

## Perceived issues in nursing practice among nurses working at a neurosurgical care unit in Vietnam: A qualitative study

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### Abstract

**BACKGROUND:** Advanced medical care, especially care that focuses on the cranial nervous system, is increasing throughout Vietnam. Improvement of nursing quality is critical for proper functioning of advanced medical care, but there are several gaps between Vietnam's national goals and the implementation within nursing. **METHOD:** To address the gap between the national goals and the nursing implementation, we used a descriptive case study design to investigate perceived issues in nursing practice among nurses working at a leading neurosurgical care unit (NCU) in Vietnam in order to develop an effective in-service training program. **RESULTS:** Eighteen NCU staff nurses participated in the study. Major perceived issues were categorized as relating to knowledge, skills, or attitudes. Issues of knowledge comprised 13 subcategories including physical assessment, pathophysiology, and operating ventilators. Issues of skills comprised 20 subcategories including assessment, planning, patient care, education and communication with patients and families, and collaboration with colleagues. Issues of attitudes comprised six subcategories including passivity, ignoring procedures, lack of helpfulness and difficulty embracing the nursing profession. **CONCLUSION:** The main findings of this study indicated that skills, including assessment, planning, and implementation, were the most important topics of perceived issues for nurses. Area-specific weaknesses were presented by nurses. However, the present model of neurosurgical training is too general and neurosurgical area-specific training should be introduced based on nurses identified needs. Issues of nurses' attitude toward work were a result of their beliefs and values and influenced the quality and safety of patient care.

### Key words

neurosurgical care unit, perceived issues, nursing practice, Vietnam, in-service training

## 1. Introduction

### 1.1 Background

Neurosurgical care is an extremely important issue in Vietnam. Intracranial injuries and intracerebral hemorrhages are leading causes of death in the country due to traffic accidents particularly of motorcycles (Vietnam Ministry of Health 2013). Improvement of nursing care quality is vital for specialized medical care to function properly. Against this backdrop, Vietnam's Ministry of Health (VMOH) recommended that, "Nurses should be provided with continuous

training for updating knowledge, occupational skills and a minimum training period of 24 hours" (Vietnam Ministry of Health 2011a). Presumably the 24 hours of training is yearly although it was not specified in the report. However, the actual implementation of continuing nursing education is limited. The Japan International Cooperation Agency accepted a request from the Vietnam Government for technical cooperation. The author went to Vietnam as a project expert for improving the training of healthcare workers including nurses.

Neurosurgical care involves multidimensional tasks, such as accurate physical assessment, pre- and postoperative management, and rehabilitation toward continuing care at home. Although the existing competency standards for bachelor's prepared nurses consists of three domains that reflect the breadth of nursing practice: (1) professional, legal, and ethical responsibilities of professional practice; (2) provision and coordination of care and (3) leadership and management (Nguyen et al 2017, Vietnamese Nursing Association 2012) the competencies for neurosurgical care unit (NCU) staff nurses have not yet been established in Vietnam. In addition, the educational development of neurosurgical staff nurses in Vietnam has not been addressed previously and little is known about the challenges and barriers faced by nurses working in the NCU area.

Therefore to develop an effective in-service training program, the perceived issues in nursing practice must be clarified. Accordingly, this study was designed to describe those perceived issues among neurosurgical nurses working at an NCU in Vietnam.

## 1. 2 Types and educational backgrounds of Vietnamese nurses

In 2010, the total number of all health personnel was 344,876 and nurses numbered 81,248 (24% of all health personnel). Nurses can be educated in three types of institutions: (a) highest degree (6%) are university graduates (four years); (b) second degree (87%) are graduates from a secondary medical schools (two to three years) and junior colleges (three years) and (c) elementary (9%) are graduates of vocational training schools (one year) (Nguyen et al 2017, Vietnam Ministry of Health 2011b).

Regardless of the type of nursing education, in order to be clinical nurses, they must participate in the hospital-based nine-month training program as a nurse apprentice. When nurse apprentices conclude their on-the-job training they are eligible

to apply for a nurse registration to the prefecture VMOH or Office of Health Department (Inaoka 2015a). Thereafter, despite their educational background, nurses perform the same role in healthcare settings.

## 1. 3 Continuing education for nurses in Vietnam

Continuing education availability for nurses in Vietnam are found in junior colleges and universities, training courses from the visiting nurses association (VNA), Direction Office for Health Activity and in-service training. There is a current need to expand in-service training. VMOH indicated that hospitals have to provide training programs to the staff and conduct orientation training for newly recruited nurses (Vietnam Ministry of Health 2011a). Therefore in the nursing education system at each hospital, several training programs were implemented especially for nosocomial infection prevention measures and performing safe injections (Bureau of International Medical Cooperation, Japan National Center for Global Health and Medicine 2012). Recently, Vietnam has reported an outbreak of highly pathogenic H5N1 bird influenza in a northern province. (Reuter 2017). Thus the content of the training programs reflected some current public health issues such as bird influenza. However, the topics for in-service education for nurses per se have not yet been established and the quality of training is limited. Planning for training and use of the health workforce has faced huge implementation difficulties (Vietnam Ministry of Health 2010). Therefore, training for neurosurgical nurses must be parsimonious. It needs to be informed by the actual conditions within which neurosurgical nurses work and should address the specific educational gaps effecting clinical performance as perceived by neurosurgical nurses.

## 2. Methods

### 2. 1 Design

Because little is known about NCU staff nurses' perceptions of issues in nursing practice in

Vietnam, this study used Yin's (2009) exploratory qualitative descriptive case-study method, which provides a complete description of a phenomenon within its context.

## 2. 2 Context, participants, and recruitment

A top referral hospital in the south of Vietnam consented to be the site of the study.

Of the 50 nurses employed eighteen staff nurses who did not have specific positions such as team leader, clinical educator and manager in the NCU were purposely recruited. The head of nursing of the department selected staff nurses who worked in the research field and introduced them to the researchers.

## 2. 3 Ethical Considerations

Participants were informed of the study's aim and methods, and were assured that participation was voluntary and their privacy would be protected. Written informed consent was obtained from all participants, and permission to conduct the study was obtained from the hospital. The Research Ethics Committee of the hospital and St. Luke's International University provided ethical approval. St. Luke's International University approved the study design.

## 2. 4 Data Collection

The data were collected using open-ended, semi-structured interviews conducted with 18 NCU staff nurses during July 2013. The questions were organized in three parts. The first part contained four questions about the respondents' backgrounds and was used in conjunction with seven questions from a basic participant information form. The second part had five questions about daily job duties and topics related to neurosurgical intensive care. The questions in this part focused on recognition of disease onset, progression, and management. The final part had three questions that focused on respondents' perceived issues providing neurosurgical nursing care. The questions in this part focused on identification of participants' difficulties of providing neurosurgical intensive care, basic nursing care, and related

issues. One Japanese researcher having a nursing background conducted the interviews in English. Then, a Vietnamese with a medical background, interpreted, the questions for the participants during the interview. Interviews were audio-recorded with participants' consent. Each interview lasted approximately 90 min. Participants were interviewed privately in a separate room to encourage free expression of their opinions. Interview responses were translated from Vietnamese to English by a Vietnamese interpreter for analysis in English by Japanese researcher bilingual in the English and Japanese languages.

## 2. 5 Data analysis

According to the approach described by Yin (2009), data were analyzed to "stipulate a presumed set of causal links, that is, how or why something happened". First, participant characteristics, the NCU profile, and in-service training in the NCU were described. Second, interviews were transcribed and the interviewer checked the accuracy of the content of transcriptions with using field notes, which described participants' statements as a supplementary source. Third, transcripts were reviewed and the transcription data were coded by asking: "What are the issues of their nursing practice" and sorting the issues into meaningful chunks that formed subcategories. Finally, categories were created based on the connections between the subcategories. Relations among the all the subcategories and categories were examined. To increase data trustworthiness the local bilingual research collaborator confirmed the names of the subcategories and categories.

## 3. Results

### 3. 1 Participant characteristics

Eighteen nurses (17 women, 1 man) participated in this study. The mean age was 27 years (standard deviation = 4 years). The mean length of experience in the NCU was 4 years (standard deviation = 2 years). All 18 participants were staff nurses; 14 (78%) had graduated from secondary

nursing school (a two-year diploma course), and 4 (22%) had graduated from a bachelor's course.

### 3. 2 NCU Profile

Neurosurgical care has three phases: pre-operation, post-operation and rehabilitation. The main conditions treated in the NCU were severe head trauma and neurosurgical diseases. There were 36 beds, with an occupancy rate of over 100% because the ward used many additional gurneys for patients. The number of patient hospitalizations per month was about 340, and the average length of hospital stay was four days in 2011 and three days in 2012. The NCU had 69 staff members, including 12 doctors and 50 nurses. One vice head of the department supervised 10 staff doctors, and one chief nurse supervised two assistant chief nurses. There were four teams containing a total of 47 staff nurses, five housekeepers, one information technology specialist, and one computer specialist. There was one nurse with a master's degree, nine with bachelor's degrees, and 40 with secondary nursing degrees. The mean length of nursing experience was seven years. The NCU used the three-shifts system. Nurses were required to use standard nursing procedures.

### 3. 3 In-service training in the NCU

In-service training in the NCU included training for new nurses and staff nurses, which was provided by the chief nurse in the NCU, the clinical trainer, and the other bachelor's-prepared nurses. Within three months, new nurses learned five basic clinical skills (Figure 1). For staff nurses, 12 lectures per year were provided. The lecture topics were selected based on clinical procedure (Figure 2) and the learning needs.

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| <ol style="list-style-type: none"><li>1. How to take care of the patients during the pre- and post-operative periods</li><li>2. How to perform CPR</li><li>3. How to understand and use the machines in the NCU</li><li>4. How to use the Glasgow Coma Scale</li><li>5. Basic nursing skills</li></ol> |
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Figure 1. Training contents for new nurses

### 3. 4 NCU staff nurses' perceptions of issues in nursing practice

The following three categories of issues in nursing practice, as perceived by the participants, were identified: (1) knowledge; (2) skills; and (3) attitudes.

#### 3. 4. 1 Issues of knowledge

Issues of knowledge related to 14 participants' concerns about their lack of knowledge of patient care. This category included 13 subcategories: (1) lack of pathophysiology knowledge; (2) lack of medication knowledge; (3) lack of knowledge of disease progression and prognosis; (4) poor understanding of the meaning of vital signs; (5) not understanding the meaning of laboratory data; (6) not understanding the meaning of diagnostic tests; (7) not understanding the meaning of ventilator alarms; (8) uncertainty about how to respond to ventilator alarms; (9) lack of knowledge of the ventilator mechanism; (10) uncertainty about how to set the ventilator; (11) lack of knowledge about patient nutrition; (12) uncertainty about how to use specific medical machines; and (13) uncertainty about how to use specific medical equipment.

The following are comments from ten participants:

**Lack of pathophysiology knowledge.** "I want to study the pathophysiology of neurosurgical problems. If I have good knowledge of pathophysiology, [and if] I understand what [I should] do for the patient, I will collaborate well with the doctor and other members of the team." (Nurse 10)

**Lack of medication knowledge.** "I don't understand what effects medications have on the

1. Anatomy and physiology of nervous system
2. How to prepare the tests for patients before procedures in NCU
3. How to bandage with the head wound and opened skull fractures or head surgical wound
4. Airway management and ventilation in NCU patients
5. Nursing care for head trauma patients in emergency department
6. Nursing care for post-operation patients with head operation
7. Technique of nasal gastric tube
8. Mouth care
9. Oxygen therapy
10. Suction technique
11. Nursing care for patients with tracheotomy
12. Urinary catheter
13. Intravenous technique (IV Line)
14. Blood transfusion technique
15. Assistant for Central Venous Catheterization procedure
16. CPR
17. Rehabilitation for patients in NCU
18. Nutrition in NCU
19. How to set up ventilator : ACOMA ARF-900E II
20. How to use the electric pump (Electric sariyne : ES)
21. How to monitor the Pulse oximeter
22. How to use the monitors

Figure 2. Contents of clinical procedure for staff nurses

patient." (Nurse 9)

**Poor understanding of the meaning of vital signs.**

"I can check the vital signs but I don't know how to understand [the meaning of vital signs] clearly." (Nurse 12)

**Not understanding the meaning of diagnostic tests.**

"I want to understand [whether] the CT scan result is normal or abnormal because some patients need an operation. If I can see the [result of] a CT scan and understand that the patient needs an operation, I will work very quickly to prepare everything for the operation." (Nurse 11)

**Not understanding the meaning of ventilator alarms.** "When the ventilator alarm [sounds], I don't know the meaning [of the ventilator alarm] or how to deal with it." (Nurse 15)

**Uncertainty about how to respond to ventilator alarms.** "I want to learn about what should I do

when the ventilator alarm is triggered." (Nurse 3)

**Uncertainty about how to set the ventilator.** "I want to know how to set up the ventilator." (Nurse 18)

**Uncertainty about how to use specific medical machines.** "The new types [of machines] are difficult for us to understand all of the new ventilators and monitors here." (Nurse 7) "I want to learn about electroencephalogram (EEG), [for example] how to measure EEG and how to analyze EEG. I want to know when we will [should] diagnose when the patient died. I want to know when we have the correct diagnosis that the patient has died because at that time the hospital may have talked to the relatives, [and] the family [about] allowing organ donation, [because] we need some organ donors." (Nurse 11)



**Uncertainty about how to use specific medical equipment.** "I have to learn... some new techniques which are for intracranial pressure (ICP), CVB, arterial line." (Nurse 9)

#### 3. 4. 2 Issues of skills

Issues of skills were related to 15 participants' concerns about their patient care skills. This category comprised 20 subcategories: (1) uncertainty recognizing the patient's condition; (2) insufficient skills to assess the patient's condition; (3) incorrect analysis of laboratory data; (4) incorrect analysis of diagnostic tests; (5) insufficient skills to assess the ventilator alarm; (6) making inappropriate nursing care plans; (7) insufficient resuscitation skills; (8) providing unsuitable care for serious cases; (9) uncertainty responding to the ventilator alarm; (10) unsafe drainage management; (11) insufficient wound care skills; (12) improper bedsores management; (13) insufficient mouth care skills; (14) poor rehabilitation skills; (15) providing unclear discharge guidance; (16) difficulty conveying accurate information to patients and families; (17) unclear explanation of the patient's condition; (18) providing ineffective assistance to doctors; (19) impolite communication with colleagues; (20) lack of conciseness when reporting important information to staff.

Eleven participants noted:

**Uncertainty recognizing the patient's condition.** "I want to understand the change [in Glasgow Coma Scale score] exactly. If it increases or decreases, it is very important." (Nurse 12)

**Insufficient skills to assess the patient's condition.** "In nursing school, I learned assessment but sometimes I don't know how to assess [the condition of] real patients correctly." (Nurse 3)

"I don't know how to detect any patient's risk of severe deterioration." (Nurse 8)

**Incorrect analysis of diagnostic tests.** "I want to know any information on the X-ray or CT scan. For example hematoma, if that hematoma is a big threat to the patient which is very urgent, so I has

to tell to the doctor very quickly." (Nurse 1)

**Insufficient skills to assess the ventilator alarm.** "I want to study more about ventilation. When the ventilator has an alarm, I will understand what to do for the patient before asking the doctor because the patient has to wait for the doctor. So I want to do that directly for the patient." (Nurse 10)

**Insufficient resuscitation skills.** "I want to learn how to do tracheal intubation because sometimes doctors are too busy or maybe busy with other patients. So if the nurse can do tracheal intubation based on the country policy, it is much less suffering for the patient." (Nurse 2)

**Providing unsuitable care for serious cases.** "I want to learn how to take care of patients on a ventilator." (Nurse 3)

**Unsafe drainage management.** "Some drains need to be placed for up to seven days, but I removed them after only three or four days when I change the patient's position and gauze because some patients are very heavy." (Nurse 10)

**Providing unclear discharge guidance.** "I have to tell the family what to do for the patient at home but sometimes it is very difficult because the family doesn't understand very well." (Nurse 15)

**Unclear explanation of the patient's condition.** "The families always ask the nurse [about the patient's condition], but sometimes I cannot answer all [of their] questions because I don't know very well how to explain the patient's condition to the family." (Nurse 15)

**Lack of conciseness when reporting important information to staff.** "I [have] difficulty in speaking [about patient's] problem [clearly to others] because ...some about the real condition, normally I use a lot of words." (Nurse 7)

#### 3. 4. 3 Issues of attitudes

Issues of attitudes were related to eight participants' concerns about their attitudes toward patient care. This category included six subcategories: (1) passive attitude toward work; (2) ignoring procedures, policies, and NCU nursing standards; (3) difficulty accepting death

of patients; (4) failure to follow the advice of experienced nurses; (5) lack of helpfulness to other staff nurses; and (6) challenge embracing the nursing profession.

Four participants stated:

**Passive attitude toward work.** "Some nurse work very hard, but other nurses just do the bare minimum and simply follow the doctor's instructions. They don't want to do their best for patients." (Nurse 2)

**Ignoring procedures, policies, and NCU nursing standards.** "A nurse has to take care of the patient [following nursing procedures]. [For example,] one procedure has five steps but if nurses have a good attitude, they will do it step by step and complete all five steps. But, if nurses have a not [good] attitude, they may do only three steps. Because the patients [who are] in a coma don't understand." (Nurse 11)

**Passive support of experienced secondary nurses to new bachelor's degree nurses.** "There is a lack of support by the secondary nurse; the certificate is lower than the bachelor but they have a lot of experience. Yet, they are thinking that the bachelor's educated nurse is higher than they are. They cannot teach the bachelor nurse or they cannot help because they have the higher level [of education] but in fact the bachelor nurses have no experience. They need to learn from the secondary nurses who have experience." (Nurse 8)

**Challenge embracing the nursing profession.** "Here, [there are] the severe [critically ill] patients and most patients need ventilators or tracheotomies so that the nurse will have to know how to take care of the patient with a ventilator or a tracheotomy and also they need... We don't understand what we are doing for them. We have to love our profession." (Nurse 11)

### 3. 4. 4 The interrelationships of three issues

To summarize the findings a schematic indicating the interrelationships of these three categories: (1) issues of knowledge, (2) issues of skills and (3) issues of attitudes are depicted

as three two-way arrows that link: knowledge and skills, skills and attitudes, attitudes and knowledge. Seven perceived issues of knowledge in a square referred directly to assessment skills and included: pathophysiology, medication, disease progression and prognosis, the meaning of vital signs, laboratory data, diagnostic tests, and ventilator alarms.

In issues of skills, there was a strong interface among assessment and planning, implementation as parts of nursing process. Attitudes towards multi-targets also have relation, especially, two subcategories: Passive attitude toward work, and ignoring procedures, policies, and NCU nursing standards, which directly affect quality of implementation, building skill and knowledge. Another three perceived issues of knowledge in a square were specifically about nurses' uncertainty responding to the ventilator alarm and included how to respond to ventilator alarms, the ventilator mechanism, and how to set the ventilator (Figure 3).

## 4. Discussion

### 4. 1 Issues of regulation and in-service training in the NCU

The first finding of this study about continuing neurosurgical nursing education was that there was no recommended neurosurgical training program by VMOH, even though there were training activities and programs in the hospitals. Top referral hospitals in Vietnam, such as this study field hospital, assume the responsibility of technical guidance for the lower level hospitals in each region in Vietnam (Japan International Cooperation Agency 2012). That means that the institutional continuing neurosurgical nursing education program for this research field was a model neurosurgical training program. Neurosurgical nursing is a multidimensional specialty area. Therefore, medical institutions in other countries have constructed systematic and professional educational programs (Dunnun and

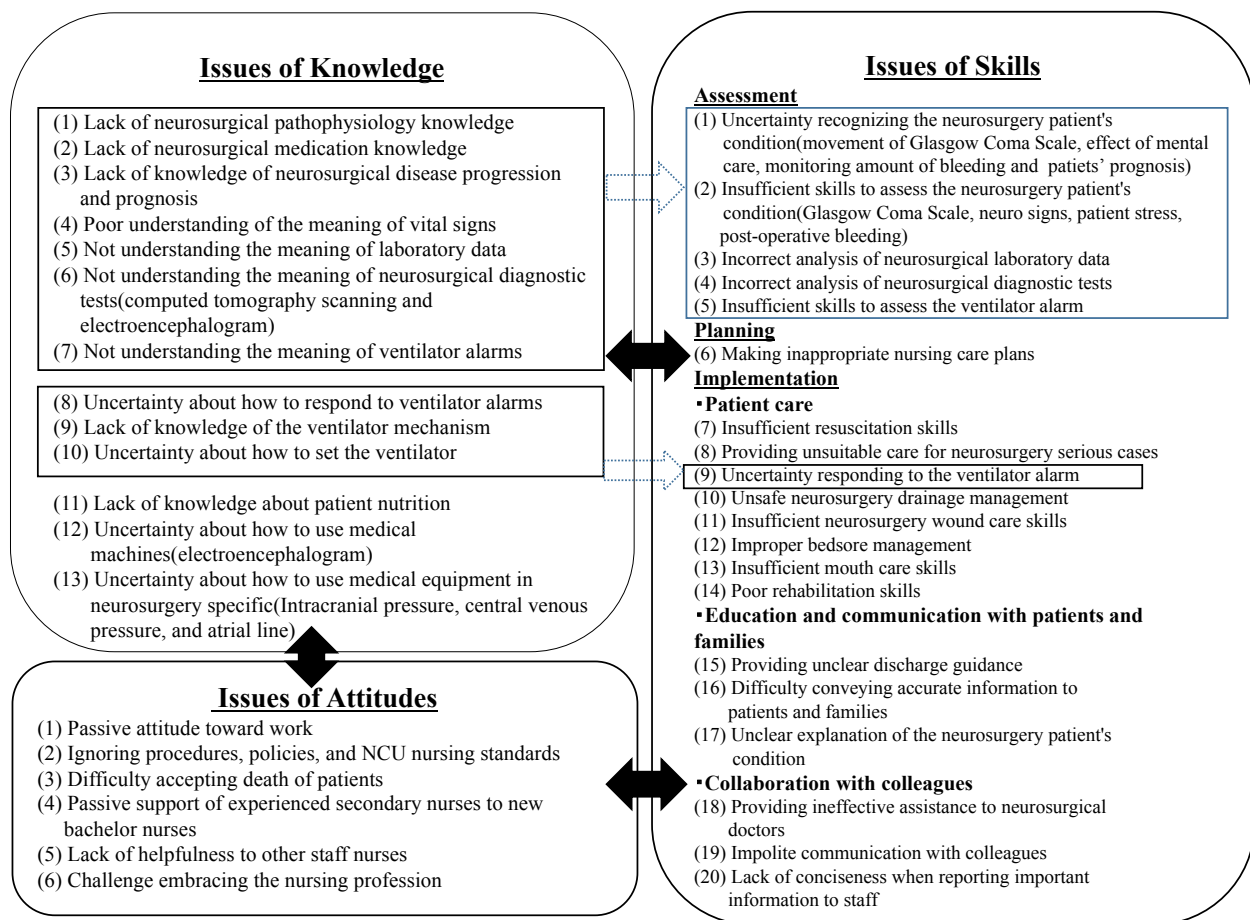


Figure 3. Perceived issues in nursing practice by NCU staff nurses

Respass 1990, Nursing Department in National Cerebral and Cardiovascular Center 2011, Robins et al 1995). However, the main contents of the model neurosurgical training program are not neurosurgical specific, instead they focused on general intensive care. Moreover, nurses stated they still had a number of issues in nursing practice, even though they had already learned the content during in-service training. That is to say, the training programs have great potential based on nurses' reflection of their weakness in practice (Jat et al 2004).

#### 4. 2 Issues of knowledge and skills

The second finding of this investigation showed the gaps between provided training contents and perceived nurses' practice related weaknesses. In developing countries, the inappropriate decision-making by the care providers was related to

'potentially preventable trauma death' (Jat et al 2004). In other words, nurses must become expert at problem recognition and emergency actions in neurologically damaged patients. However, in actual practice among nurses, the perceived issues were of knowledge (neurosurgical pathophysiology, medication, disease progression, prognosis, laboratory data, diagnostic tests and the meaning of ventilator alarms) and were related to assessment, planning and implementation skills (care for serious cases, and responding to the ventilator alarm) of patients' condition. Those identified weaknesses led nurses to make inappropriate decisions. The nurses' responses indicated that despite having learned essential competencies for nursing practice during their education, they had difficulty integrating their knowledge in the clinical field. That data substantiated the earlier findings of Inaoka (2015b).



Participants' lack of competencies made it difficult to perform patient assessments and establish and implement nursing care plans. The participants also perceived practical issues as important to their future development. According to Alfaro-LeFevre (2010), "Accurate diagnosis depends on accurate and complete assessment". The results of this study suggest that inappropriate collection of patient data leads to uncertainty for nurses in the data analysis and diagnosis phase. Alfaro-LeFevre (2010) also noted the cyclical nature of the nursing process that begins and ends with assessment with evaluation as a critical step. Improvement of both diagnosis and evaluation will help provide a clear focus for care planning and appropriate modification for successful implementation. The nurses in this study primarily identified problems with the nursing process, which should inform key components of educational interventions.

Participants also identified as barriers: cross-sectional skills, including education, communication, and reporting. According to Nadzam (2009), "effective communication between nurses and other caregivers is critical to patient safety.". Communication in the healthcare settings commonly consists of the necessity of handing-off patient care among and between nurses and physicians. Participants in this study indicated that they wanted to minimize needless communication while conveying essential clinical data to clinicians. The ability to give succinct reports and reduce unnecessary information requires that nurses have a strong clinical grasp. Strengthening communication and reporting skills should help improve safety and patient outcomes.

"Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (Harris-Wehling 1990). Improving quality of care and patient safety are therefore critical if we want to accelerate reductions (WHO 2017) in originated neurosurgical disease mortality. In 2013 VMOH

urged all national hospitals to increase activities of quality of care and patient safety (Inaoka 2016, Murai 2015). Synchronized topics between Vietnamese quality indicators and perceived nursing issues were resuscitation and nosocomial infectious control. Provider-related factors of preventable trauma death included inappropriate resuscitation and delayed neurosurgical evaluation. (Jat et al 2004). Therefore it is a critical and pressing matter to strengthen nurses' ability to manage emergency care.

In addition to including specific nursing care topics in continuing nursing education in the clinical setting, it is vital for nurses to simultaneously develop nursing process and outcome-focused thinking skills. The nursing process is a tool for systematic consideration of neurosurgical-specific care, and cannot be used without critical thinking with reflection as an important component of that process. According to Bulman and Schutz (2009), "Self-awareness underpins the entire process of reflection. It is also important, although obvious, to state that self-awareness is essential, not only for reflective learning, but also for skilled professional nursing practice". The nurses' narrative responses provided an understanding of their difficulties in neurosurgical care, and thus impacted the medical facility's future education plans.

#### 4. 3 Issues of attitudes

Attitude is constructed by beliefs and values (CIOS 2015). Nurses' attitudes refer to factors that influenced the quality and outcomes of safe care in the clinical field (Price 2015). Issues of attitude were derived from their passive and negative attitudes. Specifically, factors were passive attitudes toward work, ignoring procedures, policies, and NCU nursing standards to their job, and these were also factors that influenced the quality and care outcomes in the clinical field. Participants indicated they were having difficulty 'caring for their patients in a way that supported healing and health' (Smith 2004). As Toode et al

(2011) indicated, caring is not constricted to be just 'being nice' or polite or doing one's duty. From participant's statements, we determined that nurses were still looking for their professional beliefs and values.

This was the first study to describe neurosurgical nurses' perceptions of their practical barriers. There are some obvious limitations of the study, which include having interviews through a translator and without back translation; using only one hospital; and there were no member checks regarding the interpretation of results. Those limitations may have introduced some bias. A future study could replicate this study to limit the bias. To build on this study, a quantitative study, with a large sample size, that surveys doctors, nurses, families and patients in regards to care is required.

## 5. Conclusion

The main findings of this study indicated that clinical skills, including assessment, planning, and implementation, were the most important topics perceived by the neurosurgical nurses. Nurses identified their areas of specific weaknesses. However, the present training model for neurosurgical nursing did not focus on their neurosurgical area-specific needs and should be changed to reflect nurses concerns about improving their clinical competences. Moreover, participants also reported the barriers to cross-sectional skills, including education, communication, and reporting. Issues of their attitude toward work which were constructed by belief and values may have influenced quality and safety care. From the point of view of Vietnamese quality of care and patient safety, strengthening neurosurgical specific resuscitation was regarded as very important.

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