners. *Mil Med, 173*(8), 759-764.
- Gonczi, A. (1994). Competency based assessment in the professions in Australia. *Assessment in Education, 1*, 27-44.
- Hassanat, E.M., Sideeg, E.K., Mustafa, M.E., & Ahmed, B. (2013). Assessment of nurses competency during emergency management of patients with acute myocardial infarction. *Al Neelain Medical Journal, 3*(12), 21-35.
- Heinemann, A.W., Kirk, P., Hastie, B.A., Semik, P., Hamilton, B.B., & Linacre, J.M. . (1997). Relationships between disability measures and nursing effort during rehabilitation for patients with traumatic brain and spinal cord injury. *Archives of Physical Medicine and Rehabilitation, 78*(2), 143–149.
- Hunter, J.E., Schmidt, F.L., & Judiesch, M.K. (1990). Individual difference in output variability as a function of complexity. *Journal Application Psychology, 75*, 28–42.
- Jarvi, M., & Uusitalo, T. (2004). Job rotation in nursing: A study of job rotation among nursing personnel from the literature and via a questionnaire. *Journal of Nursing Management, 12*(5), 337–347.
- Jeans, M. E., & Rowat, K. (2005). Leadership Objective: Competencies required of nurse managers found at [/~/media/cna/page content/pdf](#)
- Jeska, S.B. (1998). *Competence assessment models and methods*. Philadelphia: Lippicott.
- Kane, M.T. (1992). The assessment of professional competence. *Evaluation and the health professions, 15*, 163-182.
- Kerby, D.S., Brand, M.W., Johnson, D.L., & Ghouri, F.S. (2005). Self-assessment in the measurement of public health workforce preparedness for bioterrorism or other public health disasters. *Public Health Report 120*, 186–191.
- Kidd, & Neff (1993). *Trauma nursing: The art and science*. Philadelphia: Mosby.
- Klein, C. J., & Fowles, E. (2007). An investigation of nursing competence and the competency outcomes performance assessment curricular approach: Senior student 's self-reported perceptions. *Journal of Professional Nursing, 25*(2), 109-121.

- Khieu, T. Q. T. (2010). Study on occupational injuries related death through the mortality reporting system from 2005-2009 in Vietnam. *Journal of practical medicine*, 786, 100-103.
- Lakanmaa, R.L. (2012). Competence requirements in intensive and critical care nursing. <http://www.doria.fi/bitstream/handle/10024/76824/Annales%20D%201014%20Lakanmaa%20DISS.pdf>.
- Lawrette, A. . (2008). Competency: A concept analysis. *Nursing Forum* 43, 4.
- Lichtig, L.K., Knauf, R.A., & Milholland, D.K. (1999). Some impacts of nursing on acute care outcomes. *Journal Healthcare Law, Ethics and Regulation*, 29, 25–33.
- Lofman, P., Pietila, A., & Haggman, L. A. (2007). Self-evaluation and peer review: An example of action research in promoting self-determination of patients with rheumatoid arthritis. *Journal of Clinical Nursing*, 16, 84–94.
- Longenecker, C.O. (1998). Training as a performance appraisal improvement strategy. *Career Development International*, 3(6), 243-251.
- Lucas, B. (2002). Orthopaedic patient journeys: A United Kingdom perspective. *Journal of Orthopaedic Nursing* 6(2), 86-89.
- Lynn, M.R. (1986). Determination and quantification of content validity. *Nursing Research* 35 382-385.
- Lynn, W. (2006). Competency Assessment of Nursing Staff. *Orthopaedic Nursing*, 25, 3, 198-202.
- Mahaisavariya, B. (2008). Musculoskeletal trauma service in Thailand. *Clinical Orthopaedics and Related Research*, 466, 2323–2328.
- Malaysia Nursing & Midwifery Council. (2005). *National core competency for Malaysian nurses* Malaysia: Retrieved from [http://nursing.moh.gov.my/modules/mastop\\_publish/files/files\\_4f5fda9647986.pdf](http://nursing.moh.gov.my/modules/mastop_publish/files/files_4f5fda9647986.pdf).
- Manley, K., & Garbett, R. (2000). Reconciling concepts of expertise with competency for a clinical career structure. *Journal of Clinical Nursing*, 9(3), 347–359.
- McKay and Thayre. (1999). A global perspective on emergency nursing and the new millennium. *Journal of Emergency Nursing* 25(6: 3).
- McMullan, M., Endacott, R., Gray, M., Jasper, M., Miller, C., Scoles, J., et al. . (2003). Portfolios and assessment of competence: A review of the literature. *Journal of Advanced Nursing*, 41, 283-293.
- McQuillan, K.A. (2009). *Trauma nursing: From resuscitation through rehabilitation* (4<sup>th</sup> ed.). Philadelphia: Mosby.
- Meretoja, R., & Leino-Kilpi, H. (2003). Comparison of competence assessments made by nurse managers and practicing nurses. *Journal of Nursing Management*, 11, 404-409.



- Meyer, A.A., & Trunkey, D.D. (1986). Critical care as an integral part of trauma care. *Critical Care Clinics*, 2(4), 673-681.
- Milligan, F. (1998). Defining and assessing competence: The distraction of outcomes and the importance of educational process. *Nursing Education Today*, 18, 273-280.
- Ministry of Health. (2005). *Ministry of Health in Document No. 2188/YT-TCCB March 25, 2005*. Ministry of Health: Hanoi.
- Ministry of Health. (2009). *Trauma guideline*. Hanoi: Nha Xuat ban Y hoc.
- Ministry of Health. (2011). *Ministry of Health Vietnam: Proceedings of accidents and injuries*. Hanoi: Nha Xuat Ban Y Hoc.
- Mishel, M.H. (1998). *Methodological studies: Instrument development*.
- Mitchell, T.R., Holtom, B.C., Lee, T.W., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover. *Academy Management Journal*, 44, 1102-1121.
- Nagelsmith, L. (1995). Competence: An evolving concept. *The Journal of Continuing Education in Nursing*, 26, 245-248.
- Norman, G.R. (1985). Assessing clinical competence. *New York Springer*, 30, 330-341.
- Ngoc Lan, T.T. (2011). Study on the mortality status of traffic injuries in Vietnam. *Journal of Practical Medicine*, 786, 67-70.
- Ngoc, T.T. (2011). Report on surveillance of injuries in Ho Chi Minh city in 2007-2010. *Journal of Practical Medicine*, 786, 178-181.
- Nguyen, T.L., Nguyen, T.H., Morita, S., & Sakamoto, J. (2008). Injury and pre-hospital trauma care in Hanoi, Vietnam. *Journal of Practical Medicine*, 786, 121-129.
- O'Shea, K. (2002). *Staff development nursing secrets*. Philadelphia: Hanley & Belfus.
- Pitayavatanachai, T. (2005). *Factors influencing competencies of professional nurses in a university hospital*. Chiang Mai, Thailand.
- Polit, D.F. (1996). *Data analysis and statistics for nursing research*. Stamford: Appleton & Lange.
- Rainer, T., Cheung, N.K., Yeung, J., & Graham, C. (2007). Do trauma teams make a difference? A single centre registry study. *Resuscitation*, 73, 374-381.
- Rezwani, H., Akram, G., Novroozali, K., Hossein, G., Jamal, M. (2013). Factors affecting the teaching-learning in nursing education. *Global Summit on Education*, 191, 728-741.
- Robertson, R. (1998). *Manager's guide to competency testing and certification*. Retrieved on December 28, 2002, from <http://www.apio.org/competencyasurement.htm>.
- Santy, J. (2005). A competency framework for orthopaedic and trauma nursing. *Journal of Orthopaedic Nursing*, 9(2), 81-86.


- Schwirian, P.M. (1978). Evaluating the performance of nurses: A multidimensional approach. *Nursing Research*, 27, 347-351.
- Simons, R., & Kirkpatrick, A. (2002). Assuring optimal trauma care: The role of trauma centre accreditation. *Journal Advanced Nursing*, 45(4), 288-295.
- Stewart, J., O'Halloran, C., Barton, J.R., & Singleton, S.J. (2000). Clarifying the concepts of confidence and competence to produce appropriate self-evaluation measurement scales. *Medical Education* 34, 903-909.
- Storey, L. (2001). The concept of competence. *Journal Advanced Nursing*, 33, 367-375.
- Teixeira, PG., Inaba, K., Hadjizacharia, P., Brown, C., Salim, A., Rhee, P., Browder, T., Ngoc, C.T.T., & Demetriades, D. (2007). Preventable or potentially preventable mortality at a mature trauma center. *Journal Trauma*, 63(6), 1338-1346.
- Tilden, V., Nelson, C., & May, B. (1990). Use of qualitative methods to enhance content validity. *Nursing Research* 39 172-175
- Tourangeau, A.E., Giovanetti, P., Tu, J.V., & Wood, M. (2002). Nursing related determinants of 30-day mortality for hospitalized patients. *Canadian Journal of Nursing Research*, 33, 71-88.
- Tran, N.L. (2011). Evaluation of first aids' performance in volunteer network at strengthening quality of prehospital trauma care project. *Journal of Practical Medicine*, 786, 138-145.
- Tran Ngoc Linh. (2010). Study on the mortality status of traffic injuries in Viet Nam. *Journal of practical medicine*, 786, 67-70.
- Unhasuta, K., Marylou, V., & Kathy, M. (2010). Research plan for developing trauma core competencies for nurses in Thailand. *International Emergency Nursing*, 18, 3-7.
- Vietnamese Nursing Council. (2012). *Nursing competencies of general nurses*. Hanoi: Nha Xuat Ban Y Hoc.
- Walter, D. (2000). Competency-based on-the-job training for aviation maintenance and inspection human factor approach. *International Journal of Industrial Ergonomics*, 26(2), 249-259.
- Waltz, C.F., Strickland, O.L., & Lenz, E.R. (2005). *Measurement in nursing and health research*
- Watson, R., Stimpson, A., Topping, A., & Porock, D. (2002). Clinical competence assessment in nursing: A systematic review of the literature. *Journal of Advanced Nursing*, 39, 421-431.
- Weigelt, J.A., Brasel, K.J., Bragg, D., Simpson, D. (2004). The 360-degree evaluation: Increased work with little return? *Current Surgery*, 61, 616-626.

- Weightman, J. (1994). *Competencies in action*. London: Institute of Personnel and Development.
- Winchcombe, J. (2000). Competency standards in the context of infection control. *American Journal of Infection Control*, 28, 228-232.
- Wolgin, F. (1998). *Competence Assessment systems and measurement strategies* (2<sup>nd</sup> ed.). Philadelphia: Lippincott.
- Wora-ulai, N. (2006). Advance trauma life support 2006. *Trauma surgical* 14, 2-11.
- Xuan, D.D., De, D.N., Loan, N.T., Long, T.V., Dzung, N.M., & Dau, V.V. (2009). Survey on current nurse managers' roles and functions in General Hospitals in Vietnam. Hanoi: Ministry of Health.
- Ying, L., Kunaviktikul, W., & Tonmukayakal, O. (2007). Nursing competency and organizational climate as perceived by staff nurses in a Chinese university hospital. *Nursing Health Science*, 9(3), 221-227.
- Zhang, Z.X., Lik, W., Arthur, D., & Wong, T. (2001). Nursing competencies: Personal characteristics contributing to effective nursing performance. *Journal of Advanced Nursing*, 33, 467-474.



APPENDIX

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**



APPENDIX A  
DEMOGRAPHIC DATA FORM

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

## DEMOGRAPHIC DATA FORM

(English version)

Instructions: please fill in the blanks and check (x) the appropriate responses on the lines.

1. Sex: male \_\_\_\_\_ female \_\_\_\_\_ 2. Age: \_\_\_\_\_ years

3. Working experience: \_\_\_\_\_ years

4. Which unit do you work?

Emergency department \_\_\_\_\_

Intensive care unit (ICU) \_\_\_\_\_

Operating room \_\_\_\_\_

In patient trauma department \_\_\_\_\_

Rehabilitation department \_\_\_\_\_

5. Which education level do you have?

Primary technical certificate \_\_\_\_\_

Secondary technical certificate \_\_\_\_\_

Associate degree \_\_\_\_\_

Bachelor degree \_\_\_\_\_

Master degree \_\_\_\_\_

Doctoral degree \_\_\_\_\_

6. Do you have opportunity to continuing education?

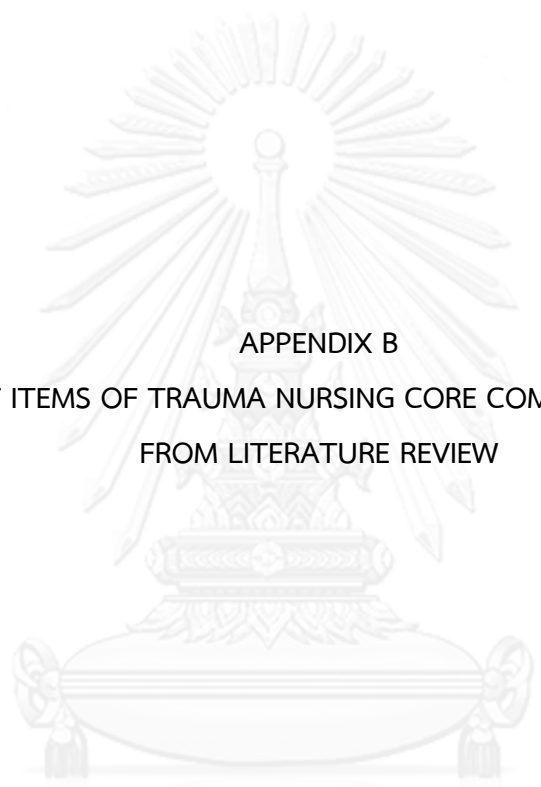
Trained \_\_\_\_\_

Not Trained \_\_\_\_\_

7. Do you rotate form your unit to other unit?

Yes \_\_\_\_\_

No \_\_\_\_\_



APPENDIX B  
LIST ITEMS OF TRAUMA NURSING CORE COMPETENCY  
FROM LITERATURE REVIEW

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

## List items of trauma nursing core competency from literature review

No	Dimension and Items	Self - Assessment				
		0	1	2	3	4
1	<b>Legal and ethical practice (5 items)</b>					
1	Acts in accordance with legal and ethical professional responsibilities (e.g., patient management, documentation, advance directives)					
2	Integrates ethical principles in decision making					
3	Evaluates the ethical consequences of decision making					
4	Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care					
	.....					
53	Perform surgical counts while recognizing potential urgent need for surgery.					
54	Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury					
55	Apply immobilization and assistive devices correctly					





APPENDIX C

LIST OF EXPERTS FOR INTERVIEW AND VALIDATE CONTENT VALIDITY


จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

Ten experts for interview are presented as follows

TT	NAME	ORGANIZATION	EXPERIENCE
1	MNS. MD. NGUYEN VIET TAN	INSTRUCTOR – HA DONG NURSING COLLEGE	20 years
2	BNS.RN. NGUYEN VAN UY	A&E DEP – VIET DUC HOSPITAL	15 years
3	BNS. RN. VU PHI LONG	A&E DEP - VIET DUC HOSPITAL	10 years
4	MNS. RN.VU NGOC ANH	INSTRUCTOR – NAM DINH UNIVERSITY OF NURSING	10 years
5	BSN. RN.TRAN VAN TUYEN	HEAD NURSE – TRAUMA DEP – NAM DINH GENERER HOSPITAL	17 years
6	MNS. RN. NGUYEN VAN DUAN	TRAUMA REHABILITATION DEP – VIET DUC HOSPITAL	12 years
7	BNS. RN. VU HOANG ANH	SURGERY DEP – VIET DUC HOSPITAL	10 years
8	BNS.RN. TRAN THI AN	SPINAL TRAUMA DEP - VIET DUC HOSPITAL – VIET DUC HOSPITAL	7 years
9	MNS. RN. PHI THI MAI CHI	HEAD TRAUMA - VIET DUC HOSPITAL	15 years
10	BNS. RN. DO THI KIM HUONG	INSTRUCTOR – NAM DINH NURSING COLLEGE	15 years

Five experts who validate Content Validity are presented as follows

TT	NAME	ORGANIZATION	EXPERIENCE
1	MNS, RN. NGUYEN DUC DUONG	VINH MEDICAL UNIVERSITY	10 years
2	MNS, RN .PHAM THI LIEU	VIET TIEP HOSPITAL	20 years
3	MNS, RN. TRAN VAN OANH	VIET DUC HOSPITAL	12 years
4	MNS, RN . DINH TRONG QUANG	NINH BINH GENERAL HOSPITAL	7 years
5	ANP, RN . LE XUAN THANG	NAM DINH UNIVERSITY OF NURSING	15 years



APPENDIX D  
LETTER INVITE EXPERTS

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

No. 0512.11/1443

Faculty of Nursing, Chulalongkorn University  
Borommaratchachonnani Srisataphat  
Building, Rama1 Road, Pathumwan,  
Bangkok 10330, Thailand  
Tel. (662)-218-1131 Fax. (662)-218-1130

September 6, 2013

Mr. Nguyen Dcu Duong  
Vinh Medical University  
No. 182, Le Duan Street,  
Vinh City, Vietnam

Dear Sir/Madam

This is to inform you that Mr. Dau Vu Van is our student in a Master of Nursing Science Program, Faculty of Nursing, Chulalongkorn University. He has been approved for conducting the thesis "A STUDY OF TRAUMA NURSING CORE COMPETENCY AMONG STAFF NURSES, VIETNAMESE GENERAL HOSPITALS" under supervision of Associate Professor Police Captain Yupin Aunguroch, Ph.D., R.N. and Dr. Rungrawee Navichareern, Ph.D., R.N. I am asking for your kindly support in validating content of the instrument. This will be great contribution to the quality of the research.

On behalf of the Faculty of Nursing, Chulalongkorn University, I would like to express my grateful for your valued support.

Sincerely,



(Waraporn Chaiyawat, D.N.S., APN)  
Associate Professor and Deputy Dean

No. 0512.11/1442

Faculty of Nursing, Chulalongkorn University  
Borommaratchachonnani Srisataphat  
Building, Rama1 Road, Pathumwan,  
Bangkok 10330, Thailand  
Tel. (662)-218-1131 Fax. (662)-218-1130

September 6, 2013

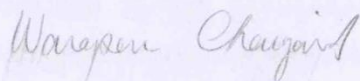
Mr. Nguyen Viet Tan  
Ha Dong Nursing College  
No. 39, Nguyen Viet Xuan Street,  
Ha Noi City, Vietnam

Dear Sir/Madam

This is to inform you that Mr. Dau Vu Van is our student in a Master of Nursing Science Program, Faculty of Nursing, Chulalongkorn University. He has been approved for conducting the thesis "A STUDY OF TRAUMA NURSING CORE COMPETENCY AMONG STAFF NURSES, VIETNAMESE GENERAL HOSPITALS" under supervision of Associate Professor Police Captain Yupin Aunguroch, Ph.D., R.N. and Dr. Rungrawee Navicharern, Ph.D., R.N. On behalf of the Faculty of Nursing, Chulalongkorn University. I would like to invite you to be an expert providing information on trauma nursing care for Mr. Dau Vu Van.


Your kindly support is highly appreciated.

Sincerely,



(Waraporn Chaiyawat, D.N.S., APN)  
Associate Professor and Deputy Dean

CHULALONGKORN UNIVERSITY



APPENDIX E

TRAUMA NURSING CORE COMPETENCY FROM INTERVIEW EXPERTS

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

## TRAUMA NURSING CORE COMPETENCY FROM INTERVIEW EXPERTS

No	DIMENSION
	ETHICAL PRACTIC (1 item)
1	Applies ethically follow legal and ethical professional of ministry of health and Vietnamese government
	COMFORT (4 items)
2	Provides nursing care to meet the hygiene and comfort needs of patients that take into account their trauma condition and is sensitive to their cultural and spiritual needs.
3	Assesses and monitors pain levels of patients with chronic and acute pain showing an understanding of the patient condition.
4	Administers prescribed analgesia according to prescription and prescribed need
5	Utilizes a small selection of alternative/complementary strategies for pain relief
	.....
67	Set gastric tube and urethral bladder
68	Advises patients and careers regarding the recognition and prevention of cast complications
69	Removes, splits and bivalves casts safely.
70	Teaches the patient to undertake appropriate exercises.

APPENDIX F

LIST ITEMS OF TRAUMA NURSING CORE COMPETENCY

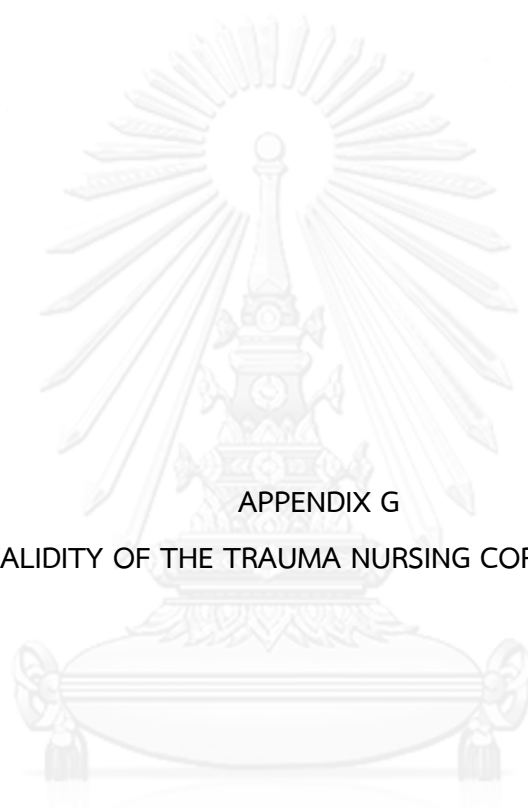


จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY



## List items of trauma nursing core competency

No	Dimension and Items	Self - Assessment				
		0	1	2	3	4
I	<b>Legal and ethical practice (5 items</b>					
1	Acts in accordance with legal and ethical professional responsibilities (e.g., patient management, documentation, advance directives)					
2	Integrates ethical principles in decision making for trauma nursing care					
3	Evaluates the ethical consequences of decision making for trauma nursing care					
4	Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care					
5	Accept patient response when making decisions and to interventions care.					
	.....					
	.....					
	.....					
51	Perform surgical counts while recognizing potential urgent need for surgery.					
52	Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury					
53	Apply immobilization and assistive devices correctly					



APPENDIX G

THE CONTENT VALIDITY OF THE TRAUMA NURSING CORE COMPETENCY RESULT

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY



No	Dimension and Items Tiêu đề và nội dung chi tiết	Expert					Number in Agreement	Item CVI	Note
		1	2	3	4	5			
VIII	Technic (10 items) Kỹ thuật (10 mục)								
50	Monitor fluid loss and replacement in conjunction with other trauma team members. Theo dõi mất nước và phối hợp thay thế việc theo dõi với các thành viên chăm sóc chấn thương khác.	X	X	-	X	-	3	0.6	
51	Perform surgical counts while recognizing potential urgent need for surgery. Thực hiện đếm dụng cụ phẫu thuật đồng thời dự đoán nhu cầu cấp thiết tiềm năng để hỗ trợ kịp thời các phẫu thuật.	X	X	X	X	X	5	1.00	
52	Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury Cung cấp thiết bị, vật tư phù hợp với lĩnh vực phẫu thuật, dựa trên loại chấn thương của bệnh nhân	X	X	X	X	X	5	1.00	
53	Apply immobilization and assistive devices correctly Áp dụng các thiết bị hỗ trợ và cố định một cách chính xác	X	X	X	X	X	5	1.00	
	<b>Mean expert proportion</b>	0.92	0.96	0.90	0.94	0.87		0.90	

Number of items rated quite/very relevant or agreement by the raters (experts)

CVI = \_\_\_\_\_ = 0.90

Number of the total items



APPENDIX H  
TRY OUT RESULT

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

## List items of trauma nursing core competency

No	Dimension and Items Tiêu đề và nội dung chi tiết
1	<b>Legal and ethical practice (5 items)/Pháp luật và đạo đức (5 mục)</b>
1	Acts in accordance with legal and ethical professional responsibilities (e.g., patient management, documentation, advance directives)
	Hành vi phù hợp với trách nhiệm pháp lý chuyên nghiệp và đạo đức (ví dụ, quản lý bệnh nhân, tài liệu hướng dẫn, chỉ dẫn trước)
2	Integrates ethical principles in decision making for trauma nursing care
	Tích hợp các nguyên tắc đạo đức trong việc ra quyết định cho chăm sóc điều dưỡng chấn thương
3	Evaluates the ethical consequences of decision making for trauma nursing care
	Đánh giá những hậu quả đạo đức của việc ra quyết định trong chăm sóc chấn thương
4	Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care
	.....
46	Appropriately anticipate and assist with surgical procedures when indicated.
	Dự đoán một cách hợp lý và hỗ trợ các thủ tục phẫu thuật khi có chỉ định.
47	Maintain patient safety in positioning, use of equipment, and transport.
	Duy trì an toàn bệnh nhân trong vị trí, sử dụng thiết bị, và vận chuyển.
48	Perform surgical counts while recognizing potential urgent need for surgery.
	Thực hiện đếm dụng cụ phẫu thuật đồng thời dự đoán nhu cầu cấp thiết tiềm năng để hỗ trợ kịp thời các phẫu thuật.
49	Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury
	Cung cấp thiết bị, vật tư phù hợp với lĩnh vực phẫu thuật, dựa trên loại chấn thương của bệnh nhân
50	Apply immobilization and assistive devices correctly
	Áp dụng các thiết bị hỗ trợ và cố định một cách chính xác



### TRAUMA NURSING CORE COMPETENCY ASSESSMENT FORM

The competencies are self-assessed and use a five-point Likert Scale (0 = not competent, 1 = slightly competent, 2 = some-what competent, 3 = competent enough, 4 = very competent)

No	Dimension and Items	(Please insert a √ in the appropriate column)				
		0	1	2	3	4
<b>I</b>	<b>Legal and ethical practice (5 items)</b>					
1	Acts in accordance with legal and ethical professional responsibilities (e.g., patient management, documentation, advance directives)					
2	Integrates ethical principles in decision making for trauma nursing care					
3	Evaluates the ethical consequences of decision making for trauma nursing care					
4	Applies ethically sound solutions to complex issues related to individuals, populations and systems of trauma care					
5	Accept patient response when making decisions and to interventions care.					
	.....					
45	Maintain patient safety in positioning, use of equipment, and transport.					
46	Perform surgical counts while recognizing potential urgent need for surgery.					
47	Provide appropriate instrumentation and supplies to the surgical field, based on type of patient injury					
48	Apply immobilization and assistive devices correctly					

**Thank you for your meaningful information!**





APPENDIX J  
INFORMED CONSENT

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

## Informed consent

Dear staff nurses:

My name is Dau Vu Van, a master nursing student at the Faculty of Nursing, Chulalongkorn University, Thailand. I am in the process of conducting research regarding “A study of trauma nursing core competency among staff nurses, Vietnamese general hospitals”. The study is conducted to identify trauma nursing core competencies among staff nurses at general hospitals and assess trauma nursing core competencies among staff nurses at general hospitals.

Your participation in this study is vital. All questions have no right or wrong answers. You are encouraged to write freely at all times. This result will be used to utilize by nursing educator. This study will not harmful to you. Your name will not be recorded. As a participant you have the right to withdraw from the study at any time without receiving any penalty. If you have any questions, please contact the investigator via mail, e-mail, or telephone. The investigator’s permanent address is No 7/277, Han Thuyen, Vi Xuyen, Nam Dinh city, Nam Dinh province, P.R. Vietnam. E-mail is [vuvandau1979@yahoo.com](mailto:vuvandau1979@yahoo.com). And telephone is 084.947.471.579.

Thank you very much for taking the time to read this information.

Mr. Dau Vu Van

### Participation Research Agreement

I agree to participate in the research “A study of trauma nursing core competency among staff nurses, Vietnamese general hospitals” by answering all of the questionnaires provided in this study. I understand that the investigator has explained detail information about this research thoroughly the enclosed information sheet.

Participant’s Signature

Printed Name ( \_\_\_\_\_ )



APPENDIX K  
ETHIC

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

MINISTRY OF HEALTH  
**NAM DINH UNIVERSITY OF  
 NURSING**

**SOCIALIST REPUBLIC OF VIETNAM**

**Independence - Freedom – Happiness**

No: *1329*/NCKH-ĐĐNC

Re: *Approvals of issues*  
 ĐĐNC

*Nam Dinh, October 31, 2013*

Pursuant to the Decision No. 425/QĐ-DDN of Rector of Nam Dinh University of Nursing on the establishment of Medical Research Council (MRC) for approval of the ethics in biomedical research of the research/ project.

Pursuant to the Letter No. 1678/2013 of the Faculty of Nursing, Chulalongkorn University, Thailand sent to the Medical Research Council of Nam Dinh University of Nursing.

The Medical Research Council of Nam Dinh University of Nursing hereby approves (permits) the ethical aspects of research/ project:

1. Project (research) title: A STUDY OF TRAUMA NURSING CORE COMPETENCY AMONG STAFF NURSES, VIETNAMESE GENERAL HOSPITALS
2. Researcher: Mr. Vu Van Dau
3. Chair University: Chulalongkorn University
4. Study location: At Vietnamese General Hospitals
5. Study period: from 05.17.2013 to 12.17.2013

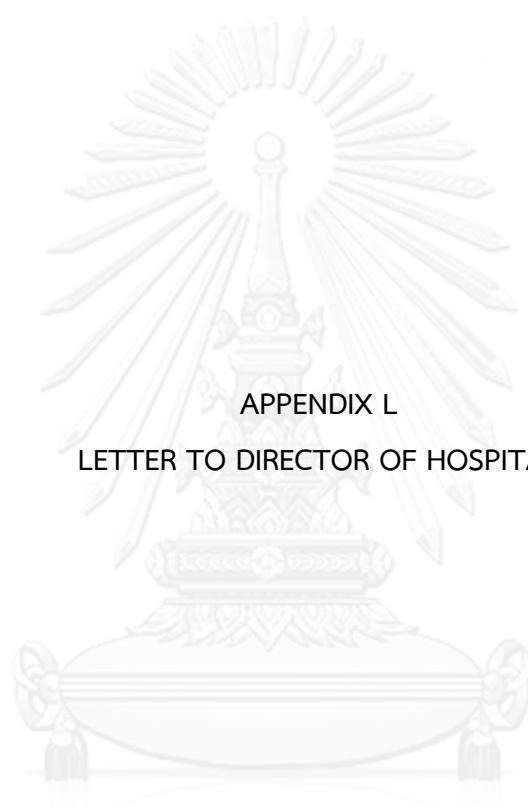
Date of approval (permission): October 31, 2013



**PHÓ HIỆU TRƯỞNG**  
*Ngô Huy Hoàng*

**COUNCIL SECRETARY**

**MNS. DO MINH SINH**



APPENDIX L

LETTER TO DIRECTOR OF HOSPITAL

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**

**CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM**

Độc lập – Tự do – Hạnh phúc

**ĐƠN XIN THU THẬP SỐ LIỆU**

**Kính gửi:** Ban giám đốc bệnh viện

Tôi tên là Vũ Văn Đầu, Giảng viên trường Đại học Điều dưỡng Nam Định. Hiện nay, tôi đang theo học khóa Thạc sỹ điều dưỡng tại Đại học Chulalongkorn, Thailand. Tôi đang tiến hành đề tài cho luận văn tốt nghiệp với tiêu đề “Nghiên cứu những năng lực cơ bản về chăm sóc chấn thương của Điều dưỡng tại các bệnh viện đa khoa ở Việt Nam”. Tên tiếng Anh “A study of trauma nursing core competency among staff nurses, Vietnamese general hospitals”

*Mục tiêu nghiên cứu:*

1. Xác định năng lực cơ bản về chăm sóc chấn thương của Điều dưỡng viên tại các bệnh viện đa khoa.
2. Nhận xét năng lực cơ bản về chăm sóc chấn thương của Điều dưỡng viên tại các bệnh viện đa khoa.
3. So sánh năng lực cơ bản về chăm sóc chấn thương của Điều dưỡng viên giữa các nhóm điều dưỡng khác nhau trong đối tượng nghiên cứu.

*Đối tượng nghiên cứu:* Là điều dưỡng viên đang làm tại một số bệnh viện đa khoa tại Việt Nam.

*Thiết kế nghiên cứu:* Nghiên cứu mô tả cắt ngang.

*Phương pháp thu thập số liệu:* Dùng phiếu điều tra để thu thập thông tin, gồm 2 phần

Phần 1: Điều tra các thông tin cá nhân của Điều dưỡng viên.

Phần 2: Điều tra sự tự đánh giá của Điều dưỡng viên về năng lực cơ bản chăm sóc chấn thương của họ.

*Địa điểm nghiên cứu:* Bệnh viện đa khoa Hà Đông, BV Việt – Tiệp Hải Phòng, BV đa khoa Quảng Ninh, BV đa khoa Bắc Ninh, BV đa khoa Bắc Giang, BV đa khoa Nam

*Địa điểm nghiên cứu:* Bệnh viện đa khoa Hà Đông, BV Việt – Tiệp Hải Phòng, BV đa khoa Quảng Ninh, BV đa khoa Bắc Ninh, BV đa khoa Bắc Giang, BV đa khoa Nam Định, BV đa khoa Ninh Bình, BV đa khoa Nghệ An, BV đa khoa Hà Tĩnh, BV đa khoa KonTum...

*Thời gian thu thập số liệu:* Từ tháng 7, 2013 tới tháng 8, 2013.

Vậy tôi viết đơn này kính mong Quý Bệnh viện tạo điều kiện giúp đỡ để tôi hoàn thành việc thu thập số liệu trong thời gian sớm nhất.

*Tôi xin trân trọng cảm ơn!*

*Tp Nam Định, ngày 15 tháng 7 năm 2013*

**Xác nhận của Ban giám hiệu**


**Người làm đơn**

**Trưởng Đại học Điều dưỡng Nam Định**



**HIỆU TRƯỞNG**  
*TS. Lê Xuân Dũng*

**CNDD. Vũ Văn Đầu**



APPENDIX M  
LIST OF RESEARCH ASSISTANTS

จุฬาลงกรณ์มหาวิทยาลัย  
**CHULALONGKORN UNIVERSITY**



## List of research assistants

No	Name	Work place	Education level	Working experience (Years)
1	Mr. Nguyen Cong Thuy	Bac Ninh General hospital	Bachelor	8
2	Mrs. Nguyen Thi Kim Anh	Bac Giang General hospital	Bachelor	10
3	Mr. Tran Van Pho	Lang Son General hospital	Bachelor	7
4	Mr. Dinh Trong Quang	Ninh Binh General hospital	Master	5
5	Mrs. Le Thi Tu	Ha Tinh General hospital	College	7
6	Mr. Nguyen Duc Duong	Nghe An General hospital	Master	10
7	Mr. Tran Van Tung	Khanh Hoa General hospital	Master	15
8	Mr. Hoang Long Quan	Kon Tum General hospital	Bachelor	12
9	Mrs. Nguyen Thi Ngoc Anh	Thong Nhat General hospital	College	7

## VITA

My name is Mr. Dau Vu Van. My birth is 29 July 1979. I was borned at Vietnam. My address is 7/237 Han Thuyen Street, Vi Xuyen ward, Namdinh city, Namdinh province, Vietnam. Education back ground was Bachelor degree of Nursing Science, Hanoi Medical University, Hanoi, Vietnam. I'm working Instructor, Nursing Fundamental Department, Nam Dinh University of Nursing, Nam Dinh, Vietnam. My email address is vuvandau1979@yahoo.com

